Race to the Top
Application for Initial Funding
CFDA Number: 84.412

Ohio

Early Learning Challenge

Appendix Attachments

submitted by:

John R. Kasich
Governor

Stan W. Heffner
Superintendent of Public Instruction

submission date: October 19, 2011

SECTION XVII. APPENDIX TABLE OF CONTENTS

US DEPARTMENT OF EDUCATION - APPLICATION INSTRUCTIONS

RACE TO THE TOP-EARLY LEARNING CHALLENGE APPLICATION

Format compliance statement: Ohio's response is provided in a single narrative. Instructions from the US Government for this section are cut/pasted from the Government document and inserted here, ahead of Ohio's response.

Section XVII. Appendix Table of Contents

The Appendix must include a complete Table of Contents, which includes the page number or attachment number, attachment title, and relevant selection criterion. A sample table of contents form is included below. Each attachment in the Appendix must be described in the narrative text of the relevant selection criterion, with a rationale for how its inclusion supports the narrative and the location of the attachment in the Appendix.

APPENDIX TABLE OF CONTENTS IS FOUND ON THE FOLLOWING PAGE.

XVII

Appendix Table of Contents

Attachment A:
Successful State Systems

A1
Executive Order

Rationale: Executive Order establishing a single point of accountability, the Early Education and Development Officer, within the Governor's Office of 21st Century Education

Referenced in:

VI(A)(3)

JOHN R. KASICH
GOVERNOR
STATE OF OHIO

Executive Order 2011-21K

Creating Authority and Accountability for Early Childhood Education and Development

WHEREAS, on basic measures of early literacy, nearly sixty percent (60%) of all Ohio children and nearly seventy-five percent (75%) of disadvantaged children entering school in Ohio need some degree of additional instruction to be ready for kindergarten.

WHEREAS, on the 2009 National Assessment of Educational Progress, just twenty-two percent (22%) of economically disadvantaged Ohio fourth graders were proficient in mathematics, and only fifteen percent (15%) were proficient in reading.

WHEREAS, the vast majority of these disadvantaged kids will struggle throughout their academic life and many will not graduate from high school.

WHEREAS, extensive research confirms that a high-quality early education experience is a fundamental component of an educational continuum that ensures that children, especially high-needs children, have the necessary foundation to succeed in the K-12 system, postsecondary education and in life.

WHEREAS, the state's current approach to early childhood education is fragmented, lacks cohesive leadership, and is not sufficiently accountable.

WHEREAS, my Administration understands that Ohio's economic vitality and future prosperity is dependent on a skilled and educated workforce ready to meet the needs of the 21st Century.

WHEREAS, my Administration is committed to aligning and coordinating efforts across the continuum, from birth to graduation, through the Governor's Office of 21st Century Education.

NOW THEREFORE, I, John R. Kasich, Governor of the State of Ohio, by virtue of the authority vested in me by the Constitution and the laws of this State, do hereby order and direct that:

1. The position of Early Education and Development Officer ("Officer") is hereby created within the Governor's Office of 21st Century Education. The Officer's work within that Office will elevate the importance of the education of young children in the state and seek to improve kindergarten readiness results in Ohio. The Officer will

be accountable to oversee and implement the policies set forth in this Executive Order.

2. The Officer, through the resources of the Governor's Office of 21st Century Education, shall work through, and in conjunction with, current state agencies to:

    a. **Define and measure kindergarten readiness**, as well as develop and implement a comprehensive kindergarten readiness assessment process that determines the extent to which children entering school are ready for kindergarten. This assessment process will include academic, social and emotional, and physical health measures of readiness. Assessment results will be reported publicly and will be used as the basis for early childhood system improvements.

    b. **Break down silos** that exist between agencies and programs to ensure that all government support to high-need children is coordinated, streamlined and effective.

    c. **Improve system performance** by:

        i. Including outcome and performance measures within the statewide quality rating and improvement system;
        ii. Ensuring that all publicly funded, licensed early learning and development providers are part of the quality rating system;
        iii. Evaluating and implementing innovative financing strategies that support high quality services for Ohio's young children; and
        iv. Engaging parents as resources in the development of state policies and programs

3. All Cabinet Agencies, Boards and Commissions shall comply with any requests or directives issued by the Officer and/or the Governor's Office of 21st Century Education as they relate to implementing the policies described in this Executive Order, subject to the supervision of their respective agency directors. This requirement extends, but is not limited to, the cabinet directors and employees of the following agencies and departments:

    a. Ohio Department of Education
    b. Ohio Department of Job and Family Services
    c. Ohio Department of Developmental Disabilities
    d. Ohio Department of Mental Health
    e. Ohio Department of Health
    f. Office of Health Transformation
    g. Office of Budget and Management

4. The Early Education and Development Innovation Committee ("Committee") is hereby established. The Committee will advise me, the Officer and my Office of 21st

Century Education on (i) methods to mobilize business partnerships at the local level to achieve community and statewide kindergarten readiness goals; (ii) opportunities to bring private-sector tools and resources to early education and development; and (iii) methods and opportunities to disseminate information to the legislature and leaders in local communities on the status of school readiness in Ohio. The Committee shall consist of five (5) members appointed by me: two (2) leaders from the business community, one (1) leader from the philanthropic community, one (1) leader from the research community, and one (1) leader from a children's health care organization.

I signed this Executive Order on October 14, 2011 in Columbus, Ohio, and it will not expire unless it is rescinded.

John R. Kasich, Governor

ATTEST:

Jon Husted, Secretary of State

A2
Memorandum of Understanding (MOU)

Rationale: Eligibility Requirement for Section V(A)

Referenced in:

V(A)

MEMORANDUM OF UNDERSTANDING
BETWEEN
OHIO DEPARTMENT OF EDUCATION AND
RACE TO THE TOP - EARLY LEARNING CHALLENGE
PARTICIPATING STATE AGENCIES

This Memorandum of Understanding ("MOU") is entered into by and between the Ohio Department of Education ("Lead Agency") and Office of Budget and Management, Department of Job and Family Services, Department of Health, Department of Mental Health, Department of Developmental Disabilities, Governor's Office of 21st Century Education, Governor's Office of Health Transformation, Head Start State Collaboration Office, Early Childhood Advisory Committee ("Participating State Agencies"). The purpose of this agreement is to establish a framework of collaboration, as well as articulate specific roles and responsibilities in support of the State in its implementation of an approved Race to the Top-Early Learning Challenge grant project.

I. ASSURANCES

The Participating State Agency hereby certifies and represents that it:

1) Agrees to be a Participating State Agency and will implement those portions of the State Plan indicated in Scopes of Work (Exhibits I – X), if the State application is funded;

2) Agrees to use, to the extent applicable and consistent with the State Plan and Exhibits I - X:
   (a) A set of statewide Early Learning and Development Standards;
   (b) A set of statewide Program Standards;
   (c) A statewide Tiered Quality Rating and Improvement System; and
   (d) A statewide Workforce Knowledge and Competency Framework and progression of credentials.

3) Has all requisite power and authority to execute and fulfill the terms of this MOU;

4) Is familiar with the State's Race to the Top-Early Learning Challenge grant application and is supportive of and committed to working on all applicable portions of the State Plan;

5) Will provide a Final Scope of Work only if the State's application is funded and will do so in a timely fashion but no later than 90 days after a grant is awarded; and will describe the Participating State Agency's specific goals, activities, timelines, budgets, and key personnel ("Participating State Agency Plan") in a manner that is consistent with the Preliminary Scopes of Work (Exhibits I – X), with the Budget included in section VIII of the State Plan (including existing funds, if any, that the Participating State Agency is using for activities and services that help achieve the outcomes of the State Plan; and

6) Will comply with all of the terms of the Race to the Top-Early Learning Challenge Grant, this agreement, and all applicable Federal and State laws and regulations, including laws and regulations applicable to the Race to the Top-Early Learning Challenge program, and the applicable provisions of EDGAR (34 CFR Parts 75, 77, 79, 80, 82, 84, 85, 86, 97, 98 and 99).

II. PROJECT ADMINISTRATION

A. PARTICIPATING STATE AGENCY RESPONSIBILITIES

In assisting the Lead Agency in implementing the tasks and activities described in the State's Race to the Top-Early Learning Challenge grant application, the Participating State Agency will:

1) Implement the Participating State Agency Scope of Work as identified in the Exhibits I – X, of this agreement;

2) Abide by the governance structure outlined in the State Plan;

3) Abide by the Participating State Agency's Budget included in section VIII of the State Plan (including the existing funds from Federal, State, private and local sources, if any, that the Participating State Agency is using to achieve the outcomes in the RTT-ELC State Plan);

4) Actively participate in all relevant meetings or other events that are organized or sponsored by the State, by the U.S. Department of Education ("ED"), or by the U.S. Department of Health and Human Services ("HHS");

5) Post to any Web site specified by the State, ED, or HHS, in a timely manner, all non-proprietary products and lessons learned developed using Federal funds awarded under the RTT-ELC grant;

6) Participate, as requested, in any evaluations of this grant conducted by the State, ED, or HHS;

7) Be responsive to State, ED, or HHS requests for project information including on the status of the project, project implementation, outcomes, and any problems anticipated or encountered, consistent with applicable local, State and Federal privacy laws.

B. LEAD AGENCY RESPONSIBILITIES

In assisting the Participating State Agencies in implementing their tasks and activities described in the State's Race to the Top-Early Learning Challenge application, the Lead Agency will:

1) Work collaboratively with, and support the Participating State Agency in carrying out the Participating State Agency Scopes of Work, as identified in Exhibits I -X of this agreement;

2) Timely award the portion of Race to the Top-Early Learning Challenge grant funds designated for the Participating State Agency in the State Plan during the course of the project period and in accordance with the Participating State Agency's Scopes of Work, as identified in Exhibits I - X, and in accordance with the Participating State Agency's Budget, as identified in section VIII of the State's application;

3) Provide feedback on the Participating State Agency's status updates, any interim reports, and project plans and products;

4) Keep the Participating State Agency informed of the status of the State's Race to the Top-Early Learning Challenge grant project and seek input from the Participating State Agency, where applicable, through the governance structure outlined in the State Plan;

5) Facilitate coordination across Participating State Agencies necessary to implement the State Plan; and

6) Identify sources of technical assistance for the project.

C. JOINT RESPONSIBILITIES

1) The Lead Agency and the Participating State Agency will each appoint a key contact person for the Race to the Top-Early Learning Challenge grant.

2) These key contacts from the Lead Agency and the Participating State Agency will maintain frequent communication to facilitate cooperation under this MOU, consistent with the State Plan and governance structure.

3) Lead Agency and Participating State Agency personnel will work together to determine appropriate timelines for project updates and status reports throughout the grant period.

5) Lead Agency and Participating State Agency personnel will negotiate in good faith toward achieving the overall goals of the State's Race to the Top-Early Learning Challenge grant, including when the State Plan requires modifications that affect the Participating State Agency, or when the Participating State Agency's Scope of Work requires modifications.

6) Lead Agency and Participating Agency will provide relevant expertise to the Governor's Office of 21st Century Education.

7) Lead Agency and Participating Agency will engage parents and families through agency specific advisory groups.

D. STATE RECOURSE IN THE EVENT OF PARTICIPATING STATE AGENCY'S FAILURE

If the Lead Agency determines that the Participating State Agency is not meeting its goals, timelines, budget, or annual targets, or is in some other way not fulfilling applicable requirements, the Lead Agency will take appropriate enforcement action, which could include initiating a collaborative process by which to attempt to resolve the disagreements between the Lead Agency and the Participating State Agency, or initiating such enforcement measures as are available to the Lead Agency, under applicable State or Federal law.

III. MODIFICATIONS

This Memorandum of Understanding may be amended only by written agreement signed by each of the parties involved, in consultation with ED.

IV. DURATION

This Memorandum of Understanding shall be effective, beginning with the date of the last signature hereon and, if a Race to the Top- Early Learning Challenge grant is received by the State, ending upon the expiration of the Race to the Top- Early Learning Challenge grant project period.

V. SIGNATURES

Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent Signature of Lead Agency Authorized Representative:	Agency Name: Ohio Department of Education Date: 10-11-11
Participating Authorized Representative (Printed Name): Timothy S. Keen, Director Signature of Participating Agency Authorized Representative:	Agency Name: Office of Budget and Management Date: 10-17-11
Participating State Agency Authorized Representative (Printed Name): Michael B. Colbert, Director Signature of Participating State Agency Authorized Representative:	Agency Name: Ohio Department of Job and Family Services Date: 10/14/11
Participating State Agency Authorized Representative (Printed Name): Theodore E. Wymyslo, M.D., Director Signature of Participating State Agency Authorized Representative:	Agency Name: Ohio Department of Health Date: 10/14/11
Participating State Agency Authorized Representative (Printed Name): Tracy J. Plouck, Director Signature of Participating State Agency Authorized Representative:	Agency Name: Ohio Department of Mental Health Date: 10/14/11
Participating State Agency Authorized Representative (Printed Name): John L. Martin, Director Signature of Participating State Agency Authorized Representative:	Agency Name: Ohio Department of Developmental Disabilities Date: 10/14/11

V. SIGNATURES

Participating State Agency Authorized Representative (Printed Name): Robert Sommers, Director Signature of Participating State Agency Authorized Representative:	Agency Name: Governor's Office of 21st Century Education Date:
Participating State Agency Authorized Representative (Printed Name): Greg Moody, Director Signature of Participating State Agency Authorized Representative:	Agency Name: Governor's Office of Health Transformation Date: 10/14/11
Participating State Agency Authorized Representative (Printed Name): James A. Scott, Director Signature of Participating State Agency Authorized Representative: James A. Scott	Agency Name: Head Start State Collaboration Office Date: 10/13/11
Participating State Agency Authorized Representative (Printed Name): Marcia Egbert, Chairperson Signature of Participating State Agency Authorized Representative: Marcia Egbert	Agency Name: Early Childhood Advisory Committee Date: 10.13.11

EXHIBIT I – PARTICIPATING STATE AGENCY SCOPE OF WORK

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Party	Type of Participation
Example Row— *shows an example of criterion (B)(1) for the State agency that oversees state-funded preschool, IDEA, and Head Start Collab Office*	• *State-funded preschool* • *IDEA preschool special ed* • *Head Start Collab Office*	*Representatives from each program are sitting on the state committee to define statewide QRIS program standards*
	• *Head Start Collab Office*	*Responsible for cross-walking Head Start performance standards with the new Program Standards*
(B)(1)		
(B)(2)		
(B)(3)		
(B)(4)		
(B)(5)		
(C)(1)		
(C)(2)		
(C)(3)		
(C)(4)		
(D)(1)		
(D)(2)		
(E)(1)		
(E)(2)		

Signature *(Authorized Representative of Lead Agency)* Date

Signature *(Authorized Representative of Participating State Agency)* Date

****Per the transcript of 9/13/11 from the RTT-ELC Technical Assistance Workshop, the State of Ohio elected to provide one MOU for each agency. Therefore, our Scopes of Work are incorporated within Exhibits II-X for each Participating State Agency.****

EXHIBIT II – PARTICIPATING STATE AGENCY SCOPE OF WORK

OFFICE OF BUDGET AND MANAGEMENT

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Agency	Type of Participation
(A)(3)	Office of Budget and Management	• Participate in Project Teams on Assessment and Standards; Professional Development; Access Quality and Financing; and Family Support and Parent Engagement.
(E)(2)	Office of Budget and Management	• Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.

EXHIBIT II - SIGNATURES

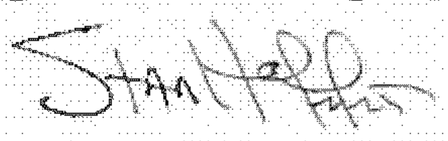
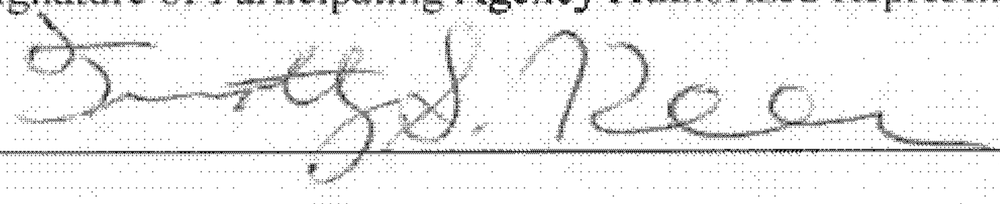
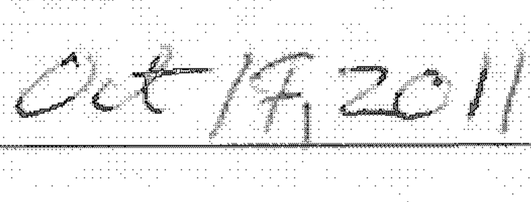
Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent Signature of Lead Agency Authorized Representative: 	Agency Name: Ohio Department of Education Date: October 14, 2011
Participating Authorized Representative (Printed Name): Timothy S. Keen, Director	Agency Name: Office of Budget and Management
Signature of Participating Agency Authorized Representative: 	Date: 

EXHIBIT III – PARTICIPATING STATE AGENCY SCOPE OF WORK

OHIO DEPARTMENT OF JOB AND FAMILY SERVICES

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Agency	Type of Participation
(A)(3)	Ohio Department Job and Family Services	• Participate in Project Teams on Assessment and Standards; Professional Development; Access Quality and Financing; and Family Support and Parent Engagement. • Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams. • Provide project management and support staff; ensure compliance with timelines and activities as outline in the grant application. • Assign a senior level deputy who is accountable for monitoring agency scope of work.
(B)(1)	Ohio Department Job and Family Services	• Redesign and improve the Step Up to Quality Rating System in conjunction with ODE to include small family child care homes and ODE programs. • Create a quality assurance process for county staff completing the licensing and quality rating process. • Work with ODH to set targets for children with delays and disabilities enrolled in early childhood programs. • Contract with a vendor to develop a child assessment system for programs rated in SUTQ that is interoperable with ODE's SLDS.
(B)(2)	Ohio Department Job and Family Services	• Make publicly available information to families on Ohio's Quality Rating and Improvement System via web site and publications. • Conduct research to identify barriers which prevent currently rated programs serving high needs children from moving to higher quality tiers and develop a plan to assist programs in achieving higher tier levels.
(B)(3)	Ohio Department of Job and Family Services	• Work with ODE to identify appropriate standardized and reliable tools that align with the revised SUTQ Program Standards and determine appropriate frequency of use by monitors. • Require County Departments of Job and Family Services to provide information on rated programs to families applying for CCDF child care assistance. • Work with ODE to develop new program reports for parents that provide information on school readiness outcomes .

Selection Criterion	Participating Agency	Type of Participation
(B)(4)	Ohio Department Job and Family Services	• Assist in securing families and stakeholders in providing input on improvements to all aspects of the early learning system. • Provide performance payments to current and newly rated programs based on the rating level. • Increase teacher qualifications through scholarships for college coursework that lead to degrees. • Work with ODE to expand professional development opportunities through web-based modules. • Work with ODE to target technical assistance to programs serving high concentrations of high needs children. • Pilot the elimination of co-payments for families under the Federal Poverty Guidelines that enroll in 2 or 3 tier programs • Pilot financial incentives that increase the number of high needs children being served in programs that are currently rated at a two or three tier level.
(C)(1)	Ohio Department Job and Family Services	• Participate, as needed, in revision and alignment of Ohio's Early Learning and Development Standards including Infant and Toddler Guidelines, Standards of Care and Teaching Ohio's Infants and Toddlers, Ohio's Pre-Kindergarten Content Standards. Ohio's Early Learning Program Guidelines, ODE K-3 Academic Content Standards, and Ohio Educator Standards.
(C)(2)	Ohio Department Job and Family Services	• Participate in the development and implementation of a formative assessment system to gauge the progression of learning of children ages 36-72 months. • Assist in creating model curriculum in approaches toward learning, social-emotional development and physical well-being and health to support implementation of the standards. • Provide advice on a new kindergarten entry assessment.
(D)(1)	Ohio Department Job and Family Services	• Assist in developing recommendations for a streamlined progression of credentials and degrees for early childhood educators. • Analyze course content embedded in targeted degrees and credentials in conjunction with ODE and The Board of Regents and compare to the Core Knowledge and Competencies.

Selection Criterion	Participating Agency	Type of Participation
(E)(2)	Ohio Department Job and Family Services	• Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams. • Contract with a vendor to re-engineer Step Up to Quality and licensing database system to include public district preschool programs and small family child care programs. • Contract with a vendor to create a child assessment system for programs rated in SUTQ that is interoperable with ODE's SLDS. • Work with ODE to implement child link system which assigns a common unique identifier for children in publicly funded programs.
Priority 2	Ohio Department Job and Family Services	• Work with legislators to write legislation which will move the certification of type B homes to a licensure system.

EXHIBIT III - SIGNATURES

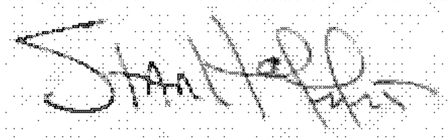
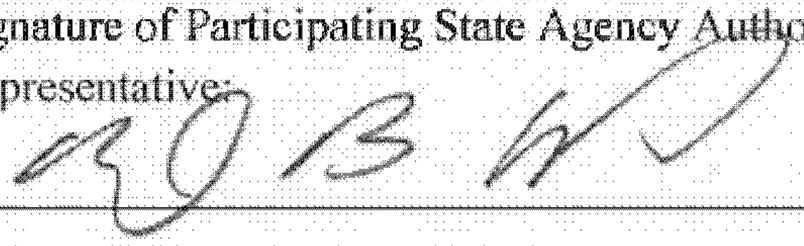
Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent	Agency Name: Ohio Department of Education
Signature of Lead Agency Authorized Representative: 	Date: October 14, 2011
Participating State Agency Authorized Representative (Printed Name): Michael B. Colbert, Director	Agency Name: Ohio Department of Job and Family Services
Signature of Participating State Agency Authorized Representative: 	Date: 10/14/2011

EXHIBIT IV – PARTICIPATING STATE AGENCY SCOPE OF WORK

OHIO DEPARTMENT OF HEALTH

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Agency	Type of Participation
(A)(3)	Ohio Department of Health	• Participate in Project Teams on Assessment and Standards; Professional Development; Access Quality and Financing; and Family Support and Parent Engagement. • Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.
(B)(1)	Ohio Department of Health	• Work with ODE and ODJFS to set targets for children with delays and disabilities enrolled in early childhood programs. • Contract with Health Promotion Consultants to support the use of standards and assessments by early childhood educators serving high needs children from birth through kindergarten.
(B)(2)	Ohio Department of Health	• Make publicly available information to families on Ohio's Quality Rating and Improvement System via web site and publications.
(B)(4)	Ohio Department of Health	• Assist in securing families and stakeholders in providing input on improvements to all aspects of the early learning system.
(C)(1)	Ohio Department of Health	• Participate, as needed, in revision and alignment of Ohio's Early Learning and Development Standards including Infant and Toddler Guidelines, Standards of Care and Teaching Ohio's Infants and Toddlers, Ohio's Pre-Kindergarten Content Standards. Ohio's Early Learning Program Guidelines, ODE K-3 Academic Content Standards, and Ohio Educator Standards.
(C)(2)	Ohio Department of Health	• Participate in the development and implementation of a formative assessment system to gauge the progression of learning of children ages 36-72 months. • Assist in creating model curriculum in approaches toward learning, social-emotional development and physical well-being and health to support implementation of the standards. • Provide advice on a new kindergarten entry assessment. • Participate in the development of programs serving children with high needs birth through kindergarten entry to include standards in all domains of school readiness.
(D)(1)	Ohio Department of Health	• Assist in developing recommendations for a streamlined progression of credentials and degrees for early childhood educators.

Selection Criterion	Participating Agency	Type of Participation
(E)(2)	Ohio Department of Health	• Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.

EXHIBIT VI - SIGNATURES

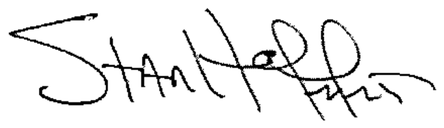
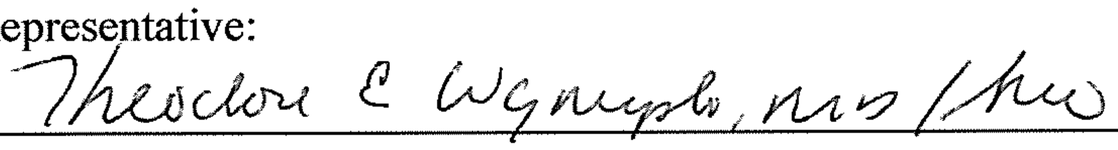
Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent	Agency Name: Ohio Department of Education
Signature of Lead Agency Authorized Representative: 	Date: October 14, 2011
Participating State Agency Authorized Representative (Printed Name): Theodore E. Wymyslo, M.D., Director	Agency Name: Ohio Department of Health
Signature of Participating State Agency Authorized Representative: 	Date: 10/14/11

EXHIBIT V – PARTICIPATING STATE AGENCY SCOPE OF WORK

OHIO DEPARTMENT OF MENTAL HEALTH

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Agency	Type of Participation
(A)(3)	Ohio Department of Mental Health	• Participate in Project Teams on Assessment and Standards; Professional Development; Access Quality and Financing; and Family Support and Parent Engagement. • Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.
(B)(1)	Ohio Department of Mental Health	• Contract with Early Childhood Mental Health Consultants to support the use of standards and assessments by early childhood educators serving high needs children from birth through kindergarten.
(B)(2)	Ohio Department of Mental Health	• Make publicly available information to families on Ohio's Quality Rating and Improvement System via web site and publications.
(B)(4)	Ohio Department of Mental Health	• Assist in securing families and stakeholders in providing input on improvements to all aspects of the early learning system.
(C)(1)	Ohio Department of Mental Health	• Participate, as needed, in revision and alignment of Ohio's Early Learning and Development Standards including Infant and Toddler Guidelines, Standards of Care and Teaching Ohio's Infants and Toddlers, Ohio's Pre-Kindergarten Content Standards. Ohio's Early Learning Program Guidelines, ODE K-3 Academic Content Standards, and Ohio Educator Standards.
(C)(2)	Ohio Department of Mental Health	• Participate in the development and implementation of a formative assessment system to gauge the progression of learning of children ages 36-72 months. • Assist in creating model curriculum in approaches toward learning, social-emotional development and physical well-being and health to support implementation of the standards. • Provide advice on a new kindergarten entry assessment.
(D)(1)	Ohio Department of Mental Health	• Assist in developing recommendations for a streamlined progression of credentials and degrees for early childhood educators.
(E)(2)	Ohio Department of Mental Health	• Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.

EXHIBIT V - SIGNATURES

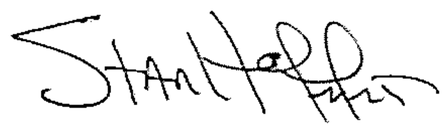
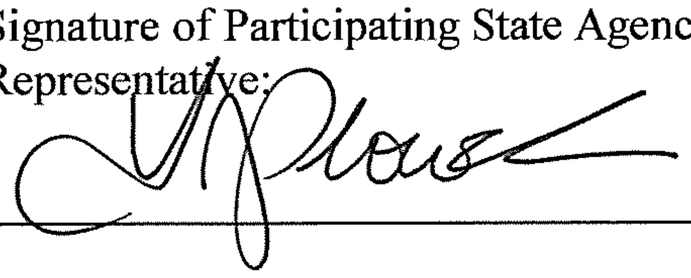
Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent	Agency Name: Ohio Department of Education
Signature of Lead Agency Authorized Representative: 	Date: October 14, 2011
Participating State Agency Authorized Representative (Printed Name): Tracy J. Plouck, Director	Agency Name: Ohio Department of Mental Health
Signature of Participating State Agency Authorized Representative: 	Date: 10/14/11

EXHIBIT VI – PARTICIPATING STATE AGENCY SCOPE OF WORK

OHIO DEPARTMENT OF DEVELOPMENTAL DISABILITIES

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Agency	Type of Participation
(A)(3)	Ohio Department Developmental Disabilities	• Participate in Project Teams on Assessment and Standards; Professional Development; Access Quality and Financing; and Family Support and Parent Engagement. • Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.
(B)(1)	Ohio Department Developmental Disabilities	• Work with ODH to set targets for children with delays and disabilities enrolled in early childhood programs.
(B)(2)	Ohio Department Developmental Disabilities	• Make publicly available information to families on Ohio's Quality Rating and Improvement System via web site and publications.
(B)(4)	Ohio Department Developmental Disabilities	• Assist in securing families and stakeholders in providing input on improvements to all aspects of the early learning system.
(C)(1)	Ohio Department Developmental Disabilities	• Participate, as needed, in revision and alignment of Ohio's Early Learning and Development Standards including Infant and Toddler Guidelines, Standards of Care and Teaching Ohio's Infants and Toddlers, Ohio's Pre-Kindergarten Content Standards. Ohio's Early Learning Program Guidelines, ODE K-3Academic Content Standards, and Ohio Educator Standards.
(C)(2)	Ohio Department Developmental Disabilities	• Participate in the development and implementation of a formative assessment system to gauge the progression of learning of children ages 36-72 months. • Assist in creating model curriculum in approaches toward learning, social-emotional development and physical well-being and health to support implementation of the standards. • Provide advice on a new kindergarten entry assessment.
(D)(1)	Ohio Department Developmental Disabilities	• Assist in developing recommendations for a streamlined progression of credentials and degrees for early childhood educators.
(E)(2)	Ohio Department Developmental Disabilities	• Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.

EXHIBIT VI - SIGNATURES

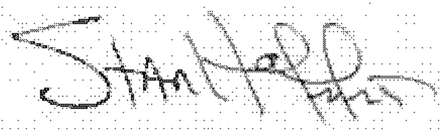
Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent	Agency Name: Ohio Department of Education
Signature of Lead Agency Authorized Representative: 	Date: October 14, 2011
Participating State Agency Authorized Representative (Printed Name): John L. Martin, Director	Agency Name: Ohio Department of Developmental Disabilities
Signature of Participating State Agency Authorized Representative:	Date:

EXHIBIT VII – PARTICIPATING STATE AGENCY SCOPE OF WORK

GOVERNOR'S OFFICE OF 21ST CENTURY EDUCATION

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Agency	Type of Participation
(A)(3)	Governor's Office of 21st Century Education	• Participate in Project Teams on Assessment and Standards; Professional Development; Access Quality and Financing; and Family Support and Parent Engagement. • Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams. • Provide the leadership to coordinate early learning reform agenda and grant activities by hiring an Early Childhood Education and Development Officer. • Appoint an Early Education and Development Innovation Committee to advise the Governor on private sector engagement in early childhood education. • Coordinate Project Teams in Assessment and Standards; Professional Development; Access, Quality, and Financing; and Family Support and Parent Engagement. • Engage the Early Childhood Advisory Committee to secure stakeholder involvement in the development of the early childhood system.
(B)(2)	Governor's Office of 21st Century Education	• Make publicly available information to families on Ohio's Quality Rating and Improvement System via web site and publications.
(B)(4)	Governor's Office of 21st Century Education	• Assist in securing families and stakeholders in providing input on improvements to all aspects of the early learning system.
(C)(1)	Governor's Office of 21st Century Education	• Participate, as needed, in revision and alignment of Ohio's Early Learning and Development Standards including Infant and Toddler Guidelines, Standards of Care and Teaching Ohio's Infants and Toddlers, Ohio's Pre-Kindergarten Content Standards. Ohio's Early Learning Program Guidelines, ODE K-3 Academic Content Standards, and Ohio Educator Standards.
(C)(2)	Governor's Office of 21st Century Education	• Participate in the development and implementation of a formative assessment system to gauge the progression of learning of children ages 36-72 months. • Assist in creating model curriculum in approaches toward learning, social-emotional development and physical well-being and health to support implementation of the standards. • Provide advice on a new kindergarten entry assessment.

Selection Criterion	Participating Agency	Type of Participation
(D)(1)	Governor's Office of 21st Century Education	• Assist in developing recommendations for a streamlined progression of credentials and degrees for early childhood educators.
(E)(2)	Governor's Office of 21st Century Education	• Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.

EXHIBIT VII - SIGNATURES

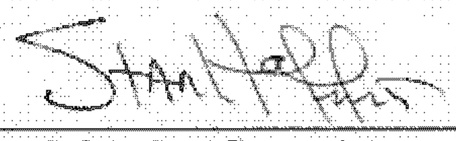
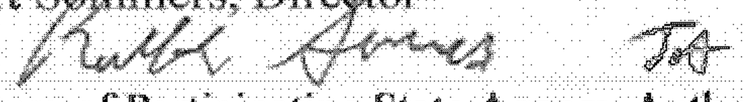
Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent	Agency Name: Ohio Department of Education
Signature of Lead Agency Authorized Representative: 	Date: October 14, 2011
Participating State Agency Authorized Representative (Printed Name): Robert Sommers, Director  Signature of Participating State Agency Authorized Representative:	Agency Name: Governor's Office of 21st Century Education Date:

EXHIBIT VIII – PARTICIPATING STATE AGENCY SCOPE OF WORK

GOVERNOR'S OFFICE OF HEALTH TRANSFORMATION

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Agency	Type of Participation
(A)(3)	Governor's Office of Health Transformation	• Participate in Project Teams on Assessment and Standards; Professional Development; Access Quality and Financing; and Family Support and Parent Engagement.
(E)(2)	Governor's Office of Health Transformation	• Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.

EXHIBIT VIII - SIGNATURES

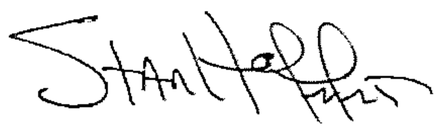
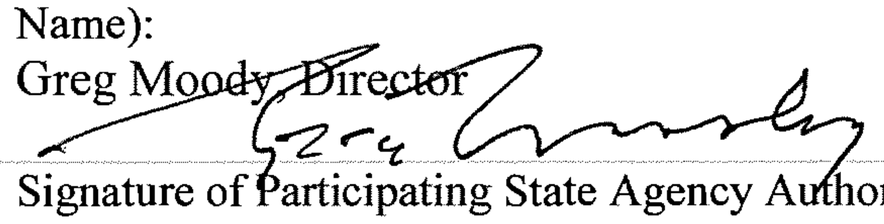
Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent	Agency Name: Ohio Department of Education
Signature of Lead Agency Authorized Representative: 	Date: October 14, 2011
Participating State Agency Authorized Representative (Printed Name): Greg Moody, Director	Agency Name: Governor's Office of Health Transformation
Signature of Participating State Agency Authorized Representative: 	Date:

EXHIBIT IX – PARTICIPATING STATE AGENCY SCOPE OF WORK

HEAD START STATE COLLABORATION OFFICE

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Agency	Type of Participation
(A)(3)	Head Start State Collaboration Office	• Participate in Project Teams on Assessment and Standards; Professional Development; Access Quality and Financing; and Family Support and Parent Engagement. • Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.
(B)(2)	Head Start State Collaboration Office	• Make publicly available information to families on Ohio's Quality Rating and Improvement System via web site and publications.
(B)(4)	Head Start State Collaboration Office	• Assist in securing families and stakeholders in providing input on improvements to all aspects of the early learning system.
(C)(1)	Head Start State Collaboration Office	• Participate, as needed, in revision and alignment of Ohio's Early Learning and Development Standards including Infant and Toddler Guidelines, Standards of Care and Teaching Ohio's Infants and Toddlers, Ohio's Pre-Kindergarten Content Standards. Ohio's Early Learning Program Guidelines, ODE K-3 Academic Content Standards, and Ohio Educator Standards.
(C)(2)	Head Start State Collaboration Office	• Participate in the development and implementation of a formative assessment system to gauge the progression of learning of children ages 36-72 months. • Assist in creating model curriculum in approaches toward learning, social-emotional development and physical well-being and health to support implementation of the standards. • Provide advice on a new kindergarten entry assessment.
(D)(1)	Head Start State Collaboration Office	• Assist in developing recommendations for a streamlined progression of credentials and degrees for early childhood educators.
(E)(2)	Head Start State Collaboration Office	• Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.

EXHIBIT IX - SIGNATURES

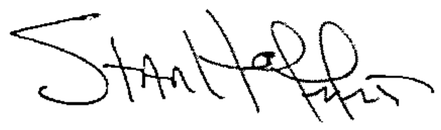
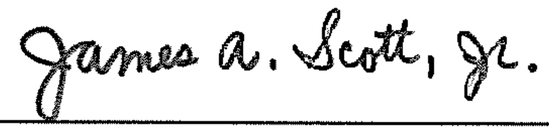
Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent	Agency Name: Ohio Department of Education
Signature of Lead Agency Authorized Representative: 	Date: October 14, 2011
Participating State Agency Authorized Representative (Printed Name): James A. Scott, Director	Agency Name: Head Start State Collaboration Office
Signature of Participating State Agency Authorized Representative: 	Date: October 14, 2011

EXHIBIT X – PARTICIPATING STATE AGENCY SCOPE OF WORK

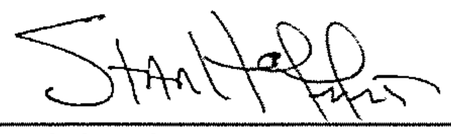
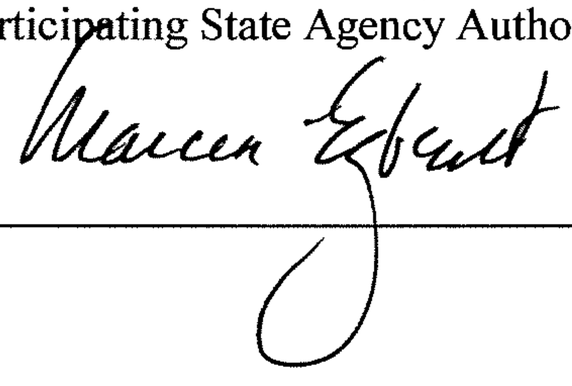
EARLY CHILDHOOD ADVISORY COUNCIL

The Participating State Agency hereby agrees to participate in the State Plan, as described in the State's application, and more specifically commits to undertake the tasks and activities described in detail below.

Selection Criterion	Participating Agency	Type of Participation
(A)(3)	Early Childhood Advisory Council	• Participate in Project Teams on Assessment and Standards; Professional Development; Access Quality and Financing; and Family Support and Parent Engagement. • Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams. • Provide regular input on implementation through regular meetings hosted by the Early Education and Development Officer. • Lend expertise to project teams including: (1) Assessment and Standards (2) Professional Development (3) Quality, Access, and Financing (4) Family Support and Engagement • Assist with the annual dissemination of information to the legislature, leaders in local communities, and the public on the state of school readiness in Ohio.
(B)(2)	Early Childhood Advisory Council	• Make publicly available information to families on Ohio's Quality Rating and Improvement System via web site and publications.
(B)(4)	Early Childhood Advisory Council	• Assist in securing families and stakeholders in providing input on improvements to all aspects of the early learning system.
(C)(1)	Early Childhood Advisory Council	• Participate, as needed, in revision and alignment of Ohio's Early Learning and Development Standards including Infant and Toddler Guidelines, Standards of Care and Teaching Ohio's Infants and Toddlers, Ohio's Pre-Kindergarten Content Standards. Ohio's Early Learning Program Guidelines, ODE K-3 Academic Content Standards, and Ohio Educator Standards.
(C)(2)	Early Childhood Advisory Council	• Participate in the development and implementation of a formative assessment system to gauge the progression of learning of children ages 36-72 months. • Assist in creating model curriculum in approaches toward learning, social-emotional development and physical well-being and health to support implementation of the standards. • Provide advice on a new kindergarten entry assessment. Participate in the development of programs serving children with high needs birth through kindergarten entry to include standards in all domains of school readiness.

Selection Criterion	Participating Agency	Type of Participation
(D)(1)	Early Childhood Advisory Council	• Assist in developing recommendations for a streamlined progression of credentials and degrees for early childhood educators.
(E)(2)	Early Childhood Advisory Council	• Participate in the State Longitudinal Data System and Early Childhood Data System Integration Project across all Project Teams.

EXHIBIT X - SIGNATURES

Chief State School Officer (Printed Name): Stan W. Heffner, Superintendent	Agency Name: Ohio Department of Education
Signature of Lead Agency Authorized Representative: 	Date: October 14, 2011
Participating State Agency Authorized Representative (Printed Name): Marcia Egbert, Chairperson	Agency Name: Early Childhood Advisory Council
Signature of Participating State Agency Authorized Representative: 	Date: 10.13.11

A3
Letters of Support

Rationale: Required Evidence for Section VI(A)(3)

Referenced in:

VI(A)(3)

Letters of Support Table of Contents

Elected Officials

Congress of the United States
Washington, DC 20515

October 3, 2011

The Honorable Arne Duncan
U.S. Secretary of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

The Honorable Kathleen Sebelius
U.S. Secretary of Health and Human Services
200 Independence Ave, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius:

As members of the Ohio congressional delegation, we are writing to offer our support for Ohio's Race to the Top Early Learning Challenge Application.

Ohio's application meets the challenge to build a coordinated system of early learning and development that will ensure all of our state's children will enter kindergarten with the necessary skills to succeed in school and throughout life. The approach will create a new governance system for early learning in Ohio by establishing a single point of accountability, expanding and aligning content standards, implementing a comprehensive kindergarten readiness assessment, and measuring quality and outcomes. While the focus of the initiative is to improve early learning for the most vulnerable children, all populations from birth to age five will benefit from this comprehensive and outcomes-based approach to early childhood education.

Ohio's vision for early learning has gained the attention of the state's business leaders. They recognize the importance of ensuring our future workforce is prepared with the knowledge and skills to participate in the global economy. A recent study by the Ohio Business Roundtable found that on basic measures of early literacy, nearly 60 percent of Ohio children are not prepared to enter kindergarten and nearly 30 percent of economically disadvantaged students fail to graduate from high school.

In order for our education system to prepare children for the future, they must enter it ready to succeed. We strongly support Ohio's application for the Race to the Top Early Learning Challenge Grant and encourage you to give it your fullest consideration.

Sincerely,

Bill Johnson 04-16

Bob Dunn

Steve Abbott

Jean Schmidt

Dennis J. Kucinich

Mary Taylor

Rob Portman

Edward Brown

Marcia L. Judge

Tom Niehaus
President
Ohio Senate
14th District

Statehouse
Columbus, Ohio 43215
614/466-8082
Fax: 614/466-2776
Toll-Free: 800/282-0253
SD14@senate.state.oh.us

September 27, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius:

I am writing to express my support for Ohio's application to participate in the Race To the Top's Early Learning Challenge Program. It is my understanding that the goal of the initiative is to improve the quality of early learning and development programs serving high-need children.

As Senate President, I believe that members from both parties in this body have gained a greater understanding of the importance and impact of quality early childhood education. The brain research has made it clear that investing in quality early learning has long-term positive effects for children and their futures. Aligning our early childhood resources and systems, improving early learning and development standards and assessments, and enhancing professional development for early childhood educators are needed to ensure we are best meeting the needs of young children and investing our limited resources prudently.

Ohio's plan was constructed by those with expertise in early learning and leaders from our business community. This diverse group will help ensure that this is a priority for Ohio as we move forward. If you have any questions regarding my support, please feel free to contact me. Thank you for your consideration.

Sincerely,

Tom Niehaus

Tom Niehaus

Willam G. Batchelder
Speaker, Ohio House of Representatives

September 27, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

RE: **Ohio's Race to the Top-Early Learning Challenge Grant**

Dear Secretary Duncan,

This letter is to express my support for the Ohio Department of Education's application to obtain a Race to the Top-Early Learning Challenge Grant.

I am supportive of the Ohio Department of Education's vision for early childhood education in our great state and applaud their goal to eliminate the readiness achievement gap for Ohio's high need(s) children. To achieve this admirable goal, the Ohio Department of Education plans to:

1. Create a new governance system for early learning in Ohio that will establish a single point of accountability for the results we want to achieve for Ohio's young children
2. Expand and align early learning content standards (birth through kindergarten entry)
3. Base Tiered Quality Rating and Improvement System (TQRIS) on revised early learning contents standards. TQRIS will be: linked to licensing; include all settings (phased-in approach); and linked to child outcomes
4. Implement comprehensive K readiness assessment
5. Design professional development opportunities to build capacity of field based on content standards

As such, I give my full endorsement to this application and encourage the United States Department of Education to give the Ohio Department of Education their full consideration in their endeavor.

Should you require additional assistance or more information, please do not hesitate to contact my office at 614-466-8140.

Sincerely,

William G. Batchelder
Speaker, Ohio House of Representatives
69th House District

Committees:
Joint Legislative Ethics Committee
Rules and Reference Committee
Legislative Service Commission

www.house.state.oh.us
77 S. High Street, Columbus, Ohio 43215-6111

Contact Informatic
Office: 614-466-81
Toll-Free: 1-800-282-02
FAX: 614-719-39
Email: district69@ohr.state.oh

Willam G. Batchelder
Speaker, Ohio House of Representatives

September 27, 2011

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

RE: **Ohio's Race to the Top-Early Learning Challenge Grant**

Dear Secretary Sebelius,

This letter is to express my support for the Ohio Department of Education's application to obtain a Race to the Top-Early Learning Challenge Grant.

I am supportive of the Ohio Department of Education's vision for early childhood education in our great state and applaud their goal to eliminate the readiness achievement gap for Ohio's high need(s) children. To achieve this admirable goal, the Ohio Department of Education plans to:

1. Create a new governance system for early learning in Ohio that will establish a single point of accountability for the results we want to achieve for Ohio's young children
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4. Implement comprehensive K readiness assessment
5. Design professional development opportunities to build capacity of field based on content standards

As such, I give my full endorsement to this application and encourage the United States Department of Education to give the Ohio Department of Education their full consideration in their endeavor.

Should you require additional assistance or more information, please do not hesitate to contact my office at 614-466-8140.

Sincerely,

William G. Batchelder
Speaker, Ohio House of Representatives
69th House District

Committees:
Joint Legislative Ethics Committee
Rules and Reference Committee
Legislative Service Commission

www.house.state.oh.us
77 S. High Street, Columbus, Ohio 43215-6111

Contact Informatic
Office: 614-466-81
Toll-Free: 1-800-282-0
FAX: 614-719-39
Email: district69@ohr.state.oh

Armond Budish
State Representative, 8th House District

October 3, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan & Secretary Sebelius:

It is with great pleasure that Senate Minority Leader Cafaro and I write this letter of support for the State of Ohio, during this application process for a very critical and profound Race to the Top grant. We were very appreciative of an overview regarding the status of Ohio's response to the Race to the Top Early Learning Challenge initiative. We understand that as a state, we are eligible for up to $70 million from 2012-2015 to support our early learning system building efforts. Ohioans understand the value and cherish the affects of early learning education and believe it is crucial to the growth of our children.

Leader Cafaro and I were very impressed to learn of the approach and progress made for advancing Ohio's placement in the RttTop-Early Learning Challenge Initiative. Their goal: Eliminate the readiness achievement gap for Ohio's high need(s) children. Our satisfaction did not stop with their goal, but with the strategies for implementation:

- Creating a new governance system for early learning in Ohio that will establish a single point of accountability for the results we want to achieve for Ohio's young children
- Expanding and aligning early learning content standards (birth through kindergarten entry)
- Basing the Tiered Quality Rating and Improvement System (TQRIS) on revised early learning contents standards. TQRIS will be linked to licensing, include all settings (phased-in approach) and linked to child outcomes
- Implementing a comprehensive K readiness assessment
- Designing professional development opportunities to build capacity of field, based on content standards

Capitol:
77 South High Street
Columbus, Ohio 43215-6111
(614) 466-5441
(614) 719-0008 (fax)
(800) 282-0253 (toll free)
www.house.state.oh.us
District08@ohr.state.oh.us

We are particularly pleased with the amount of support the Ohio Department of Education has garnered thus far and are hopeful the support demonstrates the quality of Ohio's goal, dedication and commitment to strengthening our early learning education.

Thank you for your consideration of this letter of support for Ohio's application in the Race to the Top-Early Learning Challenge Initiative. Please let us know if we may be of further assistance.

Sincerely,

Armond Budish
Minority Leader
Ohio House of Representatives

Capri Cafaro
Minority Leader
Ohio Senate

Ohio Senate
Senate Building
1 Capitol Square
Columbus, Ohio 43215
SD06@senate.state.oh.us
(614) 466-4538

Peggy B. Lehner
State Senator
6th District

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Secretary Duncan and Secretary Sebelius,

The State of Ohio is committed to improving the quality of early care and education for our youngest learners, from birth to age five. As the Chairman of the Senate Education Committee, I believe in the importance of investing in children in the early years of life. The state of Ohio cannot afford to wait until later in a student's education journey to provide a quality educational experience.

I am in full support of Ohio's goal to eliminate the readiness achievement gap for high need children, as detailed in Ohio's proposal for the Race to the Top – Early Learning Challenge. Along with my colleagues in both the Ohio House and Senate, I believe the strategies outlined in the proposal – such as establishing a single point leader for early learning; expanding early learning content standards from birth through kindergarten; improving and expanding the Tiered Quality Rating and Improvement System; implementing a comprehensive kindergarten readiness assessment; and improving professional development are absolutely essential to the future success of our state.

The support available through the Early Learning Challenge would build on the progress we are making as a state and allow us to fund needed improvements in our early childhood system. I believe Ohio has the leadership and commitment to implement the strategies to improve the quality of early learning. I fully support Ohio's Early Learning Challenge proposal and will do my part as a leader in the state of Ohio to ensure effective implementation.

Sincerely,

Peggy Lehner

Peggy Lehner
Ohio State Senator
6th District

Representative Michael E. Henne
Ohio House District 36

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Secretary Duncan and Secretary Sebelius,

The State of Ohio is committed to improving the quality of early care and education for our youngest learners, from birth to age five. As a Representative in the State of Ohio representing District 36, I believe investing in the early years in life is critical to the economic vitality for our region and our state.

I personally have committed to championing early childhood in our region and the state. I fully support Ohio's goal to eliminate the readiness achievement gap for high need children, as detailed in Ohio's proposal for the Race to the Top – Early Learning Challenge. As a State Representative, I believe the strategies outlined in the proposal – such as establishing a single point leader for early learning; expanding early learning content standards from birth through kindergarten; improving and expanding the Tiered Quality Rating and Improvement System; implementing a comprehensive kindergarten readiness assessment; and improving professional development are absolutely essential to the early learning success of our state.

The support available through the Early Learning Challenge would build on the progress we are making as a state and allow us to fund needed improvements. I believe Ohio has the leadership and commitment to implement the strategies to improve the quality of early learning. I fully support Ohio's Early Learning Challenge proposal and will do my part as a leader in the state of Ohio to ensure effective implementation.

Sincerely,

Michael E. Henne
State Representative
36th Ohio House District

Committees:
Insurance
Economic and Small Business Development
Financial Institutions, Housing and Urban Development
Education

www.house.state.oh.us
77 S. High Street, Columbus, Ohio 43215-6111

Contact Information:
Office: 614-644-8051
Toll-Free: 1-800-282-0253
FAX: 614-719-3590
Email: district36@ohr.state.oh.us

EDWARD FITZGERALD
Cuyahoga County Executive

October 4, 2011

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Secretary Sebelius:

I am writing to express my strong support for the State of Ohio's Race to the Top-Early Learning Challenge Grant application.

Cuyahoga County is committed to ensuring that every child in our community starts school ready to learn. In response to that commitment, Cuyahoga County created Invest in Children, an innovative public-private partnership working to align, improve, and expand quality early childhood services for all of Cuyahoga County's children.

In the last six years, Cuyahoga County has invested more than $41 million in public funding, and attracted more than $24 million in private funding, to implement quality early childhood education, health, behavioral health, and family engagement programs. We know these investments our working. Our research shows that children involved in Invest in Children programs are healthier and better prepared for kindergarten, and families are more successful.

While Cuyahoga County and our local private partners continue to invest in this important initiative, we cannot fully implement our goals without the support of quality early care and education at the State level.

Invest in Children's flagship early education program, Universal Pre-K (UPK), is built on the foundation of Ohio's Quality Rating and Improvement System (QRIS) and works in partnership with the State's investments in quality early education. Cuyahoga County launched the Universal Pre-K (UPK) program in 2007 to enhance the quality of existing QRIS-rated early education classrooms for children ages three through five to significantly increase school readiness and child development outcomes. Currently, only 1,144 of Cuyahoga County's children ages three through five are participating in the UPK program.

As County Executive, I have committed to full phase-in of UPK for Cuyahoga County's high need children. The funding and support provided to Ohio by the Race to the Top- Early Learning Challenge grant would significantly increase the success of Ohio's early education system and magnify the impact of Cuyahoga County's local investments.

Sincerely,

Edward FitzGerald
Cuyahoga County Executive

1219 Ontario Street • Cleveland, Ohio 44113 • (216) 698.7208 • FAX (216) 443.8088
Ohio Relay Service 711 • Website: cuyahogacounty.us

EDWARD FITZGERALD
Cuyahoga County Executive

October 4, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Secretary Duncan:

I am writing to express my strong support for the State of Ohio's Race to the Top-Early Learning Challenge Grant application.

Cuyahoga County is committed to ensuring that every child in our community starts school ready to learn. In response to that commitment, Cuyahoga County created Invest in Children, an innovative public-private partnership working to align, improve, and expand quality early childhood services for all of Cuyahoga County's children.

In the last six years, Cuyahoga County has invested more than $41 million in public funding, and attracted more than $24 million in private funding, to implement quality early childhood education, health, behavioral health, and family engagement programs. We know these investments our working. Our research shows that children involved in Invest in Children programs are healthier and better prepared for kindergarten, and families are more successful.

While Cuyahoga County and our local private partners continue to invest in this important initiative, we cannot fully implement our goals without the support of quality early care and education at the State level.

Invest in Children's flagship early education program, Universal Pre-K (UPK), is built on the foundation of Ohio's Quality Rating and Improvement System (QRIS) and works in partnership with the State's investments in quality early education. Cuyahoga County launched the Universal Pre-K (UPK) program in 2007 to enhance the quality of existing QRIS-rated early education classrooms for children ages three through five to significantly increase school readiness and child development outcomes. Currently, only 1,144 of Cuyahoga County's children ages three through five are participating in the UPK program.

As County Executive, I have committed to full phase-in of UPK for Cuyahoga County's high need children. The funding and support provided to Ohio by the Race to the Top- Early Learning Challenge grant would significantly increase the success of Ohio's early education system and magnify the impact of Cuyahoga County's local investments.

Sincerely,

Edward FitzGerald
Cuyahoga County Executive

1219 Ontario Street • Cleveland, Ohio 44113 • (216) 698.7208 • FAX (216) 443.8088
Ohio Relay Service 711 • Website: cuyahogacounty.us

GEORGE V. VOINOVICH

RE: Race to the Top Early Learning Challenge Grant
Endorsement of State of Ohio Application

October 13, 2011

Grant Reviewers:

This letter of support for Ohio's Early Learning Challenge Grant application marks my official endorsement of the State's plan for young children. This endorsement is informed by a thorough appreciation for the need for early childhood investment and for the work involved in implementing coordinated programs and services at the federal, state and local level.

I'm proud to say that the starting point for many of the elements in Ohio's plan trace back to my tenure as Governor. In the 1990s, we strove to educate Ohioans about early childhood development and the importance of respecting and supporting parents. My Administration, with the support of the Ohio General Assembly, made unprecedented investments in early childhood care and education programs. Ohio became national leader. Later, as the Chair of the National Governors' Association I was proud that the nation's governors rallied to make early childhood our top initiative.

As a member of the U.S. Senate, I continued to work in a bipartisan fashion to encourage federal legislation, policies and investments that supported early childhood and fostered increased coordination across programs. A hallmark of many of Ohio's best public policy successes has been public-private partnerships. As a Senator, I made the time to co-chair the School Readiness Solutions Group with Battelle CEO Carl Kohrt because this important public-private partnership was charting Ohio's next steps for early childhood.

The steadfast corporate support of a quality early childhood system continues. In concert with the early childhood field and other stakeholders, The Ohio Business Roundtable has led a resurgence of political interest in our youngest citizens. Ohio is poised to move again. In spite of difficult budget constraints, Governor John Kasich and the Ohio General Assembly strove to mitigate funding reductions and approved regulatory reforms to improve program quality. This grant application process further advanced the current agenda. The Kasich Administration, state legislators, the early childhood care, education and health fields, and the business community stand behind the plan that they have developed. The strength of this public-private partnership can mean the difference in institutionalizing a statewide, quality early childhood system while providing a model for our nation.

My longstanding commitment to early childhood means I fully understand the role states must play going forward. Advancing this work requires political will and the determination to build and support implementation capacity at scale. The federal recognition and financial resources that accompany winning this grant will generate momentum to support Ohio's next steps. As a challenge grant winner, Ohio will exemplify how leveraging federal, state and local effort achieves lasting results.

Please give careful consideration to awarding an Early Learning Challenge Grant to the State of Ohio. We have the early childhood infrastructure and the public and private leadership in place to do something great for Ohio and America.

Sincerely,

George V. Voinovich

Senator George V. Voinovich

Business Stakeholders

OHIO BUSINESS ROUNDTABLE

October 2, 2011

Honorable Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Honorable Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

RE: Ohio's Race to the Top - Early Learning Challenge Grant Application

Dear Secretary Duncan and Secretary Sebelius:

Ohio's corporate leadership is united behind our state's early learning Race to the Top application – perhaps more so than any business community among the 50 states.

We come at this not as traditional business-education stakeholders but as a partnership of CEOs focused squarely on human capital and, especially, our state's most vulnerable and at-risk children. We have studied this issue intensely. We have engaged the nation's top child development experts and have brought to the table highly skilled business analysts too, including Six Sigma black belts from Accenture. And here at home on the ground, we have worked hand in glove with Ohio's early learning community and state policymakers, including Governor John Kasich.

We have concluded that early learning investment is among the most important economic development issues facing our state and our nation. Indeed since the road to college – and to healthy and productive lives – begins at birth, we believe our elected leaders should invest in our youngest children to succeed as learners before they invest in anything else. With the right investments, and the right level of accountability and oversight to buy and produce the right outcomes, by 2020, 90% of Ohio's young children will be kindergarten ready. With strong encouragement from our former chairman and retired Procter & Gamble CEO John Pepper and, arguably, the nation's leading child advocate among business leaders, that is the goal we at the BRT have committed to. It is laid out in our case for change document at BRT Early Learning.

Ohio's Race to the Top Early Learning Grant could not come at a better time. Under the direction of the Governor's office and in collaboration with our state agencies, and the BRT's long-time partner – Battelle Memorial Institute, the nation's largest research and development organization – Ohio will:

- Develop a comprehensive kindergarten readiness assessment to measure our progress in meeting all dimensions of a child's readiness.
- Expand our state's quality rating system to measure the quality and effectiveness of all our programs serving high-need children.
- Establish a single-point of leadership accountable to the Governor for early childhood services and programs, breaking down silos and creating coherence.

We are excited about working with you and pledge the full and complete support of Ohio's business community in these efforts. Thank you for your leadership and all you do for our state and nation.

Sincerely,

Phillip R. Cox
Co-Chairman
Ohio Business Roundtable
Chairman, Cincinnati Bell

Michael H. Thaman
Co-Chairman
Ohio Business Roundtable
Chairman & CEO, Owens Corning

Richard A. Stoff
President and CEO
Ohio Business Roundtable

Tanny Crane
Co-Chair
Ohio BRT Early Learning Task Force
President, Crane Group

Albert Stroucken
Co-Chair
Ohio BRT Early Learning Task Force
Chairman & CEO, Owens-Illinois

Early Learning Intermediary Organizations

Ohio Child Care
Resource & Referral
Association

September 28, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan & Sebelius:

The Ohio Child Care Resource and Referral Association (OCCRRA) and the Child Care Resource and Referral (CCR&R) network are pleased to support Ohio's Race to the Top Early Learning Challenge Grant (ELCG) application.

Ohio's goal to eliminate the readiness achievement gap for children with the highest needs is vital to a child's success throughout the education continuum and their lives. Ohio has been strategically assessing and aligning the early care and learning systems over the past few years, which provide a strong foundation to build from and strengthen the work through the goals and objectives of this grant.

OCCRRA and the CCR&R network is a high functioning public-private partnership. We are prepared to support to the development and implementation of Ohio's grant goals to create a new governance system for early learning, expand and align early learning content standards based on a comprehensive tiered quality rating and improvement system, implement a comprehensive kindergarten readiness assessment and design professional development opportunities to build capacity of the field.

We respectfully request your funding consideration of Ohio's ELCG application based upon the work proposed as well as Ohio's proven successes as systems builder and promoter of high-quality programs to support children, families, and professionals.

Sincerely,

Todd E. Barnhouse
Executive Director

6660 Doubletree Ave. Suite 11
Columbus, OH 43229
614-396-5959 • 877-547-6978
614-396-5960 Fax • occrra.org

9/30/2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius,

The Ohio Association for the Education of Young Children (Ohio AEYC) is pleased to provide this letter of support for Ohio's Early Learning Challenge Grant. On behalf of our 3,000 members, we are committed to helping support the state's goal of eliminating the readiness achievement gap for Ohio's young children with high need(s).

Ohio AEYC is supportive of all strategies outlined in the grant application; however, we are strongly supportive of the strategies related to including all settings in the TQRIS system as we believe all children and families deserve access to high quality programs. We believe requiring all programs in all settings to participate in the TQRIS would provide a framework for parents to compare one program's quality with another.

The grant identifies building a "Great Early Childhood Education Workforce". Ohio AEYC agrees with Sharon Kagan who says, "It has long been noted that the quality of any institution – be it a Fortune 500 corporation, a world renowned university, or a nonprofit organization – hinges on one factor: the quality of its workforce. The ECE teaching workforce enables children to learn, families to work, and the American economy to thrive – yet it lacks the opportunities it enables for others... As we look to the future, a quality ECE teaching workforce is essential to the advancement of early care and education." Ohio AEYC will commit our support and resources to assist the state in designing (and providing) professional development opportunities to assist in building the capacity of the early childhood field.

We urge the review panel to give strong consideration to funding Ohio's application and we look forward to working with state leaders to achieve the goals outlined in the grant.

Sincerely,

Kimberly Tice

Kimberly Tice, Executive Director
The Ohio Association for the Education of Young Children

September 26, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington DC 20202

Kathleen Sebelius, Secretary
U.S. Department of Health and Human Services
200 Independence Avenue S.W.
Washington, DC 20201

Dear Sir and Madam Secretaries:

The Ohio Head Start Association, on behalf of the large Head Start community in Ohio, is pleased to support our state's proposal for the Race to the Top-Early Learning Challenge initiative. Head Start has long been a valuable and major contributor to Ohio's early childhood education effort and at one time Ohio led the nation in state supported Head Start services.

The early childhood community in Ohio is strong. It has been consistent over the years in its membership and as a group it is committed to ensuring that all children in our state receive the best possible foundation for school entry and for life long learning. This committed focus of the Ohio early childhood community has been in place for over 20 years, and we have a deep history of working together across agencies, departments and throughout communities to ensure great outcomes for the children we serve. There are over 60 agencies providing Head Start services in Ohio, and this community of providers has been a deeply rooted part of this effort during all those 20 years and more.

We expect Head Start to be a large and integral part of any early childhood effort in Ohio and look forward to continuing our work with all our partners in serving the youngest children in our state. With the Race to the Top-Early Learning Challenge initiative, Ohio will be well positioned to be an exemplary model of early childhood excellence and service delivery. We look forward to that opportunity.

Sincerely

Barbara Haxton
Executive Director

Ohio Association of Child Care Providers

September 29, 2011

Arne Duncan, Secretary
U.S Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

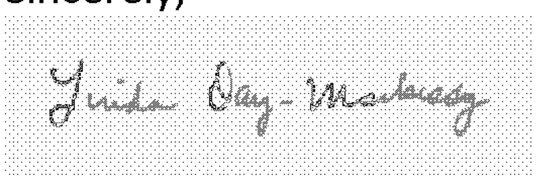
The Ohio Association of Child Care Providers (OACCP) would like to take this opportunity to express our support for the Ohio's application for the Race to the Top Early Learning Challenge Initiative released by the U.S. Departments of Education and Health and Human Services. OACCP represents over 500 providers in Ohio that care for and educate over 50,000 children annually in center-based programs. Our members are both for-profit and non-profit providers. Our members seek to provide the highest quality early childhood and afterschool programs that their resources allow.

As a major player in Ohio's early childhood community, we support the plan's strategies for eliminating the readiness achievement gap for Ohio's high needs children. OACCP is in agreement that creating a new governance system for early learning in Ohio that will establish a single point of accountability for results is critical to our success. By expanding and aligning early learning content standards, we will be able to deliver a more comprehensive early learning experience.

OACCP also agrees that basing a Tiered Quality Rating and Improvement System (TQRIS) on revised early learning contents standards will ensure that our children are receiving a higher quality early education. Creating and implementing a comprehensive kindergarten readiness assessment will make our early education system more accountable. Additionally, our child care professionals will benefit from professional development opportunities to build capacity based on improved content standards.

Ohio's Race to the Top Early Learning Challenge plan will radically improve early education for all of Ohio's children. Please feel free to contact me with any questions at 614-573-3603. I look forward to continuing to work with my colleagues at ODE and ODJFS on these important efforts.

Sincerely,



Linda Day-Mackessy
Chair

oaesa serving ohio's pre-k, elementary, middle level and central office administrators

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www.oaesa.org

September 29, 2011

The Honorable Arne Duncan
U.S. Secretary of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

The Honorable Kathleen Sebelius
U.S. Secretary of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

On behalf of the Ohio Association of Elementary School Administrators I wish to communicate our enthusiastic support for Ohio's Race to the Top Early Learning Challenge Grant application. We join Governor John Kasich, State Board of Education President Debe Terhar, and Superintendent of Public Instruction Stan Heffner in their quest to eliminate the readiness achievement gap for Ohio's high-need(s) children. As pre-k through middle school administrators, our members believe that a high-quality early learning experience is the key to increasing school readiness, academic achievement, college graduation, good citizenship, and a productive workforce for our state and nation.

Ohio's response and focus to the early learning challenge is to ensure that all children are ready for kindergarten, with an emphasis on improving the readiness of high-need(s) children. In Ohio, we wish to expand the readiness definition to include academic, health, and social-emotional preparedness. Our work would require different state agencies and sectors in Ohio to break down the silos to ensure that children—especially high-need(s) children—receive seamless and high quality programs or services from birth to kindergarten.

We have had the opportunity to provide input and feedback throughout the application process to the governor's office, state agencies, the Ohio Business Roundtable, and the Ohio Department of Education personnel. We appreciate being included stakeholders.

The Ohio Association of Elementary School Administrators has a long-standing positive relationship with the governor's office, the State Board of Education, and the Department of Education. Our organization has taken the lead in the Ohio Ready Schools Initiative, a project designed to ensure that school personnel are ready for each and every child. OAESA has taken the lead in Ohio calling for both student readiness and school readiness. As a result of the Ready School three-year experience, we believe Ohio is in a unique position to expand its readiness system.

The Ohio Association of Elementary School Administrators strongly supports Ohio's application for the Race to the Top Early Learning Challenge Grant and remains an enthusiastic and vested partner in ensuring successful outcomes for students, teachers, principals, and schools across the state.

Sincerely,

Julie Davis

Julie Davis, Ed.D.
Executive Director

OEA
OHIO EDUCATION ASSOCIATION

Patricia Frost-Brooks, President
William Leibensperger, Vice President
Jim Timlin, Secretary-Treasurer
Larry E. Wicks, Executive Director

The OEA will lead the way for continuous improvement of public education while advocating for members and the learners they serve.

October 13, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Secretaries Duncan and Sebelius:

I write to express the Ohio Education Association's (OEA) support for Ohio's application to participate in the federal Race to the Top – Early Learning Challenge grant program. A successful application would bring important resources to be applied to the alignment of the systems supporting early childhood learning and development. Further, these resources would bolster Ohio's current ambitious public education transformation agenda fueled in part by Ohio's Race to the Top, Teacher Incentive Fund, and School Improvement Grants.

The OEA vision – *to lead the way for the continuous improvement of public education while advocating for members and the learners we serve* – guides our efforts to influence public school innovation and improvement, and productive alignments of K-12 to early learning and post-secondary education will be crucial to the future of Ohio's youth and economy.

We support the focus of the proposed initiative:

- Assure children are ready for kindergarten, with an emphasis on improving school readiness of high-need children;
- Include academic, health, and social-emotional preparedness in the readiness definition; and
- Require state and local agencies to align their systems and collaborate toward ensuring that all children, especially the most vulnerable, receive seamless, high-quality services and programs from birth to kindergarten.

We strongly believe that early childhood care and education settings must provide safe, nurturing environments, and that a key ingredient toward this end is the preparation, credentialing, and ongoing learning of early childhood professionals. We support standards-based systems, and look forward to the results of implementing a tiered quality rating and improvement system. Moreover, the interests of our members and the learners and families they serve will be best met by grant investments, not only in implementing the proposed systemic changes, but also by resource commitments to sustainable funding and evidence-based, continuous improvement.

For these reasons, the OEA supports Ohio's application for the federal Race to the Top – Early Learning Challenge grant program.

Sincerely,

Patricia Frost-Brooks

Patricia Frost-Brooks, President

225 E. Broad St., Box 2550, Columbus, OH 43216 ■ PHONE: (614) 228-4526 or 1-800-282-1500 ■ FAX: (614) 228-8771

An Affiliate of the National Education Association

Ohio Federation of Teachers
AFT, AFL-CIO
A Union of Professionals

1251 E. Broad Street
Columbus, OH 43205
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October 13, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius:

The Ohio Federation of Teachers is pleased to provide our strong support to Ohio's application for the Race to the Top Early Learning Challenge Grant. Clearly Ohio must develop citizenry that will contribute positively to society. Eliminating the readiness gap for Ohio's high needs children is the first step in achieving this goal. Ohio's plan to expand and align early learning and development standards, implement comprehensive kindergarten entry assessment, and design professional development opportunities to build capacity in the field is a solid one. When our children enter the K-12 system prepared to learn with the proper background, it provides the key to academic achievement. By addressing the needs of the most vulnerable children through strengthening Ohio's standards and assessments as well as the data systems to support them, Ohio is demonstrating a deep commitment to ensure that all children are prepared to learn.

As a stakeholder in the education community, the Ohio Federation of Teachers takes the responsibility to its children very seriously. We are committed to doing our part to create a productive learning environment for all children, particularly our youngest and most vulnerable. This letter serves as enthusiastic support for Ohio's application for the Early Learning Challenge Grant. The Ohio Federation of Teachers looks forward to contributing to the planning and implementing of a successful early learning experience for all students.

Sincerely,

Sue Taylor

Sue Taylor, President
Ohio Federation of Teachers

Action for Children

THE SOURCE
For Child Care and Early Learning Services

September 29, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sibelius,

On behalf of Action for Children, I would like to express our strong support for Ohio's request to participate in the *The Race to the Top Early Learning Challenge.* Action for Children has been a leader in providing services to support early care and education programs, educators and parents in Central Ohio for almost 40 years.

During this time, Action for Children has participated in the development and implementation of several key state initiatives including the Ohio Quality Rating System, Step Up to Quality and the Ohio Early Learning Initiative. Action for Children knows first hand about the value of a strong state infrastructure that includes standards, assessment and a strong data driven system. We believe that the work that has been started including, Step Up to Quality and the Ohio Professional Development Network, has resulted in a strong foundation in the development of a comprehensive system to meet the needs of children and families in Ohio. We believe that the state of Ohio is ready to create an effective early learning system that will supplement and build on the existing structures that are already in place.

Action for Children has been providing quality programs for children, youth and families in Central Ohio for almost 40 years. We understand the value of a system that includes a solid infrastructure, Quality Rating and Improvement System and a qualified work force. We are excited to be a part of this initiative that seeks to help states build more efficient and effective early learning systems for young children.

Respectfully,

Jeff Cullman
Board President

78 Jefferson Avenue • Columbus, OH 43215 • P: 614-224-0222 • F: 614-224-5437 • www.actionforchildren.org
Action for Children, established 1972 • Delaware County: 39 W. Winter Street, Delaware 43015
Union County: 940 London Avenue, Marysville 43040 • Madison County: 217 Elm Street, London 43140

OJFSDA

Ohio Job and Family Services Directors' Association

37 West Broad Street, Suite 1120 • Columbus, Ohio 43215

***Joel Potts**, Executive Director*

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing in support of Ohio's application for the Race to the Top Early Learning Grant. The Ohio Job and Family Services Director Association, representing county job and family services departments throughout Ohio, has long supported the elimination of the readiness achievement gap for Ohio's high needs children. If we are to stop the cycle of poverty in this country, we need to ensure that high needs children arrive at school with the necessary skills to learn what the school offers them,

Ohio's proposal will achieve the closing of the readiness gap by creating a single point of leadership and responsibility to better focus and coordinate Ohio's early learning efforts. This central point of authority will facilitate the continued development of early learning content standards and their alignment with kindergarten readiness.

By implementing a comprehensive kindergarten readiness assessment, Ohio will be able to test and improve an outcome based quality rating and improvement system to ensure that content standards are met. Designing and providing professional development opportunities targeting the content standards will build staff capacity and will familiarize existing staff with the content standards as well.

The Ohio proposal presents a coordinated approach of developing and implementing steps to close the school readiness gap for Ohio's most vulnerable children. Entering school equipped to learn will increase their ability to develop the skills necessary to succeed in the global economy.

The Ohio Job and Family Services Directors Association supports the Ohio application for funds from Race to the Top to improve the lives of high needs children through a targeted and coordinated effort.

Thank you for your consideration.

Sincerely,

Joel Potts
Executive Director

Phone: 614-221-3688 • Fax: 614-221-1667 • www.ojfsda.org

Ohio Job and Family Services Directors' Association

37 West Broad Street, Suite 1120 • Columbus, Ohio 43215

***Joel Potts**, Executive Director*

September 30, 2011

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Sibelius,

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Thank you for your consideration.

Sincerely,

Joel Potts
Executive Director

Phone: 614-221-3688 • Fax: 614-221-1667 • www.ojfsda.org

OHIO CHILDREN'S FOUNDATION
enhancing the lives of children

September 27, 2011

Arne Duncan, Secretary
U. S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

The Ohio Children's Foundation strongly supports our state's Race to the Top - Early Learning Challenge application.

During the past twenty years, the Ohio Children's Foundation has awarded millions of dollars to organizations and programs serving young children, ages birth to five. More recently, we have spent countless hours on committees and task forces, advocating for transformation and coordination of early learning systems statewide, a seamless continuum of education from preschool through third grade, and increased school and family partnerships.

Despite a change in political leadership, we believe Ohio is now on the brink of positive, substantive change in early care and education. A number of state advocacy groups have worked diligently to define what young children need and deserve to a bipartisan audience of elected officials, policy-makers, and local communities. A number of interdepartmental committees, with representatives from both previous and current administrations, have included ideas from a variety of stakeholders and providers to create a comprehensive plan for Ohio's early learning system.

We thank you on behalf of Ohio's youngest citizens for your consideration of our application for a Race to the Top - Early Learning Challenge grant.

Sincerely,

Barbara D. Miller
President

486 City Park Avenue
Columbus, Ohio 43215
tel 614.461.1939 | *fax* 614.461.1949
email info@ohiochildrensfoundation.org
www ohiochildrensfoundation.org

OHIO CHILDREN'S FOUNDATION
enhancing the lives of children

September 27, 2011

Kathleen Sebelius, Secretary
U. S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

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Despite a change in political leadership, we believe Ohio is now on the brink of positive, substantive change in early care and education. A number of state advocacy groups have worked diligently to define what young children need and deserve to a bipartisan audience of elected officials, policy-makers, and local communities. A number of interdepartmental committees, with representatives from both previous and current administrations, have included ideas from a variety of stakeholders and providers to create a comprehensive plan for Ohio's early learning system.

We thank you on behalf of Ohio's youngest citizens for your consideration of our application for a Race to the Top - Early Learning Challenge grant.

Sincerely,

Barbara D. Miller
President

486 City Park Avenue
Columbus, Ohio 43215
tel 614.461.1939 | *fax* 614.461.1949
email info@ohiochildrensfoundation.org
*www.*ohiochildrensfoundation.org

ReadySetSoar

4801 Springfield Street
Dayton, OH 45431

PH 937-236-9965
FX 937-233-0161

www.readysetsoar.org

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Secretary Duncan and Secretary Sebelius,

ReadySet*Soar* is the early care and education collaborative for Montgomery County in the Dayton, Ohio Region, working to ensure all children are ready for kindergarten. ReadySet*Soar* is the foundation for Learn to Earn Dayton, the education initiative focused on increasing the number of adults with a post-secondary credential. Currently 35.8% of the adults in Montgomery County have a post-secondary credential, far short of the goal of 60% by 2025 set by the Lumina Foundation. In response to this gap, the Dayton Region has invested private and public resources in the years from birth through age five to ensure long-term success for all children.

In Montgomery County and the Dayton Region we are in full support of Ohio's goal to eliminate the readiness achievement gap for high need children, as detailed in Ohio's proposal for the Race to the Top – Early Learning Challenge. The strategies outlined in the proposal – such as establishing a single point leader for early learning; expanding early learning content standards from birth through kindergarten; improving and expanding the Tiered Quality Rating and Improvement System; implementing a comprehensive kindergarten readiness assessment; and improving professional development are absolutely essential to the future success of our region and our state.

Ohio has the commitment and leadership to put these critical early learning strategies in place, and we fully support the state's submission in the Early Learning Challenge.

Sincerely,

Robyn Lightcap
Director, ReadySet*Soar*

Thomas J Lasley, II, Ph.D.
Executive Director, Learn to Earn Dayton

Deborah A. Lieberman
President, Montgomery County Commission

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Secretaries Duncan and Sebelius:

I am writing to express strong support for the State of Ohio's Race to the Top-Early Learning Challenge Grant application on behalf of groundWork, a nonpartisan advocacy initiative made up of a broad cross-section of organizations, concerned citizens, and community leaders working to increase access to high-quality early childhood supports for all of Ohio's children and families.

groundWork has partnered with advocates and policymakers since 2004 to improve and expand Ohio's early childhood supports prenatally through age six. Our efforts have built on the foundation started in the 1990s with Ohio's historic state investments in State Head Start, followed by decades of work to build one of the first statewide home visiting programs; a statewide Quality Rating and Improvement System; comprehensive early learning guidelines; a statewide Early Childhood Mental Health Consultation program; and a comprehensive and engaged Early Childhood Advisory Council.

While Ohio's investments in early childhood supports have not been immune to the nation's financial crisis, we feel strongly that the early childhood infrastructure established during the last twenty years, and the commitment of Ohio's public and private stakeholders to advancing quality, comprehensive early childhood strategies, have positioned our state to fully and successfully implement the goals of the Race to the Top- Early Learning Challenge.

The goals and strategies represented in the Early Learning Challenge are vital to moving Ohio to the next level of alignment and accountability in our early childhood system. Many of these strategies are already embedded in the vision created most recently by Ohio's Early Childhood Advisory Council, Early Childhood Financing Workgroup, and statewide early childhood advocacy organizations. These efforts have poised our state to embrace these strategies and hit the ground running.

We thank you for your commitment to raising early childhood to a national priority, and we look forward to partnering with you in that effort.

Sincerely,

Katie Kelly
Director, groundWork

The OHIO
PARTNERSHIP
to Build Stronger Families
Supporting Smart Investments in Quality-based
Programs for Babies and their Families

www.ohiopartnership.org

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Secretaries Duncan and Sebelius,

On behalf of the Ohio Partnership to Build Stronger Families, I am writing to strongly support the State of Ohio's Race to the Top- Early Learning Challenge Grant application.

The Ohio Partnership represents a statewide coalition of private funders and child advocacy organizations. We support smart investments in young children that increase a child's potential to succeed in school and life, improve family self-sufficiency, and decrease state spending on costly interventions down the line. We advance quality programs with proven outcomes that show a significant return on investment.

Ohio is providing national leadership in building statewide access to high quality home visiting services. In 2010, Ohio took substantial steps to improve its home visiting program, Help Me Grow. The state redesigned Help Me Grow to ensure that Ohio's home visiting standards use research-based practices and common data collection and evaluation. These policy changes reflect Ohio's commitment to building outcomes-driven early childhood interventions starting before birth and throughout the critical first five years of life.

As private funders and statewide advocacy organizations, we are committed to working with the State of Ohio to increase access to quality early education for Ohio's most high need children. We support the goals of the Race to the Top- Early Learning Challenge, and believe that the foundation of quality early childhood investments by the State, local communities, and private partners in Ohio has laid the groundwork for successful implementation of the RttT-ELC goals.

Thank you for your commitment to young children and the opportunity to partner with you in this historic federal initiative.

Sincerely,

Margaret Hulbert
Vice President, Strategic Resources & Public Policy
United Way of Greater Cincinnati

AFSCME
OHIO COUNCIL 8
AFL-CIO

6800 North High Street
Worthington, Ohio 43085-2512
Telephone: (614) 841-1918
Fax: (614) 841-1299
Toll Free: (800) 282-3014

September 28, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202
Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services 200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius,

Ohio Council 8, AFSCME, AFL-CIO is writing in support of Ohio's application for the Race to the Top Early Learning Challenge Grant Application. It is Ohio Council 8's belief that with this funding, Ohio can improve early education opportunities particularly for high needs children through expansion of professional development and access to the state quality rating system.

Ohio Council 8 represents Type A and Type B child care providers across Ohio. These providers open their homes to children in need from infants through school aged and provide a structured, educational, loving, and attentive care environment. For many children, especially high risk children who may require one on one attention, family child care can be the best option.

The Early Learning Challenge Grant would provide Ohio with significant opportunity to provide professional development, quality incentive, and other tools to in-home providers. The providers in turn, would be able to even better serve and educate children in their care. The Race to the Top funding would be particularly helpful for Type B providers as it would for the first time give these providers access to a quality rating incentive system.

Of course, Ohio Council 8 recognizes there is significant competition for this funding, but the state of Ohio has shown it's commitment to improving early childhood education and it's selection for this funding will benefit both providers and even more importantly the children in their care.

Sincerely,

John A. Lyall, President
Ohio Council 8, AFSCME, AFL-CIO

September 29, 2011
Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D. C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

Starting Point (Northeast Ohio's Child Care Resource and Referral agency) supports Ohio's Race to the Top Early Learning Challenge Grant (ELCG) application.

Ohio's goal to eliminate the readiness achievement gap for Ohio's high need(s) children is critical the success of Ohio and our region. We enthusiastically support and commit to working with the Ohio Department of Education and Ohio Department of Job and Family Services to implement the following strategies to achieve our state's goal:

- Create a new governance system for early learning in Ohio that will establish a single point of accountability for the results we want to achieve for Ohio's young children;
- Expand and align early learning content standards (birth through kindergarten entry);
- Base Tiered Quality Rating and Improvement System (TQRIS) on revised early learning contents standards. TQRIS will be: linked to licensing; include all settings (phased-in approach); and linked to child outcomes;
- Implement comprehensive K readiness assessment; and
- Design professional development opportunities to build capacity of field based on content standards.

We have partnered with our state government and other partners to build and implement a comprehensive early learning system, I am confident in Ohio's ability to effectively carry-out the strategies described in Ohio's Early Learning Challenge Grant application.

Sincerely,
Billie Osborne-Fears
Billie Osborne-Fears
Executive Director

STARTING POINT
FOR CHILD CARE
AND EARLY EDUCATION
4600 EUCLID AVENUE, SUITE 500
CLEVELAND, OHIO 44103
www.starting-point.org

A United Way Agency
216-575-0061 • FAX 216-575-0102 • 1-800-880-0971 • TTY: 1-800-750-0750
naccrra member

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Ohio Connection
State Family
Child Care Association
www.ohioconnection.org

Secretaries Duncan and Sebelius:

I am writing in support of Ohio's application for the Early Learning Challenge Grant. As a family child care home business operator and a licensed Pre-K teacher, I believe that a high quality early education is the foundation from which our children will build their life's knowledge and skills upon. The education, experiences and skills that they learn from birth to the age of five will be the building blocks of their future endeavors.

Facilities with high-quality programming will challenge the children to mentally and physically strive for higher goals in life. When interviewing with a new parent, I tell them to think of the old saying "Give a man a fish and he eats for the day. Teach a man to fish and he eats for a life time." It is the same with the facility you place your child with. One facility may teach your child to sing their ABC's and they feel they have accomplished something. A high-quality facility will teach them to say their ABC's, teach them to identify each letter, show them how these letters fit together to form a word, how the words form a sentence and become a story. One child will go into kindergarten singing a song, and the child from the other facility will go into kindergarten prepared for the next step.

I support Ohio's plans to implement a Quality Rating and Improvement System for all facilities that receive state funding. This will insure that low-income parents will have access to the same quality of programming that more financially fit parents do. *It takes a village to raise a child* and in this instance, the early education field is the village and we have the task of raising the high needs children placed in our care. America has lagged behind other countries when it comes to the education of our children. It is time for our country to step out in the forefront in this war. This is a war to combat future poverty, imprisonment, high school dropout, illiteracy and a multitude of other social ailments experienced by the children that we serve.

Sincerely,

Amelia Rodgers

Amelia Rodgers, President
Ohio Connection State Family Child Care Association
5527 Rose Terrace
Dayton, OH 45415
937-279-9152

Ohio School Boards Association

October 3, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Mr. Duncan and Ms. Sebelius:

The Ohio School Boards Association, founded in 1955, represents 715 of Ohio's public school boards and over 1.8 million students. As an association, we have forged a strong partnership with the Ohio Department of Education and have been fully supportive of Ohio's previous efforts to secure Race to the Top Grants to advance public education in Ohio.

Research has consistently shown that assuring that children are ready for kindergarten is a key component in the overall educational success of children. Ohio's Race to the Top-Early Learning Challenge Grant will address the needs of our most vulnerable children by developing more efficient and effective early learning systems for young children and their families. Ohio's goal is to eliminate the readiness achievement gap for all children by providing high quality programs and services from birth to kindergarten that includes academic, health and socio-emotional preparedness.

We know that investment in early care and education pays off in a number of ways. Children who receive quality early education are less likely to need special education courses and are more likely to graduate from high school and be employed over their lifetime. These individuals are also less likely to rely on public assistance or end up involved in the justice system.

Ohio's overarching mission for education is ensuring that our children have the best opportunities to learn and succeed. Thus, the Race to the Top-Early Learning Challenge Grant is a critical opportunity for Ohio to strategically leverage this federal investment into practices and policies that will narrow the achievement gap for all children and is wholeheartedly supported by the Ohio School Boards Association.

Thank you,

Richard C. Lewis, CAE
Executive Director

RL:ts

8050 N. High Street
Suite 100
Columbus, Ohio 43235-6481

(614) 540-4000
(800) 589-OSBA
(614) 540-4100 [fax]
www.ohioschoolboards.org

OSBA leads the way to educational excellence by serving Ohio's public school board members and the diverse districts they represent through superior service and creative solutions.

PCSAO
PUBLIC CHILDREN SERVICES
association of ohio

510 East Mound Street, Suite 200
Columbus, OH 43215
Ph: 614-224-5802 • Fx: 614-228-5150
www.pcsao.org

October 3, 2011

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20202

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Dear Secretary Sebelius and Secretary Duncan,

It is with great pleasure that the Public Children Services Association of Ohio's Board of Trustees and Membership write to support Ohio's response to the Race to the Top-Early Learning Challenge Initiative. The Public Services Association of Ohio represents the 88 county public agencies responsible for safety and permanency of abused and neglected children and for providing services for them and their families. As of 2009, there were 4000 children in custody between the ages of 0-6, and we have been experiencing an increase in severity of cases to this age group in the past two years as the economy has worsened.

Many of these children are in publicly funded Child Care or Head Start slots and consistent quality programming is essential to their well-being in what sometimes has otherwise been a chaotic life. Additionally, Ohio Kinship Caregivers are providing care for over 90,000 children in and quality child care helps them provide loving, nurturing care for their related children.

Many children in our system have experienced trauma and experience accompanying health and mental health issues from this trauma. Quality cognitive, health and mental health programs will allow Ohio to help all children, in this age range, reach the measurable outcomes we want for them in all child care settings. Ohio has had great success with its Early Childhood Mental Health Consultation Program over the past 10 years which has provided consultation and referral when necessary for children exhibiting signs of emotional/social problems in early care settings. In 2010 over 24,000 children were served in a classroom setting or with follow up services.

We look forward to working with the new early learning system in Ohio to make certain that we can achieve the results we want for all children in our care, and strongly support the value of this work. Thank you for giving states like Ohio to move ahead in the work that we have been doing for Ohio's youngest children.
If you have any further questions we both can be reached at 614-224-5802 or Crystal Allen at Crystal@pcsao.org and Gayle at Gtenenb@aol.com.

Warm Regards,

Crystal Ward Allen
Executive Director

Gayle Channing Tenenbuam
Public Policy and Governmental Affairs

Central Office
370 South Fifth Street
Columbus OH 43215-5408
614-341-7700 * fax 614-341-7701
800-227-6446

Regional Offices
3634 Euclid Avenue, Suite 200
Cleveland OH 44115
216-541-5915 * fax 216-541-5921

3077 Kettering Blvd., Suite 300
Dayton OH 45439-1949
937-534-0600 * fax 937-534-0613
866-534-0650

Children's Hunger Alliance
Feeding hungry minds and bodies®

www.ChildrensHungerAlliance.org

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius,

I am writing to offer the support of Children's Hunger Alliance to Ohio's Race to the Top – Early Learning Challenge Grant application. We are the statewide organization dedicated to breaking the cycle of childhood hunger. One of the ways that we do this is by sponsoring the child nutrition program in home-based child care. We account for 50% of Ohio's total program, sponsoring feeding programs in the homes of 2000 providers who do childcare for low-income children.

As part of our work, through funds donated by corporations and foundations throughout Ohio, we provide training and early learning materials, often with a nutrition or physical activity focus to assist these providers in providing a successful early learning experience for these children.

We are offering our support in any way that we can to make Ohio's project successful. Since we are in these homes a minimum of three times a year, we have a significant personal connection to them and can be a conduit for these providers to the Race to the Top – Early Learning Challenge Grant programs. This can often be a more difficult population to connect with around quality initiative programs so our access will significantly break down barriers.

We are particularly excited that the program intends to include all early learning programs in the quality initiative and stand ready to assist in whatever way possible.

Sincerely,

Mary Lou Langenhop
CEO

FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

September 29, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

RE: Race to the Top Early Learning Challenge Initiative Letter of Support

Dear Secretary Duncan and Secretary Sebelius:

The Ohio Alliance of YMCAs would like to take this opportunity to express our support for the Ohio Department of Job and Family Services' (ODJFS) application for the Race to the Top Early Learning Challenge Initiative released by the U.S. Departments of Education and Health and Human Services. Ohio YMCAs care for more children in our early childhood and afterschool programs than any other provider in the state. We provide children under age six with critical, quality early learning and school age kids with safe, dependable places to grow before and after school.

As a part of Ohio's early childhood community, we support ODJFS' goal of eliminating the readiness achievement gap for Ohio's high needs children, as well as the Department's strategies to achieve the goal.

Creating a new governance system for early learning in Ohio that will establish a single point of accountability for results is key to our success. By expanding and aligning early learning content standards, we can deliver a more comprehensive early learning experience. Additionally, basing Tiered Quality Rating and Improvement System (TQRIS) on those revised early learning contents standards will ensure our children are receiving a higher quality early education.

Creating and implementing a comprehensive kindergarten readiness assessment will make our early education system accountable to our children. Finally, our child care professionals would prosper by developing opportunities to build capacity based on improved content standards.

The Race to the Top Early Learning Challenge has the potential to transform early education for Ohio's children. Please feel free to contact me with any questions at 614-325-8149. I look forward to continuing to work with Ohio Department of Job and Family services on these endeavors.

Sincerely,

Beth Tsvetkoff, Esq.
Executive Director, Ohio Alliance of YMCAs

OHIO ALLIANCE OF YMCAS
40 West Long Street, Columbus, Ohio 43215
P 614 384 2300 F 614 384 2301 www.ohioymcas.org

FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

September 30, 2011

Arne Duncan, Secretary
U.S Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health &
Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

The YMCA of Greater Cleveland would like to take this opportunity to express our support for the Ohio's application for the Race to the Top Early Learning Challenge Initiative released by the U.S. Departments of Education and Health and Human Services. Our YMCA provides early care and education for more than 1,200 children in each year. We provide children under age six with high quality early learning and school age children with safe, nurturing places to go before and after school.

As a part of Ohio's early childhood community, we support Ohio's goal of eliminating the readiness achievement gap for Ohio's high needs children, as well as the strategies to achieve this goal. The YMCA is prepared to help ODE and ODJFS implement the state's plan for Ohio.

The YMCA supports the concept that creating a new governance system for early learning in Ohio with a single point of accountability is important to our success. By expanding and aligning early learning content standards, Ohio will deliver a more comprehensive early learning experience for the children in our programs. Additionally, basing a Tiered Quality Rating and Improvement System (TQRIS) on those revised early learning content standards will ensure our children are receiving a higher quality early education.

Creating and implementing a comprehensive kindergarten readiness assessment will make our early education system more accountable. Finally, our child care professionals would benefit from opportunities to build capacity based on improved content standards.

The Race to the Top Early Learning Challenge has the potential to transform early education for all of Ohio's children. Please feel free to contact me with any questions at 216-263-6871. I look forward to continuing to work to improve early education for Ohio's children.

Sincerely,

Amanda Showman
Director of Operations, Child Care Services

YMCA OF OF GREATER CLEVELAND
2200 Prospect Avenue East, Suite 900
Cleveland, Ohio 44115-2697
P 216.344.0095 www.ClevelandYMCA.org

FOR YOUTH DEVELOPMENT®
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

FAYETTE COUNTY FAMILY YMCA

September 30, 2011

Arne Duncan, Secretary
U.S Department of Education
Services
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human

200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

The Fayette County Family YMCA would like to take this opportunity to express our support for the Ohio's application for the Race to the Top Early Learning Challenge Initiative released by the U.S. Departments of Education and Health and Human Services. Our YMCA provides early care and education for more than 400 children in each year. We provide children under age six with high quality early learning and school age children with safe, nurturing places to go before and after school.

As a part of Ohio's early childhood community, we support Ohio's goal of eliminating the readiness achievement gap for Ohio's high needs children, as well as the strategies to achieve this goal. The YMCA is prepared to help ODE and ODJFS implement the state's plan for Ohio.

The YMCA supports the concept that creating a new governance system for early learning in Ohio with a single point of accountability is important to our success. By expanding and aligning early learning content standards, Ohio will deliver a more comprehensive early learning experience for the children in our programs. Additionally, basing a Tiered Quality Rating and Improvement System (TQRIS) on those revised early learning contents standards will ensure our children are receiving a higher quality early education.

Creating and implementing a comprehensive kindergarten readiness assessment will make our early education system more accountable. Finally, our child care professionals would benefit from opportunities to build capacity based on improved content standards.

The Race to the Top Early Learning Challenge has the potential to transform early education for all of Ohio's children. Please feel free to contact me with any questions at 740-335-0477. I look forward to continuing to work to improve early education for Ohio's children.

Sincerely,

Douglas Saunders
CEO/Executive Director

P.O. Box 1021, 100 Civic Drive, Washington Court House, Ohio 43160
740-335-0477 www.faycoymca.org

FOR YOUTH DEVELOPME
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBI

September 30, 2011

Arne Duncan, Secretary
U.S Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

In Greater Cincinnati, the YMCA provides high quality early learning programs, before and after school, no fee after school enrichment at high need schools, tutoring, holiday and summer camp programs in 72 locations serving thousands of children every year, including many programs engaged in Ohio's six year old voluntary tiered licensing system, Step Up To Quality.

As a part of Ohio's early childhood community, we share responsibility with families, schools, and funders for eliminating the readiness achievement gap for Ohio's children. We are actively engaged in working with the Departments of Education and Jobs and Family Services, and will be continuing to do so under the Race to the Top plan.

Ohio government officials, schools, early learning providers, and local communities have made great strides in the development of an early learning system that meets the goals of our state and communities, and the Race to the Top Early Learning Challenge. Receiving this grant would allow us to transform early education for Ohio's children. Please feel free to contact me with any questions at (513) 921-0911. We look forward to continuing the work of delivering high quality early education for Ohio's children.

Sincerely,

Susan Stai
Executive Director
YMCA of Greater Cincinnati
Child Development Services Branch

FOR YOUTH DEVELOPMENT
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

September 29, 2011

Arne Duncan, Secretary
U.S Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

The YMCA of Central Ohio would like to take this opportunity to express our support for the Ohio's application for the Race to the Top Early Learning Challenge Initiative released by the U.S. Departments of Education and Health and Human Services. Our YMCA provides early care and education for more than 3,500 children in central Ohio each year. We provide children under age six with high quality early learning and school age children with safe, nurturing places to go before and after school.

As a part of Ohio's early childhood community, we support Ohio's goal of eliminating the readiness achievement gap for Ohio's high needs children, as well as the strategies to achieve this goal. The YMCA is prepared to help ODE and ODJFS implement the state's plan for Ohio.

The YMCA supports the concept that creating a new governance system for early learning in Ohio with a single point of accountability is important to our success. By expanding and aligning early learning content standards, Ohio will deliver a more comprehensive early learning experience for the children in our programs. Additionally, basing a Tiered Quality Rating and Improvement System (TQRIS) on those revised early learning contents standards will ensure our children are receiving a higher quality early education.

Creating and implementing a comprehensive kindergarten readiness assessment will make our early education system more accountable. Finally, our child care professionals would benefit from opportunities to build capacity based on improved content standards.

The Race to the Top Early Learning Challenge has the potential to transform early education for all of Ohio's children. Please feel free to contact me with any questions at 614-573-3600. I look forward to continuing to work to improve early education for Ohio's children.

Sincerely,

John E. Bickley
President/CEO

YMCA OF CENTRAL OHIO
40 West Long Street, Columbus, Ohio 43215
P 614 224 1142 **W** ymcacolumbus.org

United Way
of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202-1478
Phone 513-762-7100

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Secretaries Duncan and Sebelius,

We are writing to pledge the support of United Way of Greater Cincinnati for Ohio's Race to the Top - Early Learning Challenge initiative application. United Way's first priority and the one in which we invest the largest amount of money and work is to ensure that at least 85 percent of children in our communities are prepared for kindergarten by 2020. We believe the plan of action outlined in Ohio's proposal reflects what we know from our own work and investment to be the best strategy for achieving that goal across Ohio.

Specifically, we will continue to support Ohio to:

- Implement a comprehensive Kindergarten entry assessment;
- Expand and align early learning content standards (birth through kindergarten entry);
- Design professional development opportunities to build the capacity of the field based on the content standards;
- Base our Tiered Quality Rating and Improvement System on revised early learning content standards which are linked to licensing, include all settings through a phased-in approach, and are linked to child outcomes; and
- Create a new governance system for early learning in Ohio that will establish a single point of accountability and align state work to get the results we want to achieve for Ohio's youngest children.

We are pleased to support Ohio's Race to the Top - Early Learning Challenge application and to align our investment and work with the work outlined in grant.

Sincerely,

Robert C. Reifsnyder
President

Valarie Sheppard
Chair, Board of Directors

360 South Third Street
Columbus, Ohio 43215-5485
tel 614.227.2700
fax 614.224.5835
liveunitedcentralohio.org

United Way
of Central Ohio

October 14, 2011

Honorable Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Honorable Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

From the first kindergarten in America (1838) to widespread use of kindergarten-readiness assessments, Ohio has been at the forefront of early childhood development. The reforms and innovations embodied in Ohio's Early Learning Challenge proposal show that we are poised to step forward once again.

Ohio's approach has a high likelihood for success: the focus on child-centered outcomes, program quality, and aligned early childhood-K/12 standards will help reduce the achievement gap for high need children.

Ensuring that children enter kindergarten ready to succeed is a priority for United Way of Central Ohio. We work closely with early childhood educators and care providers; city, county, and state officials; corporate leaders; and community members. With an annual investment of approximately $5.3 million, our early childhood initiatives and funded programs serve approximately 17,500 children and work with nearly 200 early childhood centers.

United Way of Central Ohio is firmly committed to the goals and expectations of this proposal. We stand with you as you work to build an aligned, impactful early childhood approach. It is time. And we are ready.

Sincerely,

Janet E. Jackson
President and CEO

United Way
SUCCESS BY 6
United Way of Greater Cincinnati
2400 Reading Road
Cincinnati, OH 45202-1478

October 5, 2011

The Honorable Arne Duncan
The Secretary of U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

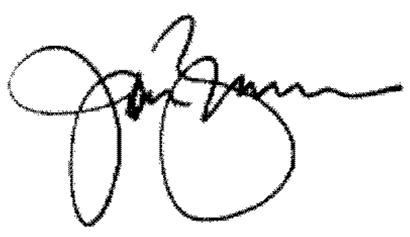
The Honorable Kathleen Sebelius
The Secretary U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Mr. Duncan and Ms. Sebelius,

As concerned members of the greater Cincinnati, Ohio region, and as individuals who have invested significant resources over the last nine years to improve kindergarten readiness in this community, we write this letter in support of the State of Ohio's application for the Early Learning Challenge Grant. Through the work of United Way Success By 6® in our community, we have implemented strategies which show that high quality early childhood education is effective in preparing children for kindergarten. Our data show that the benefits are greatest for children who have the most need. This data has helped raise more than $9 million in local funds to build upon the state's funding to improve quality and increase the number of quality-rated programs in the region.

The early learning work in greater Cincinnati builds on the state's efforts to improve school readiness and includes early childhood assessments, teacher and administrator training, continuous learning and improvement and recognition that readiness includes multiple areas of early childhood development. Locally, we have concluded that the best way to sustain and expand these efforts is for the State to continue to strengthen the early childhood system and increase the resources devoted to these critical areas. The Early Learning Challenge Grant would position the state to accomplish this. Ohio has had a strong history of creating innovative approaches to improve outcomes for our youngest citizens. The grant would allow us to build on our successes and continue to focus on one of our most important assets, our children. Ohio is an outstanding candidate to be awarded the grant because of our successes to date and the ability of local communities to effectively implement the state's plan. On behalf of the Success By 6 Executive Committee,

Sincerely,



James Zimmerman
Retired Chairman and CEO
Federated Department Stores (Macy's, Inc.)
Founding Chair, Success By 6

attachment

Early Education and Development Stakeholders

John R. Kasich, *Governor*
Debe Terhar, *President*, State Board of Education
Stan W. Heffner, *Superintendent of Public Instruction*

September 30, 2011

The Honorable Arne Duncan
U.S. Secretary of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

The Honorable Kathleen Sebelius
U.S. Secretary of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

Ohio has developed a Race to the Top Early Learning Challenge Application that meets the challenge you and President Barack Obama have posed for states to build a coordinated system of early learning and development. While the focus of the initiative is to improve early learning for the nation's most vulnerable populations, we believe all Ohio children, birth through age five, will benefit from these efforts. The State Board of Education strongly supports the opportunity to ensure that all children, especially high-needs children, enter kindergarten with the necessary skills to succeed in school and in life.

The State Board of Education, Ohio Department of Education, and its partner state agencies are committed to implementing Ohio Governor John Kasich's school readiness reform agenda and achieving the goals laid out in Ohio's Race to the Top Early Learning Challenge Grant application. Ohio's approach will include a well-coordinated state early childhood system, high quality and accountable early learning and development programs, improved outcomes for children, an improved early childhood education workforce, and a system for measuring outcomes and progress, all of which are aligned to Ohio's PreK-12 comprehensive reform agenda.

Our vision is for all Ohio students to graduate with the knowledge, skills and behaviors necessary to participate in the global economy. We know that for our students to leave our system ready for the future, they must enter it ready to succeed. The State Board of Education strongly supports Ohio's application for the Race to the Top Early Learning Challenge Grant and looks forward to working with the Ohio Department of Education, our partner state agencies and other early learning strategic partners to ensure young children have access to high quality early learning programs that provide the foundation for future educational success.

President, State Board of Education

Vice President, State Board of Education

25 South Front Street
Columbus, Ohio 43215
sboe.ohio.gov
(877) 644-6338
(888) 886-0181 (TTY)

FIGHT CRIME: Invest in Kids Ohio

Hundreds of Police Chiefs, Sheriffs, Prosecutors, other Law Enforcement Leaders, and Violence Survivors Preventing Crime and Violence

October 5, 2011

The Honorable Arne Duncan
U. S. Department of Education
400 Maryland Ave. SW
Washington, D.C. 20201

The Honorable Kathleen Sebelius
U. S. Department of Health and Human Services
200 Independence Ave. SW
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sibelius:

I am writing on behalf of the members of Fight Crime: Invest in Kids Ohio to express our support for our state's Race to the Top-Early Learning Challenge application.

Fight Crime: Invest in Kids Ohio is an organization of over 380 sheriffs, chiefs of police and prosecutors from all 88 Ohio counties who believe that high-quality early learning is a very powerful crime prevention tool. Research confirms what law enforcement leaders know from experience on the front lines against crime: when at-risk kids have access to high-quality early learning beginning at birth (or earlier) they are far more likely to enter school ready to succeed and graduate and far less likely to commit violent crimes as juveniles and adults. We do not run or fund any programs, nor do we accept any government funding. Our role is to advocate for proven crime prevention programs.

Since 2003, Fight Crime: Invest in Kids members have advocated for early learning funding and policies to improve the quality of early learning and/or increase access for at-risk youngsters to high-quality early education and evidence-based home visiting programs. For example, we supported the creation and implementation of the Quality Rating and Improvement System and worked very hard to convince the Governor and legislature to participate in the Maternal, Infant and Early Childhood Home Visiting Program. We will continue to raise the unique voice of law enforcement to assure that our state maintains and expands its investment in these two programs to comply with the requirements of the RTT-ELC grant should our application be successful.

Thank you for this opportunity and your consideration of Ohio's application.

Sincerely,

Cyndy Rees
State Director
Fight Crime: Invest in Kids Ohio

253 Murphy's Green Dr • Powell, OH 43065 • Phone (614) 264-6662 • Fax (614) 389-4301 • www.fightcrime.org/oh

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Ohio Chapter

September 29, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius;

The Ohio Chapter of the American Academy of Pediatrics enthusiastically supports the State of Ohio's application for the Race for the Top- Early Learning Challenge.

The Ohio AAP represents over 2,900 pediatricians and pediatricians in training, and we believe the goal of eliminating the readiness achievement gap of Ohio's high needs children to be one of the most important components that needs addressed in the overall health and well-being of Ohio's children.

Providing a system that creates a new governance system for early learning focused on outcomes and aligned content standards, as well as implementing a comprehensive kindergarten readiness assessment would go a long way toward improving outcomes for Ohio's children.

The Ohio AAP has a particular interest in the health components of this plan, with emphasis on work around the social and emotional readiness of children, and will be committed to working with the State of Ohio to provide expertise, time and energy to achieving their goals in their funding application.

If you have any questions, or I can be of further assistance, please do not hesitate to contact me at 614-846-6258.

Warmest regards,

Melissa Wervey Arnold
Executive Director

Ohio Chapter
450 West Wilson Bridge Road
Suite 215
Worthington, OH 43085
Phone: 614/846-6258
Fax: 614/846-4025
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www.aap.org

Ohio Children's Hospital Association

Saving, protecting and enhancing children's lives

September 28, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius:

Please accept this letter as recognition of our enthusiastic support of Ohio Governor Kasich's application for a Race to the Top – Early Learning Challenge grant (RttT-ELC).

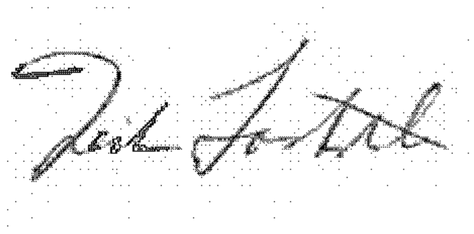
Recent research and an expanding knowledge base provide convincing evidence that the young child's earliest experiences have significant impact on present and later health and well-being. In the early years, health and physical, social, emotional, and cognitive development are integrally intertwined, and functioning in any one of these areas can be impeded or enhanced by the context of the early experiences in children's lives. The RttT-ELC grant recognizes the need to examine all facets of a child's development and provides states with a unique opportunity to create and strengthen systems to support it.

Ohio has long been recognized as a leader in early childhood education and development and our system has many strengths upon which to build. We have worked hard to ensure our neediest children have access to quality health care. Ohio has arguably the strongest network of children's hospitals in the nation—hospitals that are committed to ensuring that all three million Ohio children have access to the highest quality health care possible regardless of their families' ability to pay. We've also been a national leader in health care coverage for disadvantaged children. Nearly 1.1 million children in Ohio (1 out of 3) are covered by the state's Medicaid program. Our strengths go beyond our health care system too: we've established state-level guidelines for programs caring for infants and toddlers; built a quality rating system to examine the quality of experience our children receive in out-of-home settings; and we've implemented a statewide kindergarten readiness assessment to measure children's pre-literacy skills.

We are excited about the opportunity to build upon this foundation. This grant will afford us the opportunity to implement a comprehensive kindergarten readiness assessment – one that reflects all aspects of a child's development; expand our state's quality rating system to all programs; and build the data systems necessary to track child progress over time. We will be able to build a system focused on the results we want to achieve for our young children most in need.

Nothing matters more to the future of our state, nation and world than protecting the health and well-being of our children. We are an eager partner in the State of Ohio's application for this important work.

Sincerely,



Nicholas C. Lashutka
President

Ohio Association of
COUNTY BEHAVIORAL HEALTH AUTHORITIES

September 30, 2011

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Sebelius,

On behalf of the Ohio Association of County Behavioral Health Authorities and the Alcohol, Drug Addiction and Mental Health Boards that we represent, I would like to take this opportunity to express support for the State of Ohio's grant application for the Race to the Top Early Learning Challenge.

The grant will help provide valuable and much needed resources to help in our state's goal of cross-system collaboration that yields better coordination and assessment mechanisms for Ohio's children in addition to supporting family engagement activities. By taking constructive steps to eliminate the readiness achievement gap for Ohio's high needs children, all of the public systems and the state in general will benefit.

Thank you for your consideration.

Sincerely,

Cheri L. Walter, CEO

Holmes County
General Health District

Health Commissioner
D.J. McFadden, MD, MPH
dmcfadden@holmeshealth.org

September 29, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Arne Duncan and Kathleen Sebelius,

I am writing to share my support of the application from the State of Ohio for the Race to the Top—Early Learning Challenge funding opportunity. I serve as the Health Commissioner for a small, rural community. We are a part of Appalachia and we are home to the largest Amish population in the world.

In my community, poverty and the education level of our parents influences the school readiness of our children. Nearly half of our children do not speak English as their first language, as they speak Pennsylvania Dutch primarily. Given these barriers to school readiness, the public health community has worked hard through the Help Me Grow program to bring students up to the level that they need to be to be school ready. .

The proposal from the state of Ohio is exciting to me because it has taken a multidisciplinary approach to the problem. Ohio has adopted a whole child approach to school readiness, and as a physician, I am pleased that health has not been ignored in the process.

Through the efforts of this grant, more Ohioans and more Holmes County Residents will be prepared for school. This will prepare more students to move on to secondary education, boost the states economy, and potentially improve the public's health. Education is clearly liked to health. I support the application from Ohio without reservation, and I value your time to consider the application.

Sincerely,

D. J. McFadden, MD MPH

Public Health
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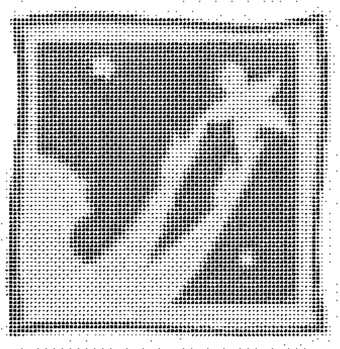
85 North Grant Street, Suite B • Millersburg, Ohio 44654
Phone: 330-674-5035 • Toll Free: 1-877-674-5035 • Fax: 330-674-2528 • www.holmeshealth.org



EVERY CHILD SUCCEEDS

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Tel 513-636-2830
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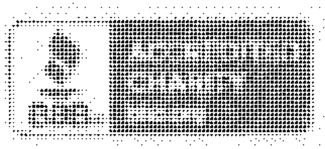
Email EveryChildSucceeds@cchmc.org



October 5, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Secretaries Duncan and Sebelius,

On behalf of the Cincinnati Children's Hospital Medical Center, United Way of Greater Cincinnati and the Community Action Agency Every Child Succeeds program, I am writing to strongly support the State of Ohio's Race to the Top- Early Learning Challenge Grant application.

Every Child Succeeds (ECS) was established in 1999 in Greater Cincinnati, as a home visitation program helping at-risk families ensure a successful start for their young children. ECS provides home visits for first-time mothers who are young, low-income, single and/or receiving inadequate prenatal care – factors that put children at risk for cognitive deficits, delayed development, abuse, neglect and poor academic achievement over the long-term. Home visits start during a mother's pregnancy and continue through the child's third birthday, allowing for support at all major developmental stages. Since 1999, ECS has served nearly 16,600 families through approximately 337,000 home visits.

Ohio is providing national leadership in building statewide access to high quality home visiting services. In 2010, Ohio took substantial steps to improve its home visiting program, Help Me Grow. The state redesigned Help Me Grow to ensure that Ohio's home visiting standards use research-based practices and common data collection and evaluation. These policy changes reflect Ohio's commitment to building outcomes-driven early childhood interventions starting before birth and throughout the critical first five years of life.

We are committed to working with the State of Ohio to ensure that all children have an optimal start and are ready for Kindergarten. We support the goals of the Race to the Top- Early Learning Challenge, and believe that the foundation of quality early childhood investments by the State, local communities, and private partners in Ohio have laid the groundwork for successful implementation of the RttT-ELC goals.

Thank you for your commitment to young children and the opportunity to partner with you in this historic federal initiative.

Sincerely,

Judith B. Van Ginkel, Ph.D
President, Every Child Succeeds
Professor of Pediatrics,
Cincinnati Children's Hospital Medical Center
(513) 636-2830
judith.vanginkel@cchmc.org

VOICES FOR OHIO'S CHILDREN

September 27, 2011

Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Dear Arne Duncan:

Please accept this letter of support for the Ohio Race to the Top Challenge Grant application. On behalf of Voices for Ohio's Children and the nearly 3 million Ohio children, it is my pleasure to support the effort of the State of Ohio on this application. Voices for Ohio's Children is the non-partisan voice of Ohio's children, with more than 200 collaborative partners, we impact the changes in public that improve the health, safety, education, family stability and childcare of Ohio's children and their families.

Voices is a statewide advocacy organization that infiltrates the local community by our continual engagement with local, state and federal organizations, as well as small, child serving groups as the individuals serving children on a daily basis often have the best policy content input. Voices seek sound public policy for Ohio's children. The concepts proposed in the grant application such as are the exact concepts that are supported.
Voices focus much of our work on simplifying public systems and reducing bureaucratic barriers to access to services to families. That makes the TQIRS an ideal spot to incorporate some of our simplification measures. Below you will find ways that Voices supports incorporating Sick children are unable to learn.

- A part of the application/paperwork process at entrance into a childcare and/or school setting, simply asking if children have health care coverage could be a good first step. If it is identified, a setting could then give information to the family and assist in getting the application process started to get the child into Medicaid or CHIP coverage. This could also be incorporated as a requirement for a Step Up to Quality Star Rating.

- To help address the unmet healthcare needs and improve academic outcomes for children, Express Lane Eligibility could be implemented in school and early care settings. Many children who are uninsured but already eligible for Medicaid/CHIP coverage are enrolled in other public programs. States now can use an option—*Express Lane Eligibility*-- to reach these children and determine their eligibility with relevant findings from other public programs such as WIC, food stamps, child care, and school lunch. For example, if the school lunch program has determined that a child lives in a family with income less than 133% of the federal poverty level, the state can rely on that determination to enroll or renew the child in Medicaid/CHIP without re-calculating income or requiring the family to resubmit or re-verify the information. Ohio has not yet implemented this option. It is newer and more complex and will require more thought and planning.

Presumptive eligibility for children and child care/school setting as a "Qualified Entity": Presumptive eligibility allows children to receive the care they need while their eligibility for coverage is being determined. "Qualified entities" such as Medicaid providers, WIC programs and Head Start programs, make a preliminary or presumptive determination that a child is eligible for Medicaid.

Sincerely,

Amy N. Swanson
CEO

A MEMBER OF Voices FOR AMERICA'S CHILDREN

3634 EUCLID AVENUE, STE 101 • CLEVELAND, OH 44115 PH: 216-881-7860 FX: 216-881-7863
510 E. MOUND STREET, STE 200 • COLUMBUS, OH 43215 PH: 614-225-9073 FX: 614-228-5150
WWW.VFC-OH.ORG TOLL FREE: 877-881-7860

VOICES FOR OHIO'S CHILDREN

September 27, 2011

Kathleen Sebelius
Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

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Sincerely,

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CEO

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SISTERS *of* CHARITY FOUNDATION
OF CANTON

September 27, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius,

Please accept this letter as verification of the Sisters of Charity Foundation of Canton's full support of Ohio's grant request for the Race to the Top – Early Learning Challenge Initiative. For many years, Ohio has been recognized as a leader in the field of early education and care and has worked hard to build a system of aligned services for families with young children – particularly for high-needs children and their families. As is true of most states during these difficult economic times, Ohio has struggled to maintain this work during the last few years despite the efforts of many in government, philanthropy, early childhood, education, and business. If awarded, this grant will help Ohio continue its forward movement and build on many highly successful and innovative strategies and programs.

Over the last decade, Ohio has focused on building a strong infrastructure for early education and care. Specifically, we have created and implemented a tiered quality rating system, infant and toddler program guidelines, early learning content standards, a kindergarten readiness assessment in the area of pre-literacy, a professional development registry for early childhood professionals to track and align continuing education coursework, and much more.

Yet there is so much more to do. We are eager to expand our quality rating system to include all early childhood programs and to work toward tracking child outcomes and kindergarten readiness. In addition, we must expand and align our kindergarten readiness assessment and

early childhood content standards to include all readiness domains. With these resources, we will be able to create a system that links child and program data across state agencies and sectors. Most important, we will create a new early learning governance system that will establish a single point of accountability for the results we want to achieve for Ohio's children. We are fortunate to have the support of many. Ohio's effort to build a strong system for early learning has broad support – from the Governor's office to state departments, from nonprofit organizations to philanthropic foundations, and from families to the business community. Further, the Sisters of Charity Foundation of Canton, along with several other foundations across the state, has helped to support this effort with funding for grant writing and facilitation. As president of this Foundation, I currently serve on Ohio's Early Childhood Advisory Council and was one of the original members of the quality rating planning team many years ago. Our Foundation has invested nearly $9 million in a local early childhood effort focused on improving the quality of early childhood settings in Stark County and building a high-quality professional development center for early childhood professionals. In addition, we have partnered with the W.K. Kellogg Foundation and many others in investing $9.5 million to implement SPARK (Supporting Partnerships to Assure Ready Kids), a school readiness program for children ages 3-5 in six counties throughout Ohio. The Sisters of Charity Foundation of Canton has a longstanding commitment to early childhood and a willingness to partner at the local, state, and national levels to support families with young children.

In closing, I want to thank you for this important opportunity and ask you to consider Ohio a state that is willing, able, and yes, eager to step up to the plate and hit a home run for children.

Sincerely,

Joni T. Close

Joni T. Close
President

THE RAYMOND JOHN
WEAN FOUNDATION

September 30, 2011

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Sebelius:

The Raymond John Wean Foundation has focused on improving the lives of the youngest citizens in Youngstown and Warren in Ohio since 2002. We recognized that early childhood policy and systems matter in Ohio and that consistent and co-ordinated state-wide policies and practices improve the cognitive, social, emotional and physical development of the children who live in the Mahoning Valley.

In 2004, the state of Ohio embarked on a comprehensive policy audit and assessed their early childhood system in eight different, broad domain areas in order to take stock prior to a comprehensive priority setting endeavor with concrete action steps. This work has continued for almost ten years under both Republican and Democrat administrations in both good and not-so-good economic times.

Coordination of services for young children within all the respective state agencies dealing with their needs has been a deliberate focus in Ohio. The state is now ready to strengthen this infrastructure and bring the delivery system to scale with the help of the Early Learning Challenge Grant.

The Raymond John Wean Foundation continues to support this state-wide effort that focuses on local needs while creating quality benchmarks for all children in Ohio. The Foundation encourages your office to support the continued development and implementation of a connected, accountable early learning system so that Ohio's children can truly compete in the race to the top.

Sincerely,

Janet R. Weisberg
Program Officer
Early Childhood Development and Social Services

108 Main Avenue, SW, Suite 1005 • Warren, Ohio 44481 • Phone: 330.394.5600 • Fax: 330.394.5601 • www.rjweanfdn.org

THE RAYMOND JOHN
WEAN FOUNDATION

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 2020

Dear Secretary Duncan:

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Sincerely,

Janet R. Weisberg
Program Officer
Early Childhood Development and Social Services

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Fax 216.241.6560 45 Prospect Avenue West
Cleveland, Ohio 44115

The George Gund Foundation

September 29, 2011

The Honorable Arne Duncan
Secretary of U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

The Honorable Kathleen Sebelius
Secretary of U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius:

It is with both enthusiasm and optimism that I write today to express The George Gund Foundation's strong support of Ohio's Race to the Top-Early Learning Challenge application. The Challenge represents an historic chance to gain ground on the goal of building smart, effective state *systems* of early learning and development. We applaud your leadership in bringing this opportunity to the states; Ohio is poised to make the most of it.

Ohio's application clearly represents the critical next stage in the state's commitment to Ohio's youngest children, especially those with highest needs. Historically, Ohio has been a leader in key pieces of the early childhood systems-building puzzle with early adoption of: (1) a state QRIS system with rigorous independent evaluation, (2) both infant and toddler and preschool content standards, and (3) a literacy-based statewide kindergarten readiness assessment tool.

But now the Early Learning Challenge will propel critical next stage gains in Ohio's commitment to making all children ready for school, including: (1) linking our QRIS system more directly to improved child outcomes, (2) expanding and aligning content standards seamlessly from birth through kindergarten entry, and (3) redesigning the kindergarten assessment to reflect all domains of child development. This will be accomplished through the commitment to a new governance system for early learning in Ohio that will establish a single point of accountability for the results we mutually want to achieve for Ohio's young children

The George Gund Foundation's commitment to building the most effective state systems for early learning and development is deep and lasting. As a founding and on-going funder of the Build initiative, for example, we share your belief in states as effective laboratories for early childhood system building. In addition, Senior Program Officer Marcia Egbert has served as the Chair of Ohio's Early Childhood Advisory Council since its inception in 2008. We believe deeply in the proven methods and further promise of early childhood investments, particularly for those children at highest need, and we intend to be partners with our state government in this work for the long haul.

Thank you for your dedication to this vital cause and your consideration of Ohio's application.

With regards,

David T. Abbott
Executive Director

DTA/cmg

Ohio Afterschool Network

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius,

The Ohio Afterschool Network is pleased to support Ohio's Early Learning Challenge Grant application.

Research clearly demonstrates the importance of high-quality early learning experiences in helping young children build a foundation for healthy, productive and fulfilling lives. It also underscores the benefits of continuous and coordinated high-quality systems that support the success of children prior to and when they are in school.

The Ohio Afterschool Network belives that investments made into the early learning system to reduce the school-readiness gap will not only result in children more prepared for Kindergarten, but will also strengthen our state's entire system of care and learning, including afterschool and school-age child care programs.

Overall improvement of our state's quality rating system, alignment to content standards, assessment and strengthened and expanded professional development for the field will result in better outcomes for children and their families, the state and our country.

The Ohio Afterschool Network strongly encourages the U.S. Department of Education and the U.S. Department of Health and Human Services to award Ohio an Early Learning Challenge Grant.

Sincerely,

David Smith, OAN Chair

Liz Nusken, OAN Director

The Ohio Afterschool Network supports children, youth, families, and communities by advocating with a unified voice for sustainable investments in safe, healthy, nurturing afterschool learning experiences.

6660 Doubletree Avenue, Suite 11 Columbus, Ohio 43229
(614)396-5959x310 phone (614)396-5960 fax lnusken@occrra.org www.ohioafterschoolnetwork.org

Parent Advisory Council

Ohio Department of Education

September 28, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius,

As the Parent Advisory Council to Ohio's Superintendent of Public Instruction, we are excited to support Ohio's Race to the Top Early Learning Challenge Grant (ELCG). The mission of the Parent Advisory Council is to provide guidance in the Ohio Department of Education's initiative for strong family-school partnerships. We work with the Ohio Department of Education to empower families of all students from preschool to college.

Ohio's Race to the Top-Early Learning Challenge Grant will seek to eliminate the school-readiness achievement gap for Ohio's youngest children with high needs and will address the needs of Ohio's most vulnerable children. Ohio's focus includes academic, health and social-emotional preparedness. Ohio's approach is to increase accessibility of high quality early learning for high needs children and strengthen the infrastructure of standards, assessments, and data systems. By developing a Tiered Quality Rating and Improvement System, Ohio will improve the readiness of high needs children. Ohio's vision will require agencies and sectors to provide high quality programs and services from birth through kindergarten. Educators will be supported in improving credentials and skills. A comprehensive kindergarten readiness assessment will be implemented and linked to child outcomes.

Ohio Department of Education's Parent Advisory Council has partnered with many organizations to support education for all students. We strive to increase parent and family engagement through effective communication while advocating for all families. We disseminate information on policies, improvement plans and best-practices from the state to local administrators, teachers and school boards. Local concerns are then shared with the Ohio Department of Education.

Ohio has many initiatives in motion to support the goals and visions of the ELCG. We look forward to reducing deficits in the system and closing the readiness achievement gap in our youngest, most vulnerable students. Ohio's Parent Advisory Council supports the Early Learning Challenge Grant and greatly anticipates its implementation.

Respectfully,

Debbie Hughes, Chair

State Superintendent's Parent Advisory Council

A World of Learning
Horizon Activities Centers

Our Mission:
To provide affordable quality care, including educational and enrichment opportunities to the children in our communities.

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Ave, S.W.
Washington, DC 20202

Dear Secretary Duncan:

Our organization supports Ohio's Race to the Top- Early Learning Challenge Grant Application.

We are a nonprofit early learning organization that serves about 1,000 low-moderate income families at 11 sites in the Cleveland area. This is already an exciting field, with all the many improvements made in the State's Early Learning System already and the positive impact it has had on the children and families.

This impact has already increased quality and kindergarten readiness for many children at risk, despite continuous cut-backs. This has happened through the community, business, foundation and government partnerships that drive our system towards higher quality and access, especially those families at risk.

Ohio has built a good Early Learning System with the resources available, but many children and families will benefit from improvements through this grant in existing licensing system, quality rating system, professional development, standards, and development of a comprehensive kindergarten assessment.

We believe with this grant and the additional investment in the Ohio Early Learning system that we will see incredible results in preparation of Ohio's children for kindergarten and life.

Sincerely,

David Smith
Executive Director

Administrative Offices
29510 Lorain Road
North Olmsted, OH 44070
Phone: 440.779.1930
Fax: 440.779.4743

A World of Learning
Horizon
Activities Centers

Our Mission:
To provide affordable quality care, including educational and enrichment opportunities to the children in our communities.

September 30, 2011

Kathleen Sebelius, Secretary
U.S. Department of Health and Human Services
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Washington, DC 20201

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David Smith
Executive Director

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29510 Lorain Road
North Olmsted, OH 44070
Phone: 440.779.1930
Fax: 440.779.4743

A non-profit organization providing care and educational programs since 1978

www.horizonactivities.org emailus@horizonactivities.org

WSEM | CENTER FOR FAMILIES AND CHILDREN | EL BARRIO

Making Success Possible... TOGETHER

BREAKTHROUGH
CITIZENS | E PREP | INTERGENERATIONAL

October 3, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Duncan and Secretary Sebelius:

We are pleased to offer this letter of support for Ohio's Race to the Top – Early Learning Challenge grant application. We believe this is a critical opportunity to ensure that Ohio's children are prepared for a strong start in school and beyond.

The Center for Families and Children (CFC) in one of Cuyahoga County's oldest and largest social service organizations. With a mission of changing lives and communities through direct service, advocacy and collective action, we offer core services of behavioral health, youth development, food centers and workforce development to those most in need in our community. Our particular strength is early learning, serving more than 1,000 children each year through Early Head Start, Head Start and Universal Pre-Kindergarten programs. Our early learning program is nationally accredited by the National Association for the Education of Young Children and has the highest quality ratings from Ohio's Step Up to Quality program.

Breakthrough Charter Schools is a network of high performing, free public urban schools in Cleveland, sponsored by the Cleveland Metropolitan School District. Citizen's Academy, which is the first Breakthrough school to partner with CFC, is a nationally recognized Blue Ribbon School that has also has maintained an excellent rating from the Ohio Department of Education for the past three years. Committed to academic excellence and responsible citizenship, Citizen Academy currently serves close to 400 K-5th grade students.

Breakthrough and CFC came together in 2009 to increase the number of children in the Greater Cleveland area that are prepared for kindergarten and families that are engaged in their child's education. Together we have developed an educational model, between CFC's early learning program and Citizen's Academy, that is designed to provide high quality, family-focused early childhood education to children living in Cleveland's urban neighborhoods and prepare them for primary school.

We are pleased to see that Ohio, through this grant competition, is focused on eliminating the readiness achievement gap for Ohio's high-need children and, given our experience, are ready to partner with the state on this critical work. For these reasons, we fully support Ohio's Race to the Top – Early Learning Challenge grant application. Thank you for your consideration.

Sincerely,

Sharon Sobol Jordan
President & CEO
Center for Families and Children

Alan Rosskamm
Chief Executive Officer
Breakthrough Charter Schools

Miami Valley
MVCDC
Child Development Centers, Inc.

September 27, 2011

Kathleen Sibelius, Secretary
U.S. Department of Health and Human Services
200 Independence Ave. S.W.
Washington, D.C. 20201

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Ave. S.W.
Washington, D.C. 20201

Secretary Sibelius and Secretary Duncan:

This letter is being sent in strong support of Ohio's *Race to the Top - Early Learning Challenge Grant* application. The goal for the state grant is to eliminate the readiness achievement gap for Ohio's high need(s) children. Strategies to support this goal include:

- creating a new governance system for early learning in Ohio,
- expanding and aligning the early learning content standards,
- basing the state's Tiered Quality Rating and Improvement System (TQRIS) on revised early learning content standards
- implementing a comprehensive K-Readiness assessment
- designing professional development opportunities to build capacity in the field based on content standards.

The approval of Ohio's application will help to ensure that much of the work done over the last several years by early child advocates in this state does not go unnoticed. I know there is a strong base of support for Ohio's efforts to transform our early learning system. As the CEO of a Head Start program serving over 2800 children, I know that we must all work together in a coordinated manner in order to eliminate the readiness achievement gap for Ohio's children with high needs. We certainly stand ready to do our part in this effort and I look forward to hearing that Ohio has received approval for this much needed grant support.

Sincerely,

Mary Burns

Mary Burns
President/CEO
Miami Valley Child Development Centers, Inc.

Headquarters
215 Horace Street
Dayton, Ohio 45402
Phone: 937.226.5664
Fax: 937.226.5646

www.mvcdc.org

Clark & Madison Offices
6 West High Street
Suite 200
Springfield, Ohio 45502
Phone: 937.325.2559
Fax: 937.322.1509

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Montgomery, Clark, and Madison Counties

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9/29/2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

Please accept my letter of support for Ohio's Race to the Top- Early Learning Challenge Grant application. In my work with both college students and partners who provide early care and education for young children, it is apparent that Ohio would benefit from a systems approach to governance for early learning. Ohio's proposal is well developed to meet the goal to eliminate the readiness achievement gap for Ohio's high need(s) children by focusing on improving quality that encompasses the whole child and includes academic, health, and social-emotional preparedness in the readiness definition. Additionally, the proposal focuses on early learning content standards that align with the national common core standards. The development of a comprehensive assessment system will provide both program improvement and student learning data that can guide policy decisions aimed toward continuous improvement.

The focus on professional development is necessary to advance the knowledge and skills of all who serve young children. Ohio's proposal recognizes that success in closing the readiness achievement gap depends on the quality of the experiences that young children have regardless of where they are served. It recognizes that those who provide care and education range from non-degreed providers to master teachers with advanced degrees. Improving the quality of care will require comprehensive professional development that moves the field across multiple professional development entry points.

I urge you to seriously consider this application on behalf of Ohio's neediest children.

Sincerely,

Shauna M. Adams, Ed.D.

Shauna M. Adams, Ed.D.
Executive Director, Center for Early Learning
Coordinator, Early Childhood Leadership and Advocacy Program
Associate Professor of Early Childhood

DEPARTMENT OF TEACHER EDUCATION
300 College Park, Dayton, Ohio 45469-0525
(937)229-3344 (937)229-2500 fax

September 27, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius,

I write this letter in strong support for Ohio's ELC-RTT grant proposal. As a citizen, a parent, a grandparent, and a teacher educator, I am thrilled that the federal government has recognized the importance of early care and education through the provision of federal funds that states will use to improve the quality of care and education for America's young children. As President Obama has recently stated, we desperately need to invest in our infrastructure, and there is no better investment we can make than an investment in a system that will create a coordinated infrastructure designed to support learning and academic success for ALL of Ohio's children, with a special focus on closing the readiness achievement gap for young Ohions who are at risk for developmental delay or disability due to biological or environmental risk factors.

I am very excited that in Ohio, we are now discussing the importance of coordination, or establishing a single point of accountability that will help us achieve the results we MUST achieve in order for Ohio to continue to grow and thrive. In addition, aligning early learning content standards from birth *through* kindergarten will help us to create a *system* of early care and education that will help us provide the long-term support. Ohio's proposal also includes plans to developed a tiered quality rating and improvement system that will be tied to program licensing, will include ALL settings that serve young children, and will be linked to child outcomes such as those that will be develop to assess a child's readiness for success in kindergarten. Finally, Ohio's plan to design professional development opportunity that will build the capacity of the workforce is smart and critically needed. Early care and education teachers need access to effective professional development that helps them to translate research into practice and Ohio's proposal for professional development does that.

In sum, I am strongly committed to assisting my colleagues in Ohio in any way that I can. There is no better way to invest in Ohio's future and success than by awarding an ELC-RTT grant to Ohio.

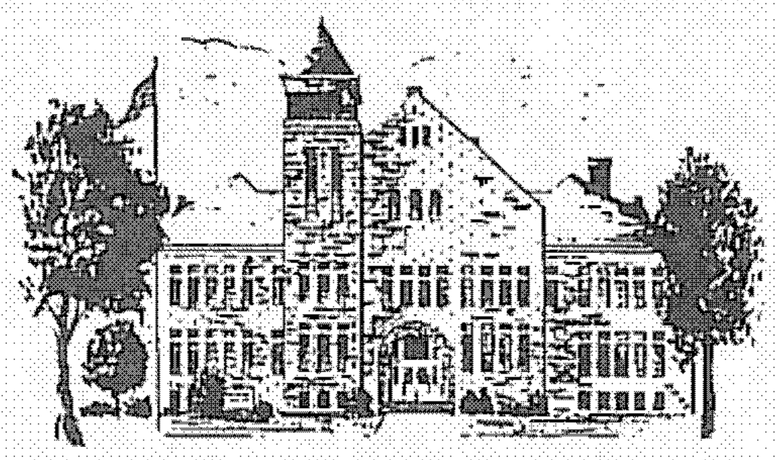
Sincerely,

Laurie A. Dinnebeil, Ph.D.
Professor and Daso Herb Chair, Inclusive ECE

Judith Herb College of Education, Health Science and Human Service
Early Childhood, Physical, and Special Education • Mail Stop 954 • 2801 W. Bancroft St. • Toledo, Oh 43606-3390
419.530.2468 Phone • 419.530.7261 Fax • www.education.utoledo.edu

The Elyria City School District

Ensuring that each child reaches his or her full potential



September 27, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Ave, S.W.
Washington, DC 20202

Dear Secretary Duncan,

We are enthusiastic to support our state's application for the Race to the Top – Early Learning Challenge Grant. Our district has recently teamed up with the Horizon Activities Centers (a local early childhood provider) to launch a local initiative to improve kindergarten readiness in our urban district. This new initiative, known as Ready Set Go, will be greatly enhanced when connected to an improved state system for early learning which could be funded through this challenge grant.

In Elyria, we have seen first-hand improvements to the early learning system over the past years, but there is plenty of more work necessary before all of our children are ready for kindergarten.

If Ohio is chosen for this grant, our state, with this additional investment will continue to make strides in the building of an improved quality early learning system. These improvements will include aligned content standards, an improved quality rating system, a state governance system with a single point of accountability, and an improved professional development and implementation of a comprehensive kindergarten readiness assessment.

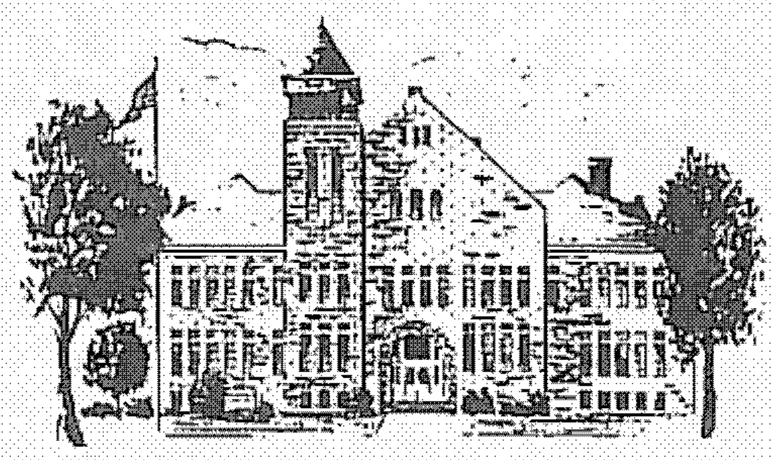
We are excited about joining the other stakeholders in support of Ohio's application. Please contact me if more information is needed.

Sincerely,

Paul Rigda
Superintendent

The Elyria City School District

Ensuring that each child reaches his or her full potential



September 27, 2011

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200 Independence Ave, S.W.
Washington, DC 20201

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We are excited about joining the other stakeholders in support of Ohio's application. Please contact me if more information is needed.

Sincerely,

Paul Rigda
Superintendent

South Central *Ohio*
Educational Service Center

411 Court Street
Portsmouth, OH 45662

Phone: 740-354-7761
Fax: 740-353-1882

September 28, 2011

Kathleen Sebelius, Secretary
U.S. Department of Health & Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20202

Dear Ms. Sebelium,

It is indeed an honor and my pleasure to write this letter in support of Ohio's submission of the Early Learning Challenge Grant. With the implementation of the program being submitted, Ohio will be able to establish a more efficient and effective early learning system for young children and their families.

The proposal addresses the essential components to ensure that all children have access to high quality early learning experiences. Ohio has included the required steps to develop a system that is aligned and coordinated to demonstrate commitment to early learning and developmental standards, along with a process to complete this task. This system will create a much needed single-point of accountability to ensure that early childhood outcomes are achieved.

Ohio's plan recognizes the importance of establishing a statewide Tiered Quality Rating and Improvement System (TQRIS) in order to ensure access to high quality programming for children. The plan that Ohio proposes will align and expand the current Early Learning Content Standards that will holistically address the developmental outcomes in all domains for children birth through kindergarten entry. Ohio's plan acknowledges the need for implementation of a comprehensive kindergarten entry assessment and an early learning data system to measure outcomes.

Another necessary focus for Ohio is to produce a strong early childhood educational workforce that will build knowledge and competencies that support professional development based on content standards linked to the TQRIS.

It has been my experience as Superintendent of South Central Ohio Educational Service Center that the strategies outlined in the plan proposed by Ohio to improve early childhood systems are effective and essential in closing the achievement gap for Ohio's high needs children. I have had the opportunity to coordinate a county-wide plan in Scioto County for early childhood education and have assisted in implementing services for children using the methods proposed in Ohio's plan with great success. I am excited and hopeful that Ohio will be able to develop a brighter economic future for our families by creating better opportunities for early childhood education, health services and family support services.

Yours truly,

Lowell Howard, Superintendent

South Central *Ohio*
Educational Service Center

411 Court Street
Portsmouth, OH 45662

Phone: 740-354-7761
Fax: 740-353-1882

September 28, 2011

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U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

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Yours truly,

Lowell Howard

Lowell Howard, Superintendent

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educational service center
of Central Ohio Serving Delaware, Franklin & Union Counties

September 30, 2011

Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Kathleen Sebelius, Secretary
U.S. Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretaries Duncan and Sebelius:

The Educational Service Center of Central Ohio is writing this letter to both of you in support of Ohio's participation in the Early Learning Challenge Grant. Ohio has had a long history of supporting young children and their families. With budget cuts and changes in federal funding the state has not been able to develop or enhance innovations to improve readiness skills for our children most in need.

Ohio with the support of the Early Learning Challenge Grant would focus on eliminating the achievement or readiness gap for Ohio's high need children. Strategies will include creating a new governance system for early learning in Ohio that will establish a single point of accountability for the results the state wants to achieve for Ohio's children; expansion and alignment of the early learning content standards (birth through kindergarten entry); alignment of the Tiered Quality Rating and Improvement System (TQRIS) to the revised early learning content standards. This will occur by linking the TQRIS to licensing of programs, including all settings and linked to child outcomes. Additional strategies would focus on the implementation of a comprehensive K readiness assessment and designing professional development opportunities to build capacity of educators and providers on the early learning content standards.

The Educational Service Center of Central Ohio works with the Ohio Department of Education and is part of ODE's regional service delivery system in Ohio. The ESCCO partners with the counties of Franklin and Delaware Children First Councils operating Help Me Grow programs; we also provide direct service for over 700 preschoolers. Additional regional responsibilities include building capacity of districts, preschools and childcare agencies throughout Central Ohio. Those services include professional development, technical assistance, coaching and mentoring.

We are excited and grateful for this opportunity and anxious to assist and support the state of Ohio if awarded an Early Learning Challenge Grant.

In Service to Children,

Rhonda A. Dickson
Assistant Superintendent

A4
Infant & Toddler Guidelines

Rationale: Supportive evidence for section VI(A)(1)d and VI(C)(1). In use by early education field since 2006, common, statewide standards for children birth through 36 months

Referenced in:

VI(A)(1)d and VI(C)(1)

exploration *a journey of searching and learning*

identity *developing into your own person*

security *feeling safe in your surroundings*

(b)(6)

Ohio's Infant & Toddler Guidelines

Early Experiences Last a Lifetime

The six developmental domains at the heart of school and life success.

Physical Health

Physical health is optimal when safe health practices and nutrition are combined with nurturing and responsive caregiving. Protecting children from illness and injury, and providing them with individually appropriate nutrition and a sanitary environment that reduces the risk of infectious disease, is important for all caregivers.

Motor Development

Motor development is the increasing ability to use one's body to interact with the environment.

Emotional Development

Emotional development is the child's emerging ability to become secure, express feelings, develop self-awareness and self-regulate.

Language & Communication Development

Language and communication development is the increasing ability to communicate successfully with others to build relationships, share meaning and express needs in multiple ways.

Social Development

Social development is the child's emerging development of an understanding of self and others, and the ability to relate to other people and the environment.

Cognitive Development

Cognitive development is the building of thinking skills.

Early Experiences Last a Lifetime

Purpose Statement: Why are these guidelines important?

Because early experiences last a lifetime and infancy is the morning of life...

The guidelines are seen as the critical first step to ensuring that all Ohio children, birth to three, have responsive, reciprocal and respectful care. And as a result of that care, children will be ready for both school and life. There are 1,892 days from the time babies are born until they enter school. This 1,892 day journey is remarkable, complex and far reaching. Approximately 150,000 babies are born every year in Ohio. Who they spend time with and how they are cared for affects who they will become. Ohio's Infant and Toddler Guidelines are meant for three diverse yet profoundly important groups of people in the lives of infants and toddlers: parents, providers and policy makers.

Parents

You are your child's first and best teacher. The guidelines are meant to assist you in your understanding of infant and toddler development. Within the guidelines document, posters for each age range (birth-8 months, 6-18 months and 16-36 months) provide a snapshot of potential milestones for each of the developmental domains (physical health, emotional, social, motor, language & communication and cognitive). If you want to learn more about where your child is developmentally in relationship to a particular domain, you can tab to that domain. Each domain has guidelines with indicators and examples of behaviors that you might see your child demonstrate across the three stages of infancy.

Providers

In Ohio, approximately 90,000 infants and toddlers are cared for outside of their homes. The only requirement to care for children is a high school diploma. These two facts make it imperative that those caring for our most valuable and vulnerable resource have the knowledge necessary to do this work well. When used effectively, the guidelines can assist programs and care teachers in focusing on early development and learning in order to support and strengthen the developmental outcomes of the children they serve.

Policy makers

To have prepared children and productive adults, Ohio must have state policies that strengthen the developmental trajectories of its youngest citizens, babies and toddlers. It has been estimated that every three-year-old that becomes a productive adult will contribute approximately $600,000 in taxes over the course of a lifetime in taxes. There are more than 48,000 three-year-olds currently in child care programs across the state. When you calculate the revenue potential, it is more than $28 billion. Ultimately though, we want it said that Ohio takes care of its infants and toddlers because it is the right thing to do.

What a responsibility! In our hands and under our influence, there is the ability to shape experiences that last a lifetime. Ohio believes that babies truly are the nicest way to start people. Babies are ready for us, are we ready for them?

Ohio's Guiding Principles

The following were absolutely essential to the writing team members —

The guideline must be evidence-based.
To ensure that each guideline was evidence-based, a thorough review of research was conducted. In addition, widely used assessment tools were reviewed to determine the alignment of relevant developmental milestones with each guideline.

The guideline must take into account differences in temperament, development and culture.
To ensure that each guideline was inclusive of individual differences in temperament, development and culture, each guideline was examined from these perspectives.

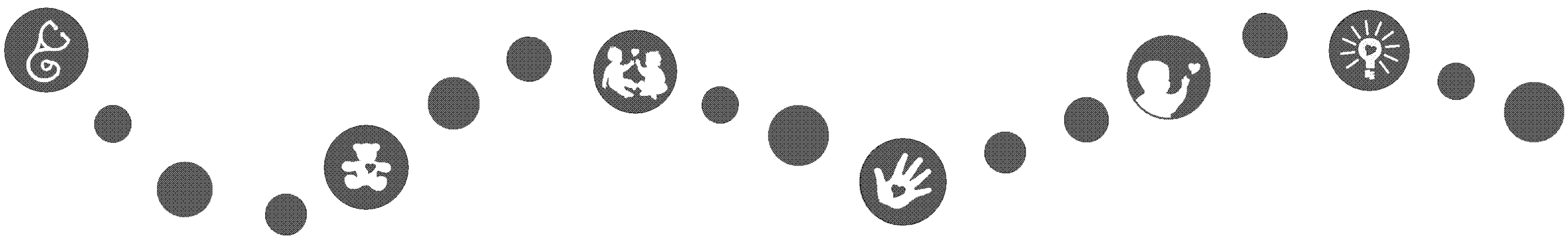
The guideline must be sensitive to both cultural and linguistic differences.
To ensure that each guideline was sensitive to both cultural and linguistic differences, each guideline was thoroughly reviewed to see if the way a behavior might be expressed would be different depending on a child's cultural and/or linguistic background.

The guideline must be inclusive of children with special needs.
To ensure that each guideline was inclusive of children with special needs, universal design was utilized. Universal design means that each guideline was written to be as inclusive as possible.

The guideline must link to best practices that support children's optimal development.
To ensure that each guideline linked to best practices, each guideline was reviewed for its developmental appropriateness.

The guideline must be useful to parents, providers and policy makers.
To ensure that each guideline was useful to parents, providers and policy makers, information was presented in an easy-to-use format with examples from the child's point of view.

The guideline may be assessed or measured throughout the birth to three-year period.
To ensure that each guideline can be assessed or measured from birth to three years, each guideline was written to allow for observation and documentation.



Ohio's Path to Creating Infant & Toddler Guidelines

In 1965, Bruce Tuckman published his *Forming, Storming, Norming, Performing Team Development Model.* In the 1970's, he added a fifth stage, adjourning. In 2006, this model aptly describes the process of how Ohio's Infant & Toddler Guidelines were born.

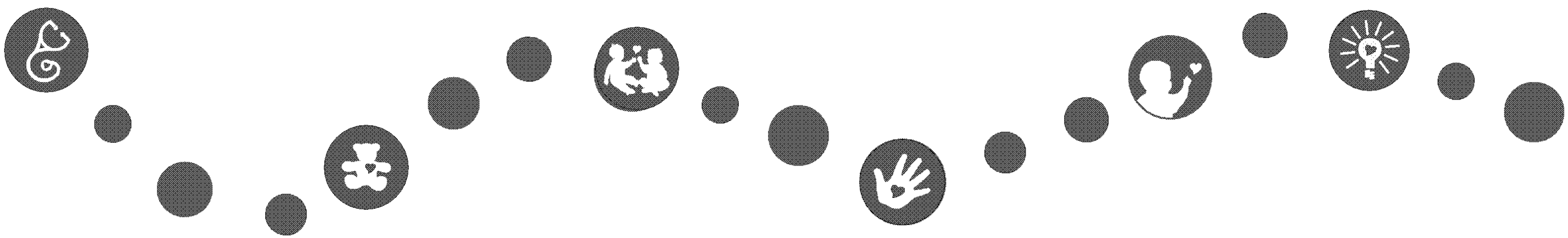
Forming

Forming — Team members need guidance and direction, as roles and responsibilities are unclear.

Build Ohio, an organization aimed at supporting early care and education systems building, identified the need to create infant and toddler guidelines. A leadership team from Build Ohio, composed of representation from the Ohio Department of Education (ODE), the Ohio Department of Health (ODH), the Ohio Department of Job and Family Services (ODJFS) and the Ohio Child Care Resource and Referral Association (OCCRRA), collaboratively mapped out a planning process and timeline.

The leadership team's first decision was to enlist the expertise of WestEd's Center for Child and Family Studies. The Center is nationally and internationally known for its work in creating the Program for Infant/Toddler Care (PITC), the training approach that is being implemented in Ohio as part of First Steps: Ohio's Infant and Toddler Initiative, as well as in other states across the country.

The team's second decision was to create guidelines that would reflect the best thinking of every profession that works with infants, toddlers and their families in Ohio. With this purpose in mind, the leadership team identified the developmental domains that would be included in the guidelines and then widely distributed applications to find the best people to create the guidelines. "Best" with regard to this work was defined as having content expertise, experience and a demonstrated passion to work on behalf of infants and toddlers. The team members listed on the next page represent the organizational, educational and experiential diversity that the leadership team envisioned. Ohio is very fortunate to have been able to assemble a team such as this one.



Ohio's Infant & Toddler Guidelines: The Writing Team

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Kimberly German	NC State/OSU Mansfield
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State Level Leadership Team

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Alicia Leatherman	Ohio Child Care Resource and Referral Association
Bethany Moore	Ohio Department of Health
Chris Stoneburner	Build Ohio
Barbara Weinberg	Ohio Department of Education
Debbie Wright	Ohio Department of Health

Ohio's Path to Creating Infant & Toddler Guidelines

Storming

Storming — Team members have increased clarity but uncertainties still persist; decisions don't come easily.

The launch of Ohio's Infant and Toddler Guidelines project in February 2005 began with a two-day meeting facilitated by Drs. Ron Lally and Peter Mangione, co-directors of WestEd's Center for Child and Family Studies. On the first day, key stakeholders from the fields of early childhood education, infant mental health, health and early intervention, as well as higher education faculty, child care resource and referral staff, parent educators, funders and policymakers participated in a series of discussions. These centered on —

- the three distinct ages of infancy: birth-8 months, 6-18 months and 16-36 months (the overlap reflects the impact of individual differences on the rate of development)

- the developmental drivers (security, exploration and identity) associated with the various ages of infancy

- the significance to infant and toddler development of the six developmental domains for which guidelines would be written: physical health, emotional development, social development, motor development, language & communication development and cognitive development

- the need to organize the work around six domains in order to write guidelines, while recognizing that research demonstrates that all of the domains of development are of equal importance and work synergistically

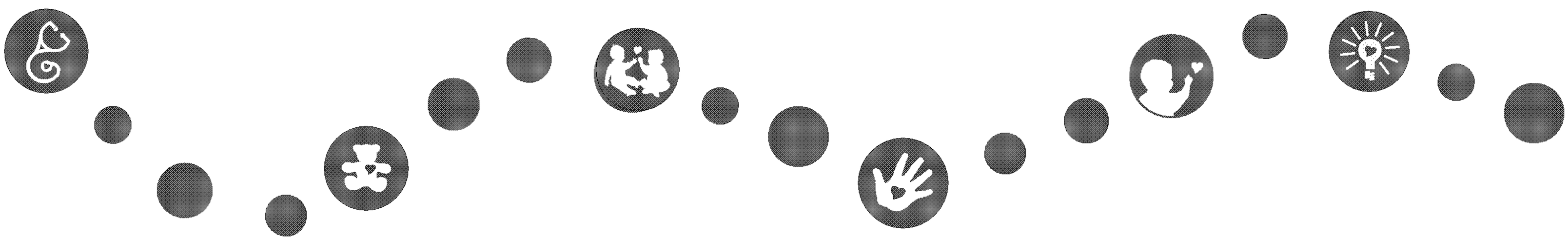
The second day with writing team members was spent discussing overarching goals of the leadership team including —

- linking the infant and toddler guidelines to Ohio's Early Learning Content Standards in order to have a seamless pathway from birth to school entry

- creating a design that attracts interest as well as content that is easily understood and relevant to three distinct audiences: parents, providers and policymakers

- defining guiding principles that would lay the foundation for guidelines

- implementing a writing team process that would be fluid, flexible and adaptable to incorporate the latest and best thinking from research and practice



Ohio's Path to Creating Infant & Toddler Guidelines

Norming

Norming — Team members' roles/responsibilities become clear; big decisions are made by group agreement, and consensus forms.

The writing teams met once a month beginning in March 2005. Each meeting started with the leadership team providing updates and clarifications for all the teams in a large group. The group then broke into the respective teams for the remainder of the day. WestEd staff were present at the monthly meetings to provide content expertise as well as to lead writing team members through a reflective inquiry process. Between each of the monthly meetings, the leadership team met with WestEd about the unfolding process. The decision points along the way included —

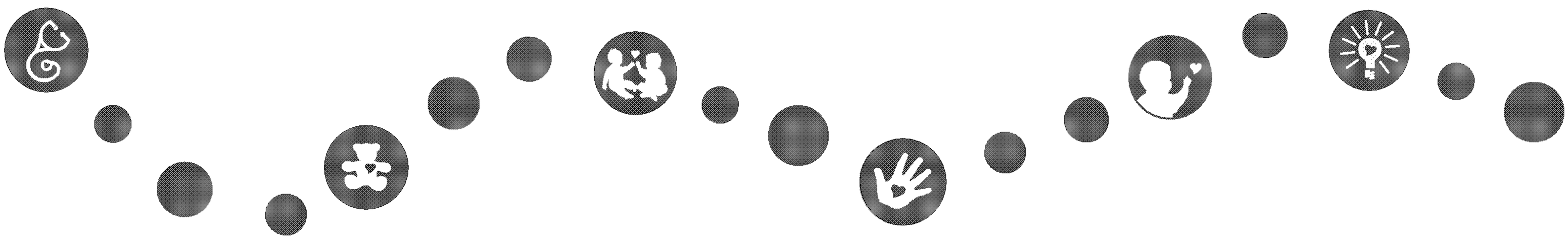
- the leadership team's putting in place a plan to create companion documents that clarified the role of the caregiver, the importance of the environment and the accessibility to resources for parents and providers
- the emotional and social development writing teams' agreeing to present their two domains separately
- the defining of a guiding principle that identifies the important influences of infant temperament and cultural experiences on individual differences in development

Performing

Performing — Team members have a shared vision, make decisions based on agreed-upon criteria and work autonomously.

During the spring of 2005, domain drafts began to take shape. As the writing teams completed their preliminary work in the summer of 2005, WestEd thoroughly reviewed the content and provided each team with key questions to consider. By August 2005, each writing team incorporated WestEd's feedback into a first complete draft and submitted it to the leadership team. WestEd then focused on editing the guidelines to make them consistent across domains. WestEd worked with the leadership team to ensure that the multi-disciplinary perspectives of the writing team members and the content were preserved as the presentation of the different guidelines were standardized and organized into a coherent document. A revised draft of the guidelines was submitted to the writing teams in December 2005 for their review and feedback. In January 2006, the leadership team and WestEd considered every question, comment and suggestion from the writing team members. The following feedback was incorporated into the guidelines —

- **Definition of terms** — in this document, "the person I'm attached to" is identified as people to whom a child is emotionally attached. "Caregivers" may be parents, grandparents, other relatives, a family child care provider, a caregiver in a child care center or anyone else who consistently cares for the child.
- **Gender** — use of he/she is meant to be inclusive of both genders. In some instances, one gender was used to refer to children or adults of both genders for readability purposes only.



Ohio's Path to Creating Infant & Toddler Guidelines

- **Jargon** — an attempt was made to use everyday language in the definitions of guidelines, descriptions of indicators and examples. A technical term or jargon was used when the meaning of a concept being presented would have been compromised if an everyday term were used. Special effort was made to present simple, straightforward examples from a baby's point of view.

- **Order of domains** — physical health was placed first in this document because it plays a prominent role in a child's overall functioning. Emotional development follows because emotion is the root of all action. Motor development works hand-in-hand with the child's emerging language and cognitive abilities. Unfortunately, one of the six domains had to be last but that placement in no way is meant to diminish its importance. The age posters were added to the overall presentation of the guidelines to illustrate the synergistic nature of the domains.

- **Teasing apart emotional and social development** — the writing teams decided to treat the emotional and social development domains separately to draw attention to the importance and uniqueness of each. The emotional development domain focuses on the child's understanding of self. In contrast, the social development domain refers to the child's understanding of the connection between self and others, and the ability to relate to other people and the environment. Because attachment relationships are at the center of the emotional as well the social development domains, attachment is a guideline under both of these domains. As a result, the definition of attachment, along with the indicator and examples under this guideline, is the same for both.

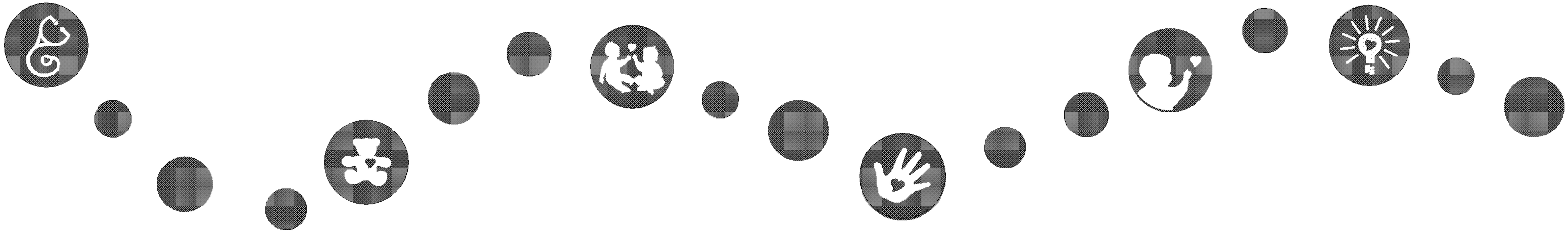
- **Children with special needs** — although the principle of universal design was utilized in creating the guidelines, it should be noted that children develop in different ways and at different rates. The content of the guidelines may not apply to every infant or toddler. If there is concern about a child's development, the best course of action is to talk to a professional. In Ohio, families may share concerns with their pediatrician, nurse practitioner or other medical professionals. Families may also call Help Me Grow, a statewide program that helps identify child development issues and coordinates supports and services to eligible children and families, at 1-800-755-GROW.

Finally, the guidelines were put out to the field for feedback in early February 2006. In an effort to be responsive to this feedback, the leadership team and WestEd finalized the guidelines. The leadership team then supervised the copy editing and formatting of the document for release to the field in March 2006.

Adjourning

Adjourning — Team members have fulfilled their purpose successfully and are moving on to new things.

The hope of the leadership team is that the guidelines will be widely distributed and seen as a valuable support for parents, providers and policymakers. We especially want to thank the writing team members for working to make the world a better place for Ohio's babies.



Ohio's Path to Creating Infant & Toddler Guidelines

Special Acknowledgements

There was an overwhelming interest from around the state to be part of this process. For people who could not serve on a writing team, thank you for your comments, guidance and enthusiasm about the completion of this work. Our appreciation extends to all who participated and especially to the following —

- Ron Lally and Peter Mangione, whose day-to-day work with the Program for Infant Toddler Care (PITC) inspires us all to honor infants and toddlers and all those that care for them.

- Cathy Tsao and Amy Wagner, from WestEd, thank you both for being such "geeks" about infant and toddler development. Your unwavering support throughout the process and the incredible patience you exhibited was inspirational, even with all of the surprises along the way.

- Wendy Lapuh and Kathleen Murphy of MurphyEpson, thank you both for making our dreams for babies come to life on paper.

- The family child care providers, infant/toddler teachers and infant/toddler specialist in Franklin County who came out on short notice to provide invaluable feedback.

- Joan Lombardi, whose demand for quality infant and toddler care sparked what would become First Steps: Ohio's Infant Toddler Initiative.

- Thelma Harms and Debby Cryer (Honorary Ohio residents), thank you for your pure, honest and supportive feedback on all of the work we do in Ohio.

- Susan Rohrbough and Lori Connors-Tadros, from the National Child Care Information Center (NCCIC), who are always willing to provide guidance and support for all of our work here in Ohio.

- Paul Noski, from the Federal Child Care Bureau, who has supported this work from the beginning.

- Zero To Three, for the example it sets every day for all of us who care for and about infants and toddlers.

- Jeanne Lance, from the Ohio Department of Education, whose former life as a college English professor was resurrected to edit the final document.

security *feeling safe in your surroundings*

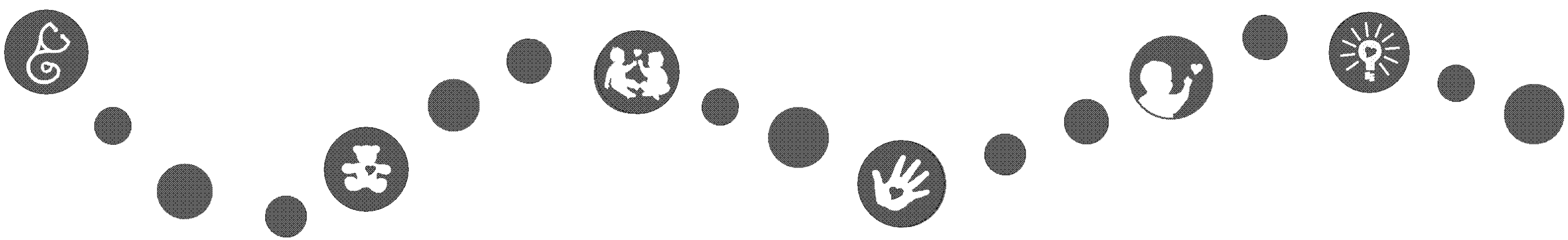
Birth to Eight Months

During the early days and months of my life, I am primarily focused on security. In essence, I am learning about what I can expect from life.

When I feel discomfort, I cry. Someone comes to help me. She helps me — when I'm hungry — when I'm tired — when I'm out of sorts. When she helps, I feel everything is going to be all right, and I can relax. I like to look at her face. I like to listen to her voice. I feel her warmth. I feel the care she gives me — time after time. I feel content. I coo. As I get older, I smile when I see her face and hear her voice. I try to make the sounds she makes. I try to move my arms the way she does. I learn so much from her. Her responses make me feel so good. I've learned to expect her to come when I call.

I often don't have to cry. She knows what I need by watching me and by listening to me. She puts me in places where I can move around. That's exciting! I keep learning how to move my body — my head, my arms, my legs, my whole body. I can count on her to help me when I need help and to play with me when I'm ready to play. I feel great knowing she is with me when I need her.

All of this is very important! I have to feel emotionally secure in order to have the confidence to learn new things. My level of confidence will influence how I approach the opportunities coming my way. I know it seems like a long way off, but my ability to take chances and adapt to change will allow me to be successful in both school and in life.



exploration *a journey of searching and learning*

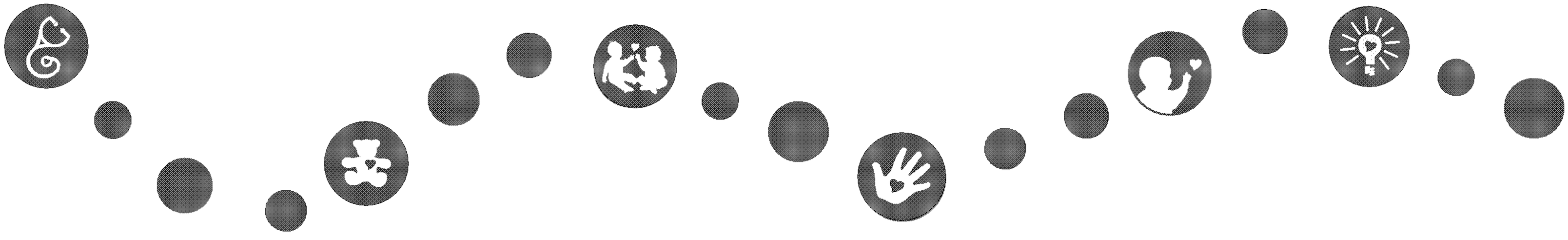
Six to 18 Months

During this middle period of my development, I am now primarily focused on exploration. Get ready, because I am ready to move out. In essence, I am learning how things in the world work, including myself.

When I know where my caregiver is, I feel safe. I feel I can move away from her to explore things. Not too far — I stay close enough so I can get back to her quickly. That's what I do if something scary happens, or if I feel sad or if I feel like cuddling. That feels good. But after a while, I want to explore some more. I roll my body. I also creep and crawl. Eventually I figure out how to sit up, pull to standing, take a step — and walk! I like to fiddle with things, over and over again. It's fun to see how things work. I keep making sounds my caregiver makes. I discover that each sound has a different meaning. When I say, "Dada," he smiles.

When I say, "Mama," she smiles. I love when someone looks at me that way. When I point at something, my caregiver says what it is. I point and point and point. That's one of the ways I learn. I do this with books too. I look at things with my caregiver. I like to listen to her. I like when she listens to me. Most of all, I like to be in a place where I can move to my heart's delight, where I can play with anything I can reach and where I can easily see my caregiver's smiling eyes.

All of this is very important! My drive to explore the world and figure things out helps me build knowledge and get ready for the world of ideas. I know it seems like a long way off, but my being intellectually curious and motivated to learn will help me be successful in both school and in life.



identity developing into your own person

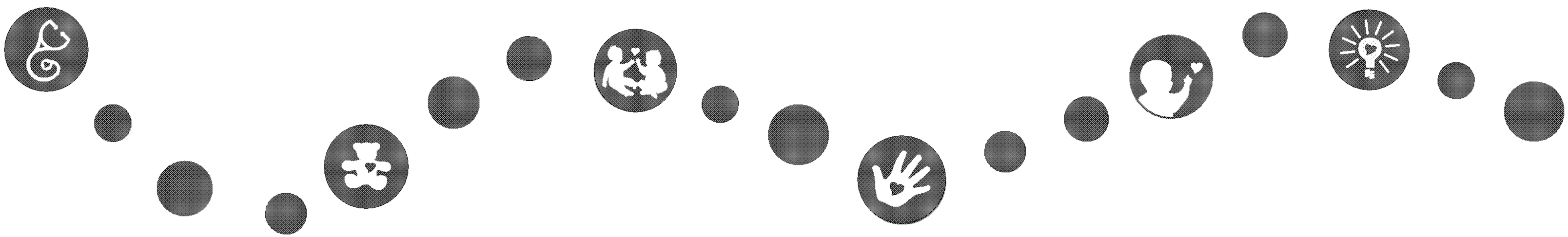
Sixteen to 36 Months

During this final stage of infancy, it is all about ME. I have a sense of who I am and how I am connected to others. In essence, I am learning to make choices, and it can be difficult sometimes for me and for you.

I feel powerful. I can run. I can do so many things. I know what's mine and make sure other people do, too. I like to be in charge and do things by myself. If someone tells me what to do, I often say, "No." But sometimes I don't feel so big. I can get out of sorts and be quite loud. I may need help. I may need comfort. I may need to know what I'm allowed to do — and what I'm not allowed to do. Then I feel big again and am excited about everything I can do. I know where I belong, who I am and who my family is. I use more and more words to express myself. As I get older, I ask a lot of questions. I look at books and listen to stories. I talk with my caregiver about books. Singing and rhyming games are a lot of fun. I think about ideas all the time.

When I try to solve a problem, sometimes an idea just pops in my head. I pretend to be different people — and animals, too. I pretend with other children. We play with dress-up clothes, kitchen utensils, puppets — just about anything. Playing with other children is great! I often think about one or two or three special people. It may be my mom, my dad, my grandma or grandpa, or my caregiver in child care. When I think about someone I feel close to, I feel good. Even if they are not with me, I know that person will take care of me. I feel that person loves me. That's the best feeling of all!

All of this is very important! I have to know myself before I can learn how to get along with others and to appropriately express myself when I'm frustrated. I know it seems like a long way off, but my ability to communicate and interact positively with peers and adults who will one day be colleagues and supervisors, along with my ability to negotiate conflict, will help me be successful in both school and life.



Physical Health

Babies need good health and nutrition right from the start. This is essential in laying the foundation for a baby's optimal growth and development. Infants and toddlers depend on their caregivers to make healthful choices for them. They also need adults to help them learn how to make good choices for themselves.

Physical health affects functioning in all the other domains. This point becomes clear when a child's health or well-being is compromised. For example, a child who is chronically ill may not be able to learn through active exploration and movement. Or a child who is poorly nourished may not attend to learning. Frequent ear infections may hinder a child's ability to communicate and learn language. A child exposed to violence may not know how to form positive social relationships. Each of these negative conditions can have lifelong consequences.

Each day, adults caring for babies can positively influence a child's health and well-being. All infants and toddlers need regular health and physical exams, preventive care, screening, immunizations and sick care. They all should have a primary health and dental care provider, regardless of their families' economic status. A primary provider facilitates timely and appropriate preventive and sick care.

Frequent well-child visits allow health professionals to monitor the child's physical health, behavioral functioning and overall development. These visits create opportunities for giving age-appropriate guidance to parents. In addition, health professionals should screen young children for common concerns, including lead poisoning, hearing and vision problems, behavior concerns, communication disorders and general development (language, cognitive, social, emotional and motor domains). Screening is important because the sooner a child's need for early intervention can be identified, the more effective that intervention is likely to be. Well-child care benefits all children, including those with disabilities or other special needs.

Physical health is optimal when safe health practices and nutrition are combined with nurturing and responsive caregiving. Protecting children from illness and injury, and providing them with individually appropriate nutrition and a sanitary environment that reduces the risk of infectious disease, is important for all caregivers.

Guideline: Health Practices

The child will display signs of optimal health consistent with appropriate primary health care and caregiver health practices.

	Birth - 8 months	6 - 18 months	16 - 36 months
• **Health care: The child will have access to care from a primary health provider, regardless of economic status and geographic location.**	I need to receive regular check-ups that include appropriate screenings, immunizations and guidance about my development. ...check-ups at birth and at one, two and four months of age. ...an evaluation within 48 - 72 hours following discharge from the hospital, if I am a breast-fed baby, to check my weight gain, to evaluate breastfeeding and to provide caregiver encouragement and instruction.	I need to receive regular check-ups that include appropriate screenings, immunizations and guidance about my development. ...check-ups at nine, 12, 15 and 18 months of age.	I need to receive regular check-ups that include appropriate screenings, immunizations and guidance about my development. ...check-ups at 24 and 36 months of age.
• **Handwashing: The child will be exposed to and assisted with frequent and proper handwashing.**	I will receive handwashing at appropriate times. (If I am unable to stand or too heavy to hold safely, my hands can be washed with a damp paper towel moistened with a drop of liquid soap, and then wiped clean with a clean, wet, paper towel.) ...after diapering. ...before and after eating or having a bottle.	With assistance from a caregiver, I will wash my hands once I am able to stand safely at the sink. ...upon arrival at my child care setting. ...before and after eating. ...after diapering. ...before water play. ...after playing on the playground. ...after handling pets. ...whenever my hands are visibly dirty.	With assistance from a caregiver, I will wash my hands once I am able to stand safely at the sink. ...upon arrival at my child care setting. ...before and after eating. ...after diapering. ...before water play. ...after playing on the playground. ...after handling pets. ...whenever my hands are visibly dirty.

Guideline: Health Practices

The child will display signs of optimal health consistent with appropriate primary health care and caregiver health practices.

	Birth - 8 months	6 - 18 months	16 - 36 months
• **Diapering and toileting: The child will be appropriately diapered or assisted with toileting to prevent the spread of illness.**	I will be appropriately diapered. ...changed when I give signs of needing to be changed, or checked at least every two hours when awake, for signs of wetness or feces, and immediately after waking. ...changed near a water source for quick handwashing to prevent the spread of infection. ...remain secure on a raised changing surface with my caregiver's hand placed on me at all times.	I will be appropriately diapered. ...changed when I give signs of needing to be changed, or checked at least every two hours when awake, for signs of wetness or feces, and immediately after waking. ...changed near a water source for quick handwashing to prevent the spread of infection. ...remain secure on a raised changing surface with my caregiver's hand placed on me at all times.	I will be appropriately diapered and, toward the end of this period, I may show signs that I am ready to learn to use the toilet. ...changed when I give signs of needing to be changed, or checked at least every two hours when awake, for signs of wetness or feces, and immediately after waking. ...changed near a water source for quick handwashing to prevent the spread of infection. ...remain secure on a raised changing surface with my caregiver's hand placed on me at all times. ...show through gestures, expressions, body language or words that I am about to urinate or have a bowel movement. ...help with undressing myself. ...ask to use the toilet or potty chair.

Guideline: Oral Health

The child will display growth and behaviors associated with good oral health.

	Birth - 8 months	6 - 18 months	16 - 36 months
• **Tooth eruption: The child will display appropriate tooth eruption.**	I will display appropriate tooth eruption. ...drooling, irritability and sore gums caused by tooth eruption. ...eruption of the lower and upper incisors.	I will display appropriate tooth eruption. ...drooling, irritability and sore gums caused by tooth eruption. ...eruption of the lower and upper central and lateral incisors, canines and first molars.	I will display appropriate tooth eruption. ...drooling, irritability and sore gums caused by tooth eruption. ...eruption of the lower and upper lateral incisors, canines and first and second molars.
• **Oral health: The child will display good oral health.**	I will display good oral health. ...pink, firm gums. ...smooth, white teeth.	I will display good oral health. ...pink, firm gums. ...smooth, white teeth.	I will display good oral health. ...pink, firm gums. ...smooth, white teeth.
• **Dental care: The child needs to receive appropriate dental check-ups from a dentist and appropriate dental treatment.**	I need to have my first oral examination from a dentist within six months of the first tooth eruption and by 12 months of age.	I need to have my first oral examination from a dentist within six months of the first tooth eruption and by 12 months of age.	I need to have my second oral examination, as recommended by my dentist, based on my individual needs or risk of disease.

Guideline: Positive Nutritional Status

The child will display growth and behaviors associated with a positive nutritional status.

- **Physical growth: The child will display appropriate increases in length, weight and head circumference.**

Birth - 8 months

I will display appropriate increases in length, weight and head circumference.

...lose about six percent of my body weight immediately after birth because of fluid loss and some breakdown of tissue, but then regain my birthweight within 10 to 14 days following birth.
...double my birthweight by four to six months of age.
...increase in length at the rate of approximately one inch per month during the first six months of life.
...grow without major deviations in growth chart percentages.

6 - 18 months

I will display appropriate increases in length, weight and head circumference.

...triple my birthweight by 12 to 18 months of age.
...increase in length at the rate of approximately one-half inch per month between six and 12 months of age.
...grow without major deviations in growth chart percentages.

16 - 36 months

I will display appropriate increases in length, weight and head circumference.

...quadruple my birthweight by 24 to 36 months of age.
...gain approximately 4.5 to 6.5 pounds per year.
...increase in height at the rate of approximately 2.5 to 3.5 inches per year.
...grow without major deviations in growth chart percentages.

Emotional Development

Babies experience emotions right from the start. From their first cry of hunger to their first giggle of delight, their emotional experience grows. Young children learn many ways to express emotions such as happiness, sadness and anger. As they interact with their caregivers, they come to understand and appreciate the uniqueness of their emotional experience. Eventually they gain some control over their sometimes strong emotions. Positive early experiences help a child become emotionally secure.

The child's evolving sense of security and well-being has a profound effect on all areas of the child's development, including cognitive and language development. For example, an emotionally secure infant will more readily explore and learn than an insecurely attached infant. In a secure relationship, the child engages in rich back-and-forth interaction. The "dance" between the caregiver and child fosters increasingly advanced communication and language development.

New research shows how emotions are key in organizing the experience and behavior of young children. Emotions drive early learning. For instance, the pleasure an infant experiences when making a discovery or mastering a motor skill inspires the child to continue to learn and to develop skills. Emotional experiences affect the child's personal health, well-being and school readiness.

The infant's emotions are nurtured in relationships with parents, grandparents and child care providers. Studies of attachment show that children who are in emotionally secure relationships early in life are more likely to be self-confident and socially competent. Sensitive caregivers who read the child's cues and meet emotional, physical and dependency needs help the child become securely attached to them. Caregivers who gently stimulate a baby's senses and share emotional states provide the baby's brain the experiences it needs to grow. Because sensitive, responsive care leads to attachment security, its impact is profound. Secure attachment relationships have a positive effect on every aspect of early development, from emotional self-regulation to healthy brain development.

Emotional development is the child's emerging ability to become secure, express feelings, develop self-awareness and self-regulate.

Emotional Development

Guideline: Attachment

The child will develop an attachment relationship with a caregiver(s) who consistently meets the child's needs.

*Special Note: Because attachment has developmental relevance to both the emotional and social domains, it is shown identically in both places.

- **Attachment: The child will form relationships with consistent caregivers.**

Birth - 8 months

In the beginning of this period, I respond automatically to both caregivers and unfamiliar adults. By the end of this period, I signal to caregivers in order to stay close, and I may have formed an attachment relationship with one (or a few) of these caregivers.

For example, I may...
...turn toward the sight, smell or sound of my mama over that of an unfamiliar adult.
...stop crying upon seeing a face or hearing a voice.
...grasp my caregiver's sweater when she holds me.
...lift my arms to be picked up by my papa.
...be more likely to smile when approached by a caregiver than by an unfamiliar adult.
...babble back and forth with a caregiver.
...seek comfort from the person I'm attached to when I am crying.
...cry out or follow after my mom when she leaves the room.

6 - 18 months

In the beginning of this period, I signal to caregivers to stay close. Later, I develop an attachment relationship with one or a few of these caregivers, whom I use as a secure base from which to move out and explore my environment, checking back from time to time. By the end of this period, I spend more time playing farther away from my attachment figure(s), and am more likely to use gestures, glances or words to stay connected, though I still need to be physically close when I'm distressed.

For example, I may...
...cry out or follow my mom when she leaves the room.
...seek comfort from my favorite blanket or toy, especially when the person I'm attached to is absent.
...turn excitedly and raise my arms toward the person I'm attached to at pick-up time.
...display anxiety when an unfamiliar adult gets too close to me.
...reconnect with the person I'm attached to by making eye contact with him or her from time to time.
...play confidently when my attachment figure is in the room, but crawl or run to her when I'm frightened.

16 - 36 months

In the beginning of this period, I spend more time playing farther away from the person I'm attached to than I did in the earlier age period, and I use gestures, glances or words to stay connected. By the end of this period, I am beginning to understand that the person I'm attached to may have a point of view (including thoughts, plans and feelings) that is different from my own.

For example, I may...
...call, "Papa!" from across the room while I'm playing with blocks to make sure that my Papa is paying attention to me.
...feel comfortable playing on the other side of the yard from the person I'm attached to, but cry to be picked up when I fall down and hurt myself.
...say, "I go to school, mama goes to work," after my mom drops me off in the morning.
...gesture for one more hug as my daddy is leaving for work.
...say, "you do one and I do one," when asked to put books away before separating from my mom in the morning, in order to get her to stay a bit longer.
...bring my grandma's favorite book to her to see if she will read it to me one more time after grandma says, "We're all done reading. Now it's time for nap."

Guideline: Expression of Emotion

The child will experience and express a variety of feelings.

- **Expression of emotion: The child will express feelings through facial expressions, gestures and sounds.**

Birth - 8 months

In the beginning of this period, I express contentment and distress. By the end of this period, I express a variety of primary emotions (contentment, distress, joy, sadness, interest, surprise, disgust, anger and fear).

For example, I may...
...smile at my caregiver when he rocks me and sings to me.
...show distress by crying, kicking my legs and stiffening my body.
...coo when I'm feeling comfortable.
...cry intensely.
...express joy (by waving my arms and kicking my legs) when my dad comes to pick me up.
...express sadness (by crying) when my caregiver puts me down in my crib.
...spit out things that taste "icky" and make a face of disgust.
...laugh aloud when playing "peek-a-boo" with my caregiver.
...get angry when I am frustrated.
...be surprised when something unexpected happens.
...exhibit wariness, cry or turn away when approached by an unfamiliar adult.
...be more likely to react with anger than just distress when someone accidentally hurts me.

6 - 18 months

In the beginning of this period, I express a variety of primary emotions (contentment, distress, joy, sadness, interest, surprise, disgust, anger and fear). Later in this period, my emotional expressions become clearer and more intentional. By the end of this period, I begin to express complex (self-conscious) emotions such as pride, embarrassment, shame and guilt.

For example, I may...
...be more likely to react with anger than just distress when someone accidentally hurts me.
...show affection for my caregiver by hugging her.
...express fear of unfamiliar people by moving near my caregiver.
...knock a shape sorting toy away when it gets to be too frustrating.
...show my anger by grabbing a toy that was taken from me out of the other child's hands.
...express fear when I hear a dog bark.
...express sadness when I lose a favorite toy and cannot find it.
...smile with affection as my sibling approaches.
...cling to my dad as he says, "good-bye," and express sadness as he leaves.
...express fear by crying when I see someone dressed up in a costume.

16 - 36 months

In the beginning of this period, I begin to express complex (self-conscious) emotions such as pride, embarrassment, shame and guilt. By the end of this period, I can use words to describe how I am feeling, although sometimes my feelings are so strong that I have trouble expressing them in words.

For example, I may...
...hide my face in my hands when feeling embarrassed.
...express guilt after taking a toy out of another child's cubby without permission.
...express frustration through tantrums.
...express pride by saying, "I did it!"
...use words to express how I am feeling, such as, "I'm sad."
...say, "I miss grandma," after I get off the phone with her.

Emotional Development

Guideline: Self-Awareness

The child will develop an understanding of and an appreciation for his/her uniqueness in the world.

- **Self-awareness: The child will recognize herself or himself as a person with an identity, wants, needs, interests, likes and dislikes.**

Birth - 8 months

In the beginning of this period, I am not aware that you are a separate person from me. By the end of this period, I begin to understand that I am my own separate person.

For example, I may...
...not experience distress when my mommy leaves the room.
...experiment with moving my own body.
...watch my own hands with fascination.
...use my hands to explore different parts of my body.
...be able to tell the difference between when someone touches my face and when I touch my own face.
...smile at my mirror image, even though I don't recognize it as an image of myself.
...react to hearing my own name.
...cry when my caregiver leaves the room.

6 - 18 months

In the beginning of this period, I begin to understand that I am my own separate person. By the end of this period, I recognize myself in the mirror and in photos.

For example, I may...
...recognize that I am a separate person from my caregiver.
...recognize my own body.
...begin to identify parts of the body.
...understand that the reflection in the mirror is actually my own image.

16 - 36 months

In the beginning of this period, I recognize myself in the mirror and in photos. Later in this period, I use pronouns like "I," "me" and "mine" when referring to myself. By the end of this period, I can describe who I am by using categories such as girl or boy, big or little.

For example, I may...
...point to myself in a family photograph.
...point to different body parts when you name them, and name a few body parts by myself.
...say, "big girl," when referring to myself.
...begin to make comparisons between myself and others.
...claim everything I want as "mine."
...refer to myself by name, or with the pronouns "me" and "I."
...say, "No!" to express that I am an individual with my own thoughts and feelings.
...point to and name members of my family in a photograph.
...say, "I'm the big sister," when my caregiver meets my new baby brother.

Emotional Development

Guideline: Self-Awareness

The child will develop an understanding of and an appreciation for his/her uniqueness in the world.

- **Awareness of emotions: The child will recognize his or her own feelings.**

Birth - 8 months

In the beginning of this period, I respond reflexively or automatically with emotions of distress or contentment. By the end of this period, I express a variety of primary emotions (contentment, distress, joy, sadness, interest, surprise, disgust, anger and fear).

For example, I may...
...show satisfaction or dissatisfaction.
...cry to indicate that I'm distressed.
...show pleasure and joy when interacting with a caregiver.
...show displeasure or sadness when my caregiver suddenly stops playing with me because another child needs him.
...become anxious when my family child care provider leaves the room.
...smile joyfully in response to my caregiver's interesting facial expressions.

6 - 18 months

In the beginning of this period, I express a variety of primary emotions (contentment, distress, joy, sadness, interest, surprise, disgust, anger and fear). By the end of this period, my emotional expressions become clearer and more intentional.

For example, I may...
...be more likely to react with anger than just distress when someone accidentally hurts me.
...show affection for my caregiver by hugging her.
...express fear of unfamiliar people by moving near my caregiver.
...knock a shape sorting toy away when it gets to be too frustrating for me.
...show my anger by grabbing a toy that was taken from me out of the other child's hands.
...express sadness when I lose a favorite toy and cannot find it.
...smile with affection as my sibling approaches.
...cling to my dad as he says, "good-bye," and express sadness as he leaves.
...express fear by crying when I see someone dressed up in a costume.
...exhibit a play smile while playing chase.
...express jealousy when my caregiver holds another child by trying to squish onto her lap too.

16 - 36 months

In the beginning of this period, my emotional expressions become clearer and more intentional. Later, I express complex (self-conscious) emotions such as pride, embarrassment, shame and guilt. By the end of this period, I use words to describe my feelings and I show an understanding of why I have these feelings. Sometimes, however, my feelings are so strong I have trouble expressing them in words.

For example, I may...
...express jealousy when my caregiver holds another child by trying to squish onto the caregiver's lap too.
...show delight by clapping to myself after stacking some blocks into a tower.
...use one or a few words to tell my caregiver how I am feeling.
...act out different emotions during pretend play by pretending to cry when I'm a sad baby and pretending to coo when I'm a happy baby.
...say, "I'm sad," and then respond, "I miss Mommy," when my caregiver asks why I'm sad.
...say, "I'm mad," after another child takes my toy, and then say to the other child, "That's mine," as I take the toy out of his hands.

Guideline: Self-Awareness

The child will develop an understanding of and an appreciation for his/her uniqueness in the world.

- **Sense of competence: The child will recognize his or her ability to do things.**

Birth - 8 months

In the beginning of this period, I respond automatically and explore my own abilities. By the end of this period, I understand that I can make things happen.

For example, I may...
...explore my own abilities through movements.
...shake a rattle over and over again to hear the sound.
...touch a toy to make the music come on again after the music has stopped.
...look at my caregiver when I cry so she can meet my need.
...try to roll over and over again, even though I may not roll completely over.

6 - 18 months

In the beginning of this period, I understand that I can make things happen. By the end of this period, I experiment with different ways of making things happen, and I take pride in what I can do.

For example, I may...
...understand that I can get my caregiver to play "peek-a-boo" with me if I look at her and then cover my face with my hands.
...smile at my mom and giggle in a playful way as I crawl by her, to entice her to chase me in a game of "I'm gonna get you."
...point at a toy that I want and smile with satisfaction after my caregiver gets it down for me.
...roll a toy car back and forth on the ground and then push it really hard and let go, to see what happens.
...clap to myself after I climb up the stairs on the inside climber.

16 - 36 months

In the beginning of this period, I experiment with different ways of making things happen and take pride in what I can do. By the end of this period, I have an understanding of what I can do and what I'm not able to do yet by myself. I can also describe myself in terms of what I can do.

For example, I may...
...say, "Did it!" or "I can't."
...insist, "Me do it!" when my caregiver tries to help me with something I already know how to do.
...say, "I climb high" when telling a caregiver about what I did outside during play time.
...say, "Look what I made you" and hold up a picture I painted for my mommy with a big smile on my face.
...describe myself to my caregiver by saying, "I'm a helping boy" because I know I am a good helper.

Guideline: Emotional Self-Regulation

The child will develop strategies to control emotions and behavior.

- **Self-comforting: The child will manage his or her internal states and feelings, as well as stimulation from the outside world.**

Birth - 8 months

In the beginning of this period, I depend on my caregiver to comfort me. By the end of this period, I use simple strategies to comfort myself, and I am able to communicate my needs more clearly to my caregiver.

For example, I may...
...cry when I'm hungry, tired or wet.
...settle down and be soothed when my caregiver picks me up and cuddles me, feeds me or meets my other needs.
...kick my legs and wave my arms when in distress.
...turn away from interactions that I find to be too intense, then turn back to continue interacting when I'm ready.
...calm myself when I'm upset by sucking on my fingers or hand.
...turn my head away or yawn when I'm feeling overstimulated.
...focus on a nearby toy that I find interesting when something else is making me feel overwhelmed.
...have different kinds of cries to tell my caregiver what I need to make me feel better.
...move away from something that is bothering me and move toward a caregiver who comforts me.

6 - 18 months

In the beginning of this period, I use simple strategies to comfort myself, and I am able to communicate my needs more clearly to my caregiver. By the end of this period, I use more complex strategies for making myself feel better.

For example, I may...
...move away from something that is bothering me and move toward a caregiver who comforts me.
...shift attention away from a distressing event onto an object as a way of managing my emotions.
...try to control my distress by biting my lip or hugging myself.
...use gestures or simple words to express distress and seek specific kinds of assistance from caregivers in order to calm myself.
...use comfort objects, such as a special blanket or a stuffed animal, to help myself calm down.
...play with a toy as a way to distract myself from my own discomfort.

16 - 36 months

In the beginning of this period, I use more complex strategies for making myself feel better. By the end of this period, I anticipate the need for comfort and try to plan ahead.

For example, I may...
...continue to rely on adults for reassurance and help in controlling my feelings and behavior.
...reenact emotional events in my play in order to gain mastery.
...ask for food when I'm hungry, but get my blankie and lie down in the quiet corner when I'm sleepy.
...say, "Can you rub my back?" when I'm having trouble settling down for a nap.
...put my blanket on my cot before sitting down for lunch, because I know I'll want it during naptime.
...ask, "Who will hold me when I'm sad?" as I talk with my mom about going to a new classroom.

Guideline: Emotional Self-Regulation

The child will develop strategies to control emotions and behavior.

- **Impulse control: The child will manage his or her behavior.**

Birth - 8 months

In the beginning of this period, I depend on my caregivers to meet my needs and comfort me. By the end of this period, I show very early signs of controlling some impulses when my caregiver guides and supports me.

For example, I may...
...cry when hungry, until my caregiver feeds me.
...sleep when I'm sleepy.
...explore how someone's hair feels by pulling it.
...crawl too close to a younger infant who is lying on the same blanket.
...reach for a snack out of the bowl before it's snacktime and then pull my hand back when you ask me to wait.
...refrain from exploring the way another baby's hair feels when you remind me to be gentle.

6 - 18 months

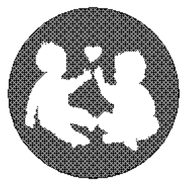
In the beginning of this period, I show very early signs of controlling some impulses when my caregiver guides and supports me. By the end of this period, I am aware of my caregiver's wishes and expectations, and sometimes choose to comply with them. I also have some simple strategies to help myself wait.

For example, I may...
...refrain from exploring the way another baby's hair feels when you remind me to be gentle and show me how.
...respond to limits that you set with your voice or gestures.
...recover quickly and be able to play soon after a tantrum.
...use self-talk to control my behavior; e.g., say "no, no" while considering taking a cupcake from the plate before it's time for the birthday party.

16 - 36 months

In the beginning of this period, I am aware of my caregiver's wishes and expectations, and sometimes choose to comply with them. I also have some simple strategies to help myself wait. By the end of this period, I have internalized some of my caregiver's rules so I don't always need as much support when trying to control my behavior.

For example, I may...
...use self-talk to control my behavior; e.g., say "no, no" while considering taking a cupcake from the plate before it's time for the birthday party.
...begin to use words and dramatic play to describe, understand and control my impulses and feelings.
...begin to turn tantrum behavior on and off with less adult assistance.
...throw a tantrum when I'm really frustrated.
...push or hit another child who takes my toy.
...begin to remember to follow simple rules as a means of controlling behavior.
...understand or carry out simple commands or rules.
...yell, "mine, mine!" when another child picks up a doll.
...begin to share.



Social Development

Babies are social right from the start. Attachment relationships are at the heart of social development. In secure relationships, the baby eventually learns to follow social rules and be respectful toward others. As infants grow, they also gain the necessary social skills (turn taking when communicating, negotiation, etc.) to get along with others. Infants begin to show concern and empathy toward others. They also start to see themselves as belonging to social groups, in particular their families.

The ability to relate with adults and other children and to learn from others influences the infant's development in all of the other domains. As the child's interaction skills grow, the child learns from others through imitation and communication. Language learning, problem solving, fantasy play and social games all depend on social development. Through social guidance and imitation, the child learns safety rules and basic health procedures, such as hand washing before meals. With proper support, the infant eventually develops the ability to participate in a social group. Successful social development during the first three years prepares the child for both preschool and school.

Just as healthy attachment relationships support emotional self-regulation, so do these relationships contribute to the development of the child's social understanding and skills. In an attachment relationship, the infant looks to the adult for guidance. Because attachment relationships are critically important for emotional as well as social development, the same attachment guideline appears in both of these domains.

In order to fully understand social development, the role of culture must be recognized and respected in definitions of "appropriate" social interactions, social skills and social abilities. Different cultural communities may have different definitions of social competence. For example, one culture may look upon a child's behavior as shy and inhibited, while another culture may regard the same behavior as respectful.

Support and guidance from caregivers are essential for infants' positive social development. Caregivers support social development in three major ways: providing an appropriate environment, creating opportunities for responsive social interactions and building stable relationships. The environment should make it easy for caregivers to be available to the children and responsive to their needs. Above all, the program should foster relationships between caregivers and infants, and between infants. Continuity of care, ample time for caregivers and children to be together, guidance from caregivers and consistent, predictable social experiences all contribute to stable, strong relationships and positive social development.

Social development is the child's emerging development of an understanding of self and others, and the ability to relate to other people and the environment.

Guideline: Attachment

The child will develop an attachment relationship with a caregiver(s) who consistently meets the child's needs.

*Special Note: Because attachment has developmental relevance to both the emotional and social domains, it is shown identically in both places.

- **Attachment: The child will form relationships with consistent caregivers.**

Birth - 8 months

In the beginning of this period, I respond automatically to both caregivers and unfamiliar adults. By the end of this period, I signal to caregivers in order to stay close. I may have formed an attachment relationship to one (or a few) of these caregivers.

For example, I may...
...turn toward the sight, smell or sound of my mom over that of an unfamiliar adult.
...stop crying upon seeing a face or hearing a voice.
...grasp my caregiver's sweater when she holds me.
...lift my arms to be picked up by my dad.
...be more likely to smile when approached by a caregiver than by an unfamiliar adult.
...babble back and forth with a caregiver.
...seek comfort from an attachment figure when I am crying.
...cry out or follow after my mom when she leaves the room.

6 - 18 months

In the beginning of this period, I signal to caregivers to stay close. Later, I develop an attachment relationship with one or a few of these caregivers, whom I use as a secure base from which to move out and explore my environment, checking back from time to time. By the end of this period, I spend more time playing farther away from my attachment figure(s), and am more likely to use gestures, glances or words to stay connected, though I still need to be physically close when I'm distressed.

For example, I may...
...cry out or follow my mom when she leaves the room.
...seek comfort from my favorite blanket or toy, especially when the person I'm attached to is absent.
...turn excitedly and raise my arms toward the person I'm attached to at pick-up time.
...display anxiety when an unfamiliar adult gets too close to me.
...look for cues from the person I'm attached to when I'm unsure if something is safe.
...play confidently when the person I'm attached to is in the room, but crawl or run to her when I'm frightened.

16 - 36 months

In the beginning of this period, I spend more time playing farther away from the person I'm attached to than I did in the earlier age period, and I use gestures, glances or words to stay connected. By the end of this period, I am beginning to understand that the person I'm attached to may have a point of view (including thoughts, plans and feelings) that is different from my own.

For example, I may...
...call "Papa!" from across the room while I'm playing with blocks to make sure that my Papa is paying attention to me.
...feel comfortable playing on the other side of the yard from the person I'm attached to, but cry to be picked up when I fall down and hurt myself.
...say, "I go to school, mama goes to work," after my mom drops me off in the morning.
...gesture for one more hug as my daddy is leaving for work.
...say, "You do one and I do one" when asked to put books away before separating from my mom in the morning, in order to get her to stay a bit longer.
...bring my grandma's favorite book to her to see if she will read it to me one more time after grandma says, "We're all done reading." "Now it's time for nap."

Guideline: Expression of Social Behavior

The child will demonstrate the ability to get along with others.

- **Interactions with adults: The child will engage in give-and-take exchanges with an adult.**

Birth - 8 months

In the beginning of this period, I respond automatically to my caregiver's attempts to interact. By the end of this period, I give cues to initiate interaction with my caregiver.

For example, I may...
...match the facial expressions of an adult.
...give a social smile or engage in mutual gazing.
...coo or babble in response to my caregiver's vocalizations.
...follow my caregiver's gaze to look at a toy.

6 - 18 months

In the beginning of this period, I give cues to initiate interaction with my caregiver. By the end of this period, I engage in a series of actions with my caregiver.

For example, I may...
...follow my caregiver's gaze to look at a toy.
...become wary or anxious of unfamiliar adults.
...take my caregiver's hands and rock forward and backward, saying "Row, row," as a way of asking her to sing "Row, Row, Row Your Boat" to me.
...cooperate during a diaper change by lifting my bottom.
...pick up a toy phone and say "Hello?" while I walk around the room, as I've seen my daddy do.
...show a toy to my caregiver, and later give a toy to my caregiver when she asks.
...initiate an interaction with my caregiver by pointing to an unfamiliar object as if to ask, "What's that?"

16 - 36 months

In the beginning of this period, I engage in a series of actions with my caregiver. By the end of this period, I can work with a caregiver to solve problems or communicate about ideas or experiences.

For example, I may...
...initiate an interaction with my caregiver by pointing to an unfamiliar object as if to ask, "What's that?"
...bring my shoes from my bedroom when my grandma asks me to.
...practice being a grown-up in my pretend play by dressing up or using a play stove.
...participate in storytelling with my family child care provider.

Guideline: Expression of Social Behavior

The child will demonstrate the ability to get along with others.

- **Interactions with peers: The child will engage with other children.**

Birth - 8 months

In the beginning of this period, I respond automatically and prefer the human face and sound. By the end of this period, I am interested in other children and explore their faces and bodies.

For example, I may...
...turn toward the sight, smell or sound of a familiar caregiver over that of an unfamiliar adult.
...initiate a social smile.
...look at a peer for a short time.
...touch or mouth the hair of another child.

6 - 18 months

In the beginning of this period, I am interested in other children and explore their faces and bodies. By the end of this period, I engage in play with peers for an extended time.

For example, I may...
...prefer familiar peers, and play in more complex play with them than with unfamiliar peers.
...play pat-a-cake with a caregiver or peer.
...sit beside a peer, filling my sand bucket, while she fills hers.
...roll a ball with a peer.
...pretend to cook dinner or bathe the baby using props such as pots, pans, baby dolls and wash cloths.

16 - 36 months

In the beginning of this period, I engage in play with peers for an extended time. By the end of this period, I show a greater likelihood to engage in mutual social play.

For example, I may...
...pretend to cook dinner or bathe the baby using props such as pots, pans, baby dolls and wash cloths.
...have one or two favorite peers within my class.
...pretend to order pizza, using a banana as a phone.
...stand at the play dough table, rolling balls of dough, while my peers play beside me.
...push, hit or bite when another child takes my toy.
...say, "Let's chase!" to a peer or engage in other complementary interactions, such as feeding a stuffed bear that another child is holding.
...tell you the names of my friends.

Guideline: Expression of Social Behavior

The child will demonstrate the ability to get along with others.

- **Empathy: The child will understand and respond to the emotions of others.**

Birth - 8 months

In the beginning of this period, I respond automatically to the emotions of others. By the end of this period, I demonstrate an awareness of others' feelings.

For example, I may...
...look at my mama's face.
...match the facial expressions of my papa.
...smile responsively.
...cry or grimace at the discomfort of others.

6 - 18 months

In the beginning of this period, I demonstrate an awareness of others' feelings. By the end of this period, I respond to a peer's distress by doing something for him that would make me feel better.

For example, I may...
...interpret facial cues as emotional expressions.
...exhibit "social referencing" by looking at my caregiver for cues when I'm in an uncertain situation.
...gently pat a crying peer on his back.
...comfort a crying peer by offering my own blanket or getting my own mother to help.
...say, "Hug?" in an attempt to help a crying peer.

16 - 36 months

In the beginning of this period, I respond to a peer's distress by doing something for him that would make me feel better. By the end of this period, I respond to a peer's distress in a way that shows that I understand what would make him feel better. I also understand that others have feelings independent from mine.

For example, I may...
...comfort a crying peer by offering my own blanket or getting my own mother to help.
...say, "Hug?" in an attempt to help a crying peer.
...bring a peer her favorite blanket in an attempt to comfort her.
...put a bowl on my head in an effort to make a crying peer smile.
...say, "Daddy happy." when I see my daddy laugh.
...say, "Curious George is scared" and point at his picture in a book.
...say, "Alexandra's crying because she misses her mommy."

Guideline: Awareness of Social Behavior

The child will develop a sense of belonging to a larger community through social interactions and relationships.

- **Social identity: The child will have an awareness of his or her relationship to others in a group.**

Birth - 8 months

In the beginning of this period, I am not aware that you are a separate person from me. By the end of this period, I begin to understand that I am a separate person who is connected to others in the world.

For example, I may...
...not experience distress when you leave the room.
...use my hands to explore different parts of my body and explore my mom's facial features.
...be able to tell the difference between familiar and unfamiliar people.
...smile and light up when my big brother comes to talk to me.
...show anxiety when my dad leaves.
...cry and expect a caregiver to meet my needs.

6 - 18 months

In the beginning of this period, I understand that I am a separate person who is connected to others in the world. By the end of this period, I demonstrate an understanding of the practices or characteristics of my group.

For example, I may...
...show anxiety when my dad leaves.
...express anxious behavior around unfamiliar adults.
...demonstrate a sense of "we" when playing games like "peek-a-boo" or "I'm gonna get you."
...talk on the phone and walk around like I've seen my mommy do at home.
...clap and say "yeah" after singing a song at home, because that's what we do at my family child care.

16 - 36 months

In the beginning of this period, I demonstrate an understanding of the practices or characteristics of my group. By the end of this period, I identify myself and others as belonging to one or more groups, according to characteristics I notice.

For example, I may...
...talk on the phone and walk around like I've seen my mommy do at home.
...clap and say "yeah" after singing a song at home, because that's what we do at my family child care.
...use pronouns like "you," "me" and "I."
...say, "Adrian is a boy, and I'm a boy."
...say, "I'm not a baby. I'm a big girl."
...name some family members or friends.

Motor Development

Babies use their bodies to interact with their physical and social environment, right from the start. Through movement, babies make discoveries about themselves and the environment and gain a sense of mastery. As infants develop emotional security, they become increasingly confident about using their emerging motor abilities to explore the environment, try out new skills and learn about the world of people and things. The control of small and large muscles allows toddlers to participate increasingly in their daily care such as feeding, dressing and toileting.

Motor development affects infants' development in all of the other domains. For example, control of their limbs and hands enables babies to communicate by gesturing and pointing. Fine motor development is necessary to participate in finger plays and eventually handle and look at a book, grasp a marker and scribble and make marks. These early developments lead to emergent literacy and writing, and contribute to children's eventual school readiness. In the area of cognitive development, fine and large muscle development allows very young children to explore the environment and manipulate materials. Of course, a child's ability to move plays a big role in his or her social interactions with other children.

Caregivers can nurture and support babies' motor development in many ways. Caregivers need to create a safe space for free exploration of movement with appropriate levels of challenge. Supervision of young children is always necessary. Caregivers should place young infants on their backs to sleep. Babies also need time on their stomachs while awake to develop their movement skills (www.cdc.gov/actearly). Baby equipment such as exercise saucers, play pens and swings restrict motor development and should be used sparingly. Infant walkers and jumpers can cause serious injuries and should not be used.

Because all children learn through moving, adaptation of the environment may be necessary to support the movement of a child, particularly those with a disability or other special need. All infants and toddlers benefit from adult encouragement. It helps them to take on new challenges and to strengthen their developing sense of security and self-confidence.

Motor development is the increasing ability to use one's body to interact with the environment.

Motor Development

Guideline: Large Muscle

The child will develop large-muscle strength and control to move within the environment.

- **Movement, balance, and coordination: The child will coordinate the movements of his or her body in order to move and to interact with the environment.**

Birth - 8 months

In the beginning of this period, I move my body automatically. Later, I gain strength and more voluntary control of my head, arms and legs. By the end of this period, I use this strength and control to coordinate the movements of my body parts and to move my whole body.

For example, I may...
...try to hold my head steady when mommy holds me against her chest and shoulder.
...turn my head to both sides while lying on my back.
...roll from front to back or back to front.
...hold myself up, first on two hands and then on one, while on my tummy.
...scoot backward on my belly.
...crawl forward on my hands and knees.

6 - 18 months

In the beginning of this period, I coordinate the movements of my body parts to move my whole body. Later, I develop the strength, balance and coordination to change the position of my body from lying to sitting, and later to standing. By the end of this period, I can move my body from one place to another without support while upright on two feet.

For example, I may...
...get into and out of a sitting position independently.
...reach for toys that are lying on the floor around me while I am sitting.
...get up on my hands and knees.
...crawl on my hands and knees toward my mommy.
...creep up and down stairs on my belly, one step at a time.
...use the couch to pull myself up into a standing position.
...cruise around the coffee table while holding onto it.
...stand up by myself.
...take two or three steps.
...walk across the room, stopping and changing direction when something is in my way.
...stand and rock side to side or bounce up and down to "dance" to music.

16 - 36 months

In the beginning of this period, I can move my body from one place to another without support while upright on two feet. By the end of this period, I can coordinate my whole body to make complex movements.

For example, I may...
...hold onto a string to pull a wooden duck with wheels behind me while walking.
...back up and sit down in the chair that's just my size at my child care center.
...walk up and down steps while holding my caregiver's hand or holding onto the railing.
...bend over to pick up objects off the floor and then stand up straight again.
...carry a large stuffed bear as I walk to my cubby.
...run.
...kick a ball.
...jump.
...walk up and down stairs independently, stopping with both feet on each step.
...walk up and down stairs, alternating my feet, one on each step.
...use a riding toy with or without pedals.
...climb on outdoor play equipment.

Guideline: Small Muscle

The child will develop small-muscle strength and control for detailed exploration and manipulation of objects.

- **Touch, grasp, reach and manipulate: The child will coordinate the use of his or her hands, fingers and sight in order to manipulate objects in the environment.**

Birth - 8 months

In the beginning of this period, I use my hands, arms and eyes automatically. Later, I can follow a moving object or person with my eyes, and I can bring my hands and objects to my mouth. By the end of this period, I look at my hands or an object while manipulating that object.

For example, I may...
- ...blink when the sun shines in my eyes.
- ...grasp my mother's finger when she places it in my tiny palm.
- ...follow a moving person with my eyes.
- ...move my arms when I see a toy.
- ...clasp my hands together.
- ...bring my hand to my mouth.
- ...reach for and grasp an object.
- ...use a full-hand grasp to pick up an object.
- ...transfer a toy from one hand to another.

6 - 18 months

In the beginning of this period, I look at my hands or an object while manipulating that object. By the end of this period, I use both of my hands together to accomplish a task.

For example, I may...
- ...transfer a toy from one hand to the other.
- ...hold an object in each hand.
- ...release my grasp on a toy so I can watch it fall to the floor.
- ...bang objects together.
- ...turn the pages of a board book.
- ...take a block out of the plastic bin.
- ...use my index finger and thumb to pick up a piece of cereal and bring it to my mouth.
- ...put a block back in the plastic bin.
- ...look up and point at the object I want that is out of reach.
- ...scribble with a fat crayon on a large piece of paper while holding onto the crayon with a full-hand grasp.
- ...hold a toy with one hand while looking at it and pushing at different parts with the index finger of my other hand.

16 - 36 months

In the beginning of this period, I use both of my hands together to accomplish a task. By the end of this period, I am able to coordinate the use of my arms, hands and fingers to accomplish more challenging fine motor tasks.

For example, I may...
- ...scribble with a fat crayon on a large piece of paper while holding the crayon with a full-hand grasp.
- ...hold a toy with one hand while looking at it and pushing different parts of it with the index finger of my other hand.
- ...put pegs into the holes of a foam peg board.
- ...use a spoon to scoop up food and bring it to my mouth, even though I may get some food on my face.
- ...wash my hands.
- ...string a large wooden bead onto a shoelace.
- ...make snips in a piece of paper with child-sized scissors.
- ...hold a piece of chalk using my fingers and thumb.
- ...unbutton a large button on my sweater.
- ...consistently favor the use of one of my hands over the other.
- ...build a tall tower with a number of blocks.
- ...complete a puzzle with three to four interlocking pieces.

Guideline: Oral-Motor

The child will develop skill in biting, chewing and swallowing during eating and drinking.

- **Oral-motor:**
  The child will develop the skill to coordinate the use of his or her tongue and mouth in order to suck, swallow and eventually chew.

Birth - 8 months

In the beginning of this period, I automatically root and suck. Later, I use my mouth and tongue to explore objects. By the end of this period, I gain more control over my ability to suck, swallow and chew.

For example, I may...
...suck on my own fist.
...turn my head toward a finger or nipple that brushes my cheek.
...suck on the breast or bottle.
...push my tongue against a spoon that you put into my mouth.
...coordinate sucking, swallowing and breathing.
...stick out my tongue.
...explore the texture of objects with my lips and tongue.
...drool while playing and teething, but drool less while eating.
...use my tongue to move food inside my mouth.

6 - 18 months

In the beginning of this period, I gain more control over my ability to suck, swallow and chew. By the end of this period, I can take bites of food and drink from a cup, if these choices are offered to me.

For example, I may...
...chew pieces of finger food, like chunks of banana.
...drink from a sippy cup.
...bite a biscuit or gnaw on a chew toy.
...tolerate various textures of foods.
...take a bite from a piece of bread.
...drink from a cup without a lid, even though I may spill some on myself.

16 - 36 months

In the beginning of this period, I take bites of food and drink from a cup, if these choices are offered to me. By the end of this period, I eat a variety of table foods and can drink through a straw.

For example, I may...
...drink from a cup without a lid, even though I may spill some on myself.
...chew using rotary jaw movements.
...drink from an open cup, usually without spilling.
...drink through a straw.
...eat a variety of table foods.

Language & Communication Development

Babies tune into familiar sounds and voices and express needs within minutes after birth. All humans communicate to build relationships, share meaning with one another and express needs. The ways humans communicate include sound, speech, body movements, facial expressions, gestures, signs, pictures, print, and Braille. Language competence is one of the most amazing developmental accomplishments during the first three years of life. Infants rapidly learn to understand language, express themselves verbally and use language to get their needs met.

The development of language and communication skills during the infant and toddler years supports development in all of the other domains. It helps infants to learn about healthful routines, to regulate their actions and thinking, to understand their emotional experiences and to get along with others socially. It also lays the foundation for the acquisition of skills necessary to learn to read, write, and communicate effectively with others in school. Young children's ability to understand and express spoken language by the end of the toddler period prepares them to hear and understand the sounds of spoken language (phonological awareness), continue to understand and use new words (vocabulary acquisition), and communicate through listening, viewing and speaking.

Some infants and toddlers have conditions that affect their ability to learn to communicate. For example, children who are born with partial or full hearing loss may rely more on vision than on hearing to communicate. Children with developmental disorders such as autism or severe speech delays also may heavily rely on non-verbal communication.

Children with disorders progress through many of the same language development sequences as other children, though they may develop at different rates and with different modes of communication such as sign language or picture systems.

Many children in infant and toddler care programs live in families with a home language different from English. Infants and toddlers need to learn their home language, because it is an important part of their identity development, their self-concept, their relationships at home and their ability to develop concepts and thinking skills. When caring for an infant or toddler with a home language different from English, adults should support children in using and learning their home language, as the children begin to learn English.

Most children learn language without anyone directly teaching them, no matter which language is spoken at home. However, the amount and kind of language infants and toddlers experience has an enormous effect on the number of words they will learn and use, their success at learning to read and write in school, and their long-range school success. Babies and toddlers need rich experiences with language-related emergent reading and writing. For example, caregivers should read to infants and toddlers frequently, and recite to them songs, rhymes and fingerplays. In addition, learning opportunities such as manipulating play materials, playing with short stubby paintbrushes and using eating utensils provides infants and toddlers the experiences they need to become ready to play at writing during the preschool years.

Language and communication development is the increasing ability to communicate successfully with others to build relationships, share meaning and express needs in multiple ways.

Language & Communication Development

Guideline: Comprehending Language

The child will use listening and observation skills to develop an awareness of his or her world. As he or she develops, he or she understands more sounds and words.

- **Understanding language: The child will comprehend the message of another's communication.**

Birth - 8 months

In the beginning of this period, I respond automatically to sounds in the environment. By the end of this period, I recognize the names of familiar people and favorite objects.

For example, I may...
...turn my head toward the direction of a loud sound and startle when very loud sounds occur.
...watch my grandmother's face as she speaks to me.
...turn my head in the direction of my father's voice.
...look at my mommy when I am asked, "Where's Mommy?"
...reach for my bottle when I am asked, "Do you want your bottle?"

6 - 18 months

In the beginning of this period, I recognize the names of familiar objects and people. By the end of this period, I show understanding of adult's simple requests and of statements referring to the present situation.

For example, I may...
...reach for my bottle when I am asked, "Do you want your bottle?"
...follow one-step requests when my caregiver uses gestures along with words (e.g., "no no," "roll the ball," "kiss the baby doll," "wave bye-bye").
...crawl toward the ball when my caregiver asks, "Where's the ball?" without using gestures.
...point to my shoes or socks when my caregiver asks, "Where are your shoes?"

16 - 36 months

In the beginning of this period, I show understanding of adults' simple requests and of statements referring to the present situation. By the end of this period, I understand my caregiver's more abstract and complex statements and requests that refer to positions in space, ideas, feelings and the future.

For example, I may...
...point to my shoes or socks when my caregiver asks, "Where are your shoes?"
...sit next to Marcus at the table when my caregiver asks me to sit next to him.
...get my own book out of my cubby and my caregiver's book off the shelf when my caregiver requests, "Please get your truck book and my truck book for naptime."
...pick up one block off the floor and give it to my caregiver when he asks me to "Please get a block," and then pick up the basket of blocks when I'm asked to "Please get the blocks."

Guideline: Expressing Language

The child will develop the ability to use sounds, words, gestures and eventually signs or words to communicate his or her wants, needs and feelings.

- **Expressing language: The child will convey a message or transfer information to another person.**

Birth - 8 months

In the beginning of this period, I make sounds spontaneously. By the end of this period, I show more intention as I experiment with sound and with different ways to express my wants, needs or feelings.

For example, I may...
...coo using single vowel sounds (e.g., "ah", "eh," "uh").
...demonstrate several different cries to express different needs.
...babble, using consonant sounds.
...use gestures or expressions to indicate my wants, needs or feelings.

6 - 18 months

In the beginning of this period, I show more intention as I experiment with sound and with different ways to express my wants, needs or feelings. By the end of this period, I begin to use single words and conventional gestures to communicate with others.

For example, I may...
...use gestures or expressions to indicate my wants, needs or feelings.
...use one-word sentences.
...say "mama" or "papa."
...say, "oh oh" when my milk spills.
...use long strings of babbles together.
...shake my head back and forth and say, "no" when I don't want to do something.
...point to an object to communicate that I want you to get it for me.
...begin to say "bottle" instead of "baba" when wanting a drink.

16 - 36 months

In the beginning of this period, I begin to use single words and conventional gestures to communicate with others. By the end of this period, I combine words to express more complex ideas and start to follow some simple grammatical rules, although not always correctly.

For example, I may...
...begin to say, "bottle" instead of "baba" when wanting a drink.
...combine words into simple sentences. "I go home."
...speak clearly enough for others to usually understand what I am trying to say.
...be able to name my extended family members when my caregiver points to them in a photograph.
...add "s" to words when referring to more than one, "lots of dogs at the park" and "lots of deers in the woods," even though that grammatical rule doesn't always work.
...use words like "mine," "yours" and "his" to indicate who owns each toy.

Language & Communication Development

Guideline: Social Communication

The child will be an active participant in his or her social world by developing the ability to interact with others in ways expected by his or her family, or community.

- **Rules of language: The child will participate in interactions with language that follow the expected practices of the child's family and community.**

Birth - 8 months

In the beginning of this period, I automatically respond to my caregivers when they talk to me by turning toward them. During this period, I participate in back-and-forth interactions with my caregivers. By the end of this period, I attempt to respond to basic forms of social communication with the appropriate gesture.

For example, I may...
...gaze at my caregiver during a feeding.
...vocalize when my aunt calls my name.
...smile and vocalize to initiate contact with my grandpa.
...make a gurgling sound and pause for my caregiver to respond, then after my caregiver says something to me, coo and smile.
...raise my arms in the air when Daddy says, "so big!" and raises his arms.
...wave bye-bye in response to my papa's waving bye-bye to me.

6 - 18 months

In the beginning of this period, I attempt to respond to basic forms of social communication with the appropriate gesture. By the end of this period, I participate in and often initiate the basic socially expected communications of my family.

For example, I may...
...wave bye-bye in response to my papa's waving bye-bye to me.
...run to the window to blow kisses to my mommy when she drops me off at child care, even before my mommy has left the room.
...play "peek-a-boo" with my aunt.
...say, "please" when I'm asking for something.

16 - 36 months

In the beginning of this period, I participate in and often initiate the basic socially expected communications of my family. By the end of this period, I understand when words are used in a silly way.

For example, I may...
...say, "please" when I'm asking for something.
...take a turn in a conversation by answering a question when asked, and then asking a question in return.
...make a related comment in a group conversation during lunch time.
...laugh when my caregiver says, "put your boot on your ear."

Guideline: Early Literacy

The child will learn the foundations for listening, speaking, reading and writing.

- **Early reading: The child will demonstrate interest in book reading, story telling and singing and will eventually understand the meaning of basic symbols.**

Birth - 8 months

In the beginning of this period, I respond automatically to my caregiver's talking, singing and reading. By the end of this period, I show increased interest in books, pictures, songs and rhymes.

For example, I may...
...turn toward my granny and watch her eyes and mouth while she's singing me a song.
...look at a page of a picture book that my caregiver holds up for me to see.
...cuddle and look at my caregiver's face while I am being read to.
...babble while looking at a book with my big brother.
...chew on the corner of a book.
...coo when I hear my caregiver singing.
...reach for the pages of a book when my caregiver is holding up a book and looking at it with me.
...follow my mom's gaze to look at a picture in a book.

6 - 18 months

In the beginning of this period, I show increased interest in books and pictures. By the end of this period, I actively participate in book reading, story telling and singing.

For example, I may...
...reach for the pages of a board book when my caregiver is holding up a book and looking at it with me.
...follow my mom's gaze to look at a picture in a book.
...look at the picture of the bus in a book when my caregiver points and says, "There's the school bus."
...enjoy looking at the pictures in a picture book.
...pat a photograph of my family pet.
...move my arms in a rolling motion to let my caregiver know I want to sing, "Wheels on the Bus."
...turn a board book right-side up and turn the pages.
...point to the animals in the pictures as my caregiver is reading "Old MacDonald" and asks me, "Where's the cow? Where's the dog?"
...point to a picture of a dog and make a barking noise or say "doggie."
...vocalize and point to identify familiar signs, labels or logos in the home and community (e.g., a stop sign).

16 - 36 months

In the beginning of this period, I actively participate in book reading, story telling and singing. By the end of this period, I show understanding of the meaning of stories and show appreciation for reading books, telling stories and singing by initiating these activities and by having "favorite" books, stories and songs.

For example, I may...
...vocalize and point to identify familiar signs, labels, or logos in the home and community (e.g., a stop sign).
...see a picture of a flower in a book and pretend to sniff it.
...participate in book reading by making sounds of the different trucks in the story that my grandpa is reading to me. ("Brmmm" for bus, "Beep-Beep-Beep" for dump truck, and siren noise for fire truck.)
...try to do all the hand motions to "The Itsy Bitsy Spider."
...listen as my caregiver reads a short story.
...finish the repetitive sentence, "Brown Bear, Brown Bear, what do you see?" when reading that book.
...make up a story about a picture of an elephant and tell it to my teddy bear.

Guideline: Early Literacy

The child will learn the foundations for listening, speaking, reading and writing.

- **Early writing: The child will demonstrate interest in writing and will develop the fine motor abilities required to hold a writing tool and make marks on a surface.**

Birth - 8 months

In the beginning of this period, I respond automatically to objects in my environment. By the end of this period, I show increased ability in the use of my hands and fingers, and may watch adults when they are writing.

For example, I may...
...wave both my arms when I see a toy that excites me.
...grasp a rattle, let go of it and then try to grasp it again.
...transfer and manipulate an object with my hands.
...watch an adult write.
...pick up a small toy with the tips of my thumb and fingers.

6 - 18 months

In the beginning of this period, I show increased ability in the use of my hands and fingers. By the end of this period, I use a full-hand grasp to hold a writing tool to make scribbles.

For example, I may...
...make random marks on the side walk with chalk.
...imitate a caregiver who is writing.
...use a crayon to make marks on a piece of paper.
...choose to use the markers or crayons during play time to make scribbled pictures.

16 - 36 months

In the beginning of this period, I use a full-hand grasp to hold a writing tool to make scribbles. By the end of this period, I use my thumb and fingers of one hand to hold my writing tool and start to use my drawings to represent objects and ideas.

For example, I may...
...choose to use the markers or crayons during play time to make scribbled pictures.
...pretend to take orders with a pencil and paper when I'm pretending to play restaurant.
...hold my crayon with my thumb and fingers of one hand.
...draw a circle and a straight line after watching someone else do it.
...make a scribbled picture and say, "It's a dinosaur" when showing it to my uncle.
...choose to use crayons, markers, paint brushes, chalk, etc. to draw and create.

Cognitive Development

Babies are motivated, curious and competent learners right from the start. They are natural scientists. Cognitive development is the building of concept knowledge and thinking skills. Children come into the world eager to learn. Through relationships, active exploration and experiences, infants and toddlers make discoveries about the world, figure out how things work, imitate others, try out new behaviors, share meaning, learn social rules and solve problems. Like scientists, young children uncover the mysteries of the world. Through play and self-initiated practice, they build concepts and develop their thinking skills.

Cognitive development grows hand in hand with the other developmental domains. Healthy and emotionally secure infants can focus on exploration and learning. Infants' growing ability to move their bodies allows them to explore environments and manipulate materials in increasingly complex ways. As infants and toddlers build concepts, language gives them a means to represent ideas and share meaning with others. Symbolic play not only enables children to experiment with concepts, it also gives them a means to explore social roles and feelings. The knowledge and thinking skills that children build during the first three years of life prepare them to continue to learn during the preschool years and become ready for school.

Relationships are at the center of early cognitive development. Young infants are fascinated with their caregivers' faces and voices. They learn through give and take interaction. As infants grow older, they use attachment relationships as a secure base for exploration. They also become interested in showing and giving things to adults. At the toddler age, children ask questions and share meaning with their caregivers.

To promote cognitive development, caregivers should take cues from infants and be responsive to the children's interests and needs. Research has documented that responsive care has a positive influence on children's long range cognitive development. In addition, caregivers need to set up an environment that is both appropriate and challenging for the age and stage of each child. For children with disabilities or other special needs, specific adaptations to their abilities are necessary. The environment should be well organized and predictable. Providing a rich selection of age appropriate, easily accessible materials allows all infants and toddlers to pursue their passion for learning and discovery.

Cognitive development is the building of thinking skills.

Guideline: Discoveries of Infancy

The child will develop an understanding of his or her world through exploration and discovery while developing strategies to solve problems.

- **Group and categorize: The child will learn to group people and objects based on their attributes.**

Birth - 8 months

In the beginning of this period, I automatically respond in distinguishing between familiar and unfamiliar people. By the end of this period, I can tell the difference between familiar and unfamiliar people, objects and places.

For example, I may...
...turn toward the sight, smell or sound of my mom.
...look back and forth between people or objects, as if comparing them.
...be able to tell the difference between friendly and unfriendly voices.
...explore objects by mouthing, banging, shaking or hitting them.
...snuggle happily with my special blanket when I find it in a pile of fresh laundry.
...demonstrate anxiety or fear toward unfamiliar faces or people.
...bat or kick at water, then act surprised by the splash.
...shake a rattle repeatedly to make the sound continue.

6 - 18 months

In the beginning of this period, I can tell the difference between familiar and unfamiliar people, objects and places. By the end of this period, I can group objects into two distinct groups.

For example, I may...
...demonstrate anxiety or fear toward unfamiliar faces or people.
...indicate that birds, dogs and horses are all animals, while cars are not.
...remember the steps that make up my nightly bath routine: clothes off, wash hair, wash body, dry off.
...put toy cars in one pile and airplanes in another.

16 - 36 months

In the beginning of this period, I can group objects into two distinct classes. By the end of this period, I can sort multiple objects by their properties and uses.

For example, I may...
...put toy cars in one pile and airplanes in another.
...point out all of the blue plates at the lunch table.
...label the big animals "mama" and the small animals "baby."
...put all of the red pegs in one bowl, the white pegs in another bowl and the green pegs in a third bowl.

Cognitive Development

Guideline: Discoveries of Infancy

The child will develop an understanding of his or her world through exploration and discovery while developing strategies to solve problems.

- **Cause and effect: The child will make things happen and understand the causes of some events.**

Birth - 8 months

In the beginning of this period, I respond automatically to things that happen in my environment. By the end of this period, I use simple actions to make things happen.

For example, I may...
...explore objects by mouthing, banging, shaking or hitting them.
...look at my own hand.
...grasp a toy in my hand.
...bat or kick at water, then act surprised by the splash.
...shake a rattle repeatedly to make the sound continue.

6 - 18 months

In the beginning of this period, I use simple actions to make things happen. By the end of this period, I purposefully try behaviors to make things happen.

For example, I may...
...shake a rattle repeatedly to make the sound continue.
...use a wooden spoon, pots and pans, in various combinations, to make sounds over and over again.
...engage in trial-and-error learning.
...drop objects from different heights and positions.
...pull a string attached to a toy to bring the toy closer.
...touch or bang the handle of a jack-in-the-box, then hand it back to my caregiver to make it pop.
...touch different parts of a musical toy to make the music start again.

16 - 36 months

In the beginning of this period, I purposefully try behaviors to make things happen. By the end of this period, I think of ways to solve problems and don't have to act out possible solutions. I also understand that events have a cause.

For example, I may...
...touch different parts of a musical toy to make the music start again.
...choose only rings with holes when playing with a ring-stacking toy.
...say, "Lucile fall down" when I see a peer crying.
...communicate about what makes a pop-up toy go.

Guideline: Discoveries of Infancy

The child will develop an understanding of his or her world through exploration and discovery while developing strategies to solve problems.

- **Problem solving: The child will use the self, objects or others to attain a goal.**

Birth - 8 months

In the beginning of this period, I respond automatically to my environment. By the end of this period, I actively use my body to find out about my world.

For example, I may...
...cry to get my needs met.
...explore objects by mouthing, banging, shaking or hitting them.
...drop a toy and watch it fall.
...touch or mouth the hair of another person.
...transfer a rattle from one hand to the other.

6 - 18 months

In the beginning of this period, I actively use my body to find out about my world. By the end of this period, I use simple strategies to solve problems.

For example, I may...
...touch or mouth the hair of another person.
...move around to the side of the aquarium so I can see the fish better.
...squeeze onto my mom's lap, even when my sibling is already there.
...twist a shape until it fits into a hole in a container.
...use a stick to reach a toy.
...try several ways to reach a ball that is stuck under the couch.

16 - 36 months

In the beginning of this period, I use simple strategies to solve problems. By the end of this period, I can solve problems without having to try every possibility, while avoiding solutions that clearly won't work.

For example, I may...
...try several ways to reach a ball that is stuck under the couch.
...turn a puzzle piece to make it fit into its space.
...choose a yogurt container instead of a strainer to carry water across the yard.
...use a fork or spoon.
...use a play cup from the house-keeping corner to roll out my clay.

Guideline: Discoveries of Infancy

The child will develop an understanding of his or her world through exploration and discovery while developing strategies to solve problems.

- **Memory: The child will remember people, objects and events.**

Birth - 8 months

In the beginning of this period, I respond automatically to my environment. By the end of this period, I notice people and things and their features. My ability to remember depends greatly on repeated experience.

For example, I may...
...not look for a toy that has been hidden.
...kick my feet in anticipation of being fed when my mother positions me on her lap.
...remember how to kick to make my mobile move when it is hanging over my crib.
...look longer at a new picture than at one I have seen before.
...track an object that moves out of my line of sight.
...search for a partially hidden toy.

6 - 18 months

In the beginning of this period, I notice people and things and their features. My ability to remember depends greatly on repeated experience. Later, I understand that people and objects continue to exist even when I can't see them. By the end of this period, I hold in my mind an image of my attachment figure, which I can use to comfort myself. I also recall more information over a longer period of time.

For example, I may...
...show signs of wariness or distress toward unfamiliar people or places.
...search for a partially hidden toy.
...look over the edge of the table for a cloth I have dropped.
...search for my blanket after I see you hide it.
...watch you wipe down the table with a cloth one day, then try it myself the next day.
...say, "Mama," when my caregiver rocks me to sleep at naptime, as a way of reminding myself that Mama rocks me to sleep at home.

16 - 36 months

In the beginning of this period, I hold in my mind an image of my attachment figure, which I can use to comfort myself. I also recall more information over a longer period of time. By the end of this period, I can communicate about some of the events in my life.

For example, I may...
...say, "Mama," when my caregiver rocks me to sleep at naptime, as a way of reminding myself that Mama rocks me to sleep at home.
...say, "Meow," when Daddy points to a picture and asks, "What does a kitty cat say?"
...watch you take a cloth out of the drawer, wipe down the table, and put the cloth in the hamper, then try it myself a week later.
...imagine the whereabouts of an object or person that is out of my sight.
...communicate about my aunt's visit last summer.

Cognitive Development

Guideline: Discoveries of Infancy

The child will develop an understanding of his or her world through exploration and discovery while developing strategies to solve problems.

- **Space:**
  The child will understand how things move and fit in space.

Birth - 8 months

In the beginning of this period, I respond automatically to my environment. By the end of this period, I begin to learn the properties of objects.

For example, I may...
...watch people and objects move through space.
...look for what is making a sound.
...bring an object to my mouth to explore it.
...reach for and grasp an object.
...drop a toy and watch it fall.
...move my body through space by rolling, rocking or crawling.

6 - 18 months

In the beginning of this period, I begin to learn the properties of objects. By the end of this period, I use trial and error to discover how things fit and move in space.

For example, I may...
...crawl to the edge of the bed, then stop.
...experiment with how objects fit in space: stack, sort, dump, push, pull, twist, turn.
...fit the round puzzle piece in the round space on the puzzle board.
...get myself stuck in a tight space when exploring.

16 - 36 months

In the beginning of this period, I use trial and error to discover how things fit and move in space. By the end of this period, I predict and imagine how things fit and move in space, without having to try all possible solutions.

For example, I may...
...get myself stuck in a tight space.
...build a tall tower with a number of blocks.
...fit a shape into the matching space in a shape sorter toy.
...complete a puzzle with three to four interlocking pieces.
...stack rings on a base in the correct order.
...build a simple town with toys such as cars and blocks.

Guideline: Discoveries of Infancy

The child will develop an understanding of his or her world through exploration and discovery while developing strategies to solve problems.

	Birth - 8 months	6 - 18 months	16 - 36 months
• **Imitation: The child will be able to mirror, repeat and practice the actions modeled by another.**	**In the beginning of this period, I automatically imitate facial expressions. By the end of this period, I match the simple actions and expressions of others, even when a short time has passed.** For example, I may... ...stick out my tongue when you stick out yours. ...become quiet and stop moving my body to watch an adult as she interacts with me. ...play pat-a-cake. ...imitate an adult's facial expressions. ...imitate an adult's sounds when babbling.	**In the beginning of this period, I match the simple actions and expressions of others. By the end of this period, I can imitate something I saw at an earlier time, even though it is no longer happening right in front of me.** For example, I may... ...imitate an adult's sounds when babbling. ...take a drink from my cup today, set it down, and say, "Aah" after I saw you do it yesterday. ...take a toy phone and put it in my play purse, copying what I saw my caregiver do last week.	**In the beginning of this period, I can imitate something I saw at an earlier time, even though it is no longer happening right in front of me. By the end of this period, I can imitate a complex sequence of events that I observed quite a long time ago.** For example, I may... ...take a toy phone and put it in my play purse, copying what I saw my caregiver do last week. ...pretend to make a cake, wrap gifts and decorate the living room, like I saw my grandma do for my last birthday party.

Cognitive Development

Guideline: Attention and Persistence

The child will develop the ability to choose to participate and persist in a growing number of activities.

- **Attention and persistence: The child will be able to remain focused on a task or object and to persist in the face of obstacles.**

Birth - 8 months

In the beginning of this period, I automatically respond to things in the environment. By the end of this period, I respond to different things in the environment in different ways, and I am able to spend more time focusing on things I find interesting.

For example, I may...
...cry until I'm fed or changed or made comfortable.
...gaze at faces and objects.
...become quiet when feeding begins, even before I am offered food.
...show more interest in a new toy than an old one.
...look back and forth between people or objects, as if comparing them.
...turn away from interactions that I find to be too intense, then turn back to continue interacting when I'm ready.
...discover that I can kick a mobile and make it move, or shake a rattle and make a sound.

6 - 18 months

In the beginning of this period, I respond to different things in the environment in different ways, and I'm able to spend more time focusing on things I find interesting. By the end of this period, I need order, ritual, routine and notice when changes occur.

For example, I may...
...discover that I can kick a mobile and make it move, or shake a rattle and make a sound.
...fill a bucket with sand or stack blocks again and again.
...be easily distracted.
...attend to a short picture book by looking at the pictures or listening to the words.
...expect my favorite songs to be sung the same way each time, and protest if my caregiver changes the words.

16 - 36 months

In the beginning of this period, I need order, ritual, routine and notice when changes occur. By the end of this period, I can pay attention to more than one thing at a time. I monitor my progress in trying to achieve a goal and try to correct mistakes along the way.

For example, I may...
...expect my favorite songs to be sung the same way each time and protest if my caregiver changes the words.
...engage in solitary play for a short time.
...have frequent tantrums out of frustration when goals are difficult to reach.
...listen to a story that a caregiver is reading to a small group of children while playing with trucks in a nearby corner of the room.
...continue to look for a hidden toy, without being distracted by the soft blanket that covers it.
...realize during clean-up time that I have put a car in the block bin and return to put it in the proper place.
...look for and find a favorite book, and ask a caregiver to read it.

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(b)(6)

Aren't Babies the Nicest Way to Start People?

(b)(6)

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Education

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A5
Pre-Kindergarten
Content Standards –
English Language Arts

Rationale: Supportive evidence for VI(A)(1)d and VI(C)(1). Revised in 2009, common, statewide standards in English Language Arts used by field for children ages three to five.

Referenced in:

VI(A)(1)d and VI(C)(1)

Ohio | Department of Education

Ohio Pre-Kindergarten Content Standards

English Language Arts

Reading Standards for Literature

Key Ideas and Details	
1	With prompting and support, ask and answer questions about key details in a text.
2	With prompting and support, retell familiar stories, including key details.
3	With prompting and support, identify characters and major events in a story.
Craft and Structure	
4	Ask and answer questions about unknown words in a text.
5	Begin to demonstrate an understanding of the differences between fantasy and reality (e.g., talking flowers and animals).
6	With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.
Integration of Knowledge and Ideas	
7	With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).
8	With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.
Range of Reading and Level of Text Complexity	
9	Actively engage in group reading activities with purpose and understanding; participate in the recitation of books, poems, chants, songs and nursery rhymes.

Reading Standards for Informational Text

Key Ideas and Details	
1	With prompting and support, ask and answer questions about key details in a text.
2	With prompting and support, identify the main topic and retell key details of a text.
3	With prompting and support, describe the connection between two individuals, events, ideas or pieces of information in a text.
Craft and Structure	
4	With prompting and support, ask and answer questions about unknown words in a text.
5	Identify the front cover, back cover and title page of a book.
6	Name the author and illustrator of a text and define the role of each in presenting the ideas or information in a text.
Integration of Knowledge and Ideas	
7	With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).
8	With prompting and support, identify the reasons an author gives to support points in a text.
9	With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions or procedures).
Range of Reading and Level of Text Complexity	
10	Actively engage in group reading activities with purpose and understanding.

Reading Standards: Foundational Skills

Print Concepts	
1	Demonstrate understanding of the organization and basic features of print: a. Follow words from left to right, top to bottom and page by page. b. Recognize that spoken words are represented in written language by specific sequences of letters. c. Understand that words are separated by spaces in print. d. Recognize and name some upper and lower case letters in addition to those in first name.
Phonological Awareness	
2	Demonstrate understanding of spoken words, syllables and sounds (phonemes): a. Recognize and produce rhyming words. b. Hear sounds in words by isolating the syllables of a word using snapping, clapping or rhythmic movement (e.g., cat, ap-ple). c. Recognize when words share phonemes (sounds) and repeat the common phoneme (e.g., /b/ as in Bob, ball, baby; /t/ as in Matt, kite, boat). d. Differentiate between sounds that are the same and different (e.g., environmental sounds, animal sounds, rhyming words).
Phonics and Word Recognition	
3	Know and apply grade-level phonics and word-analysis skills in decoding words: a. Demonstrate a beginning understanding of links between letters and sounds. b. Identify own name in print. c. Recognize and "read" familiar words or environmental print (e.g., McDonalds, Bob Evans).

Writing Standards

Text Types and Purpose	
1	Use a combination of drawing, dictating and emergent writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., My favorite book is…).
2	Use a combination of drawing, dictating and emergent writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
3	Use a combination of drawing, dictating and emergent writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred and provide a reaction to what happened.
Production and Distribution of Writing	
4	With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.
5	With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.
Research to Build and Present Knowledge	
6	Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
7	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Speaking and Listening Standards

Comprehension and Collaboration	
1	Participate in collaborative conversations with diverse partners about preschool topics and texts with peers and adults in small and larger groups: a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns, speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.
2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
3	Ask and answer questions in order to seek help, get information or clarify something that is not understood.
Presentation of Knowledge and Ideas	
4	Describe familiar people, places, things and events and, with prompting and support, provide additional detail.
5	Add drawings or other visual displays to description as desired to provide additional detail.
6	Speak clearly and understandably to express ideas, feelings and needs.

Language Standards

Conventions of Standard English	
1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Print letters of own name and other meaningful words with assistance using mock letters and/or conventional print; begin to demonstrate letter formation in "writing." b. Use frequently occurring nouns and verbs. c. Form regular plural nouns orally by adding /s/ or /es/ (e.g., dog, dogs; wish, wishes). d. Understand and use question words (interrogatives) (e.g., who, what, where, when, why, how). e. Use the most frequently occurring prepositions (e.g., to, from, in, out, on, off, for, of, by, with). f. Produce and expand complete sentences in shared language activities.
2	Indicate an awareness of letters that cluster as words, words in phrases or sentences by use of spacing, symbols or marks.
3	Scribble familiar words with mock letters and some actual letters (e.g., Mom, child's name).
Vocabulary Acquisition and Use	
4	Determine the meaning of unknown words with assistance or cues from an adult (e.g., providing a frame of reference, context or comparison).
5	With guidance and support from adults, explore word relationships and nuances in word meanings. a. Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent. b. Demonstrate understanding of frequently occurring verbs and adjectives by relating them to their opposites (antonyms). c. Identify real-life connections between words and their use (e.g., note places at school that are colorful). d. Distinguish shades of meaning among verbs describing the same general action (e.g., walk, march, strut, prance) by acting out the meanings.
6	Recognize and demonstrate an understanding of environmental print.

Language Standards (cont.)

Vocabulary Acquisition and Use (cont.)	
7	Use words and phrases acquired through conversations, reading and being read to, and responding to texts.
8	Demonstrate or orally communicate position and directional words (e.g., inside, outside, in front of, behind).

A6
Pre-Kindergarten Content Standards – Mathematics

Rationale: Supportive evidence for VI(A)(1)d and VI(C)(1). Revised in 2009, common, statewide standards in Mathematics used by field for children ages three to five.

Referenced in:

VI(A)(1)d VI(C)(1)

Ohio Pre-Kindergarten Content Standards

Mathematics

Counting and Cardinality	
Know number names and the count sequence.	
1	Count to 10 by ones.
2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
3	Identify and name numerals 1-9.
Count to tell the number of objects.	
4	Subitize to determine how many: immediate recognition of small quantities up to 6.
5	Understand the relationship between numbers and quantities; connect counting to cardinality.
a.	When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
b.	Understand that the last number name spoken tells the number of objects counted up to 10. The number of objects is the same regardless of their arrangement or the order in which they were counted
Compare numbers.	
6	Identify whether the number of objects in one group is greater than, less than or equal to the number of objects in another group up to 10.
7	Compare two numbers between 1 and 5 when presented as written numerals.
Operations and Algebraic Thinking	
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	
1	Construct sets up to 10 with more or fewer objects than a given set; join two sets of objects to make one large set.
Measurement and Data	
Describe and compare measurable attributes.	
1	Describe measurable attributes of objects, such as length or weight. Sort, order and classify by one attribute.
2	Directly compare two objects with a measurable attribute in common to see which object has "more of"/"less of" the attribute and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*
Classify objects and count the number of objects in each category.	
3	Classify objects into given categories; count the number of objects in each category and sort the categories by count. Limit total number of objects to 10.
Geometry	
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres).	
1	Describe objects in the environment using names of shapes and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind and next to.
2	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional (solid).
Analyze, compare, create and compose shapes.	
3	Analyze and compare two-and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts and other attributes.
4	Model shapes in the world by building shapes from components and drawing shapes.
5	Compose simple shapes to form larger shapes.

A7
Pre-Kindergarten Content Standards – Science

Rationale: Supportive evidence for VI(A)(1)d and VI(C)(1). Revised in 2009, common, statewide standards in Science used by field for children ages three to five.

Referenced in:

VI(A)(1)d VI(C)(1)

Pre-Kindergarten Content Standards - Science

Grade Band Theme: Observations of the Environment This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.

Science Inquiry and Application
During the years of PreK-grade 4, all students must become proficient in the use of the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:

Observe and ask questions about the natural environment;
Plan and conduct simple investigations;
Employ simple equipment and tools to gather data and extend the senses;
Use appropriate mathematics with data to construct reasonable explanations;
Communicate about observations, investigations and explanations; and
Review and ask questions about the observations and explanations of others.

Strands

Strand Connections: *Observations of both living and nonliving things in local surroundings. This includes water, the sun, rocks and soil, human-made materials and living organisms. This encourages the examination and exploration of the environment.*

Earth and Space Science (ESS)	Physical Science (PS)	Life Science (LS)
Topic: Observations of Nature *This topic focuses on observing, exploring and describing the local natural environment.*	**Topic:** Observations of Objects and Materials *This topic focuses on making sound and observing, exploring and describing properties of objects and materials that can be found in nature, classrooms and homes.*	**Topic:** Observations of Living Things *This topic focuses on observing, exploring and describing external, physically observable characteristics and behaviors of plants and animals found in their local natural environment, in classrooms and homes.*
Condensed Content Statements		
Weather changes every day.	**Objects and materials are described by their properties.**	**There are many distinct environments in Ohio that support different kinds of organisms.**

Pre-Kindergarten Content Standards - Science

The sun and the moon are visible at different of times of the day or night.	Many objects can be made to produce sound.	Similarities and differences exist among individuals of the same kinds of plants and animals.
Water can be observed as lakes, ponds, rivers, streams, the ocean, rainfall, hail, sleet or snow.		
Rocks and soil have properties that can help identify them.		

A8
Pre-Kindergarten Content Standards – Social Studies

Rationale: Supportive evidence for VI(A)(1)d and VI(C)(1). Revised in 2009, common, statewide standards in Social Studies used by field for children ages three to five.

Referenced in:

VI(A)(1)d and VI(C)(1)

How to Read the 2010 Academic Content Standards: PreK-8 Social Studies

The standards are organized using the following components: **Strands**, **Themes**, **Topics** and **Content Statements.**

Strands
The four disciplines within the social studies: History, Geography, Government and Economics

Themes
The focus for a particular grade level or the descriptive narrative of a high school course syllabus
Example: *Grade Two, People Working Together*

Topics
The different aspects of content within a strand
Example in Geography: *Human Systems*

Content Statements
The essential knowledge to be learned at each grade level or within each course
Example from Grade Eight: *20.The U.S. Constitution established a federal system of government, a representative democracy and a framework with separation of powers and checks and balances.*

21st-Century Skills
The 2010 standards are designed to include the essential concepts and skills to allow for instruction that fosters deeper understanding. The social studies standards directly address the 21st-century skills of civic literacy, financial and economic literacy and global awareness. Links to other 21st-century skills such as problem solving, communication, media literacy and leadership are more fully developed in the model curriculum. The model curriculum provides instructional support including content elaborations, expectations for learning, instructional strategies, instructional resources, connections and essential questions.

Strand	Topic	Topic Description
History	***Historical Thinking and Skills***	Historical thinking begins with a clear sense of time – past, present and future – and becomes more precise as students progress. Historical thinking includes skills such as locating, researching, analyzing and interpreting primary and secondary sources so that students can begin to understand the relationships among events and draw conclusions.
	Heritage	Ideas and events from the past have shaped the world as it is today. The actions of individuals and groups have made a difference in the lives of others.
	Early Civilizations	The eight features of civilizations include cities, well-organized central governments, complex religions, job specialization, social classes, arts and architecture, public works and writing. Early peoples developed unique civilizations. Several civilizations established empires with legacies influencing later peoples.
	Feudalism and Transitions	Feudalism developed as a political system based on small local units controlled by lords bound by an oath of loyalty to a monarch. The decline of feudalism in Europe resulted from interactions between the Muslim world and European states. These interactions influenced the rise of new ideas and institutions.
	First Global Age	The transoceanic linking of all the major regions of the world led to economic, political, cultural and religious transformations.
	Colonization to Independence	European countries established colonies in North America as a means of increasing wealth and power. As the English colonies developed their own governments and economies, they resisted domination by the monarchy, rebelled and fought for independence.
	A New Nation	The United States shifted in governing philosophy from a loosely organized system characterized by strong state powers to a federal system.
	Expansion	The addition of new territories and economic and industrial development contributed to the growth of sectionalism in the United States.
	Civil War and Reconstruction	Sectional differences divided the North and South prior to the American Civil War. Both the American Civil War and resulting period of Reconstruction had significant consequences for the nation.

2010 Academic Content Standards:
Pre-Kindergarten

Ohio | Department of Education

Strand	Topic	Topic Description
Geography	***Spatial Thinking and Skills***	Spatial thinking examines the relationships among people, places and environments by mapping and graphing geographic data. Geographic data are compiled, organized, stored and made visible using traditional and geospatial technologies. Students need to be able to access, read, interpret and create maps and other geographic representations as tools of analysis.
	Places and Regions	A place is a location having distinctive characteristics which give it meaning and character and distinguish it from other locations. A region is an area with one or more common characteristics, which give it a measure of homogeneity and make it different from surrounding areas. Regions and places are human constructs.
	Human Systems	Human systems represent the settlement and structures created by people on Earth's surface. The growth, distribution and movements of people are driving forces behind human and physical events. Geographers study patterns in cultures and the changes that result from human processes, migrations and the diffusion of new cultural traits.
Government	***Civic Participation and Skills***	Civic participation embraces the ideal that an individual actively engages in his or her community, state or nation for the common good. Students need to practice effective communication skills including negotiation, compromise and collaboration. Skills in accessing and analyzing information are essential for citizens in a democracy.
	Rules and Laws	Rules play an important role in guiding behavior and establishing order in families, classrooms and organizations. Laws are enacted by governments to perform similar functions.
	Roles and Systems of Government	The purpose of government in the United States is to establish order, protect the rights of individuals and promote the common good. Governments may be organized in different ways and have limited or unlimited powers.
Economics	***Economic Decision Making and Skills***	Effective economic decision making requires students to be able to reason logically about key economic issues that affect their lives as consumers, producers, savers, investors and citizens. Economic decision making and skills engage students in the practice of analyzing costs and benefits, collecting and organizing economic evidence and proposing alternatives to economic problems.
	Scarcity	There are not enough resources to produce all the goods and services that people desire.
	Production and Consumption	Production is the act of combining natural resources, human resources, capital goods and entrepreneurship to make goods and services. Consumption is the use of goods and services.
	Markets	Markets exist when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce resources, goods and services.
	Financial Literacy	Financial literacy is the ability of individuals to use knowledge and skills to manage limited financial resources effectively for lifetime financial security.

Theme: *The Classroom Community*

For many young children, the preschool classroom is the first experience they have in a group setting. Within the classroom community, children may explore social studies content in meaningful ways. They learn about themselves and others, and how people live, work, get along, solve problems and contribute to the collaborative cultures of the classroom, the school and the community.

Topic:	***Historical Thinking and Skills***	***Heritage***
History Strand	**Content Statements:** 1. Words associated with time are meaningful in the context of daily classroom routines. 2. People develop an awareness of their personal histories.	**Content Statement:** 3. Personal family stories and traditions support the understanding of heritage.
Topic:	***Spatial Thinking and Skills***	***Human Systems***
Geography Strand	**Content Statement:** 4. Relative location can be described by words such as *up, down, over, under, here, there, front, back, behind* and *in front.*	**Content Statement:** 5. People belong to a number of groups and these groups have unique characteristics. Similarities among people are used to define groups.
Topic:	***Civic Participation and Skills***	***Rules and Laws***
Government Strand	**Content Statements:** 6. Everyone has responsibilities within a group. 7. Relationships in families, schools and communities benefit from cooperative behaviors and problem-solving skills. 8. Choices have consequences.	**Content Statement:** 9. Schools and classrooms have rules and routines that govern daily life. Rules exist in families, schools and communities.
Topic:	***Scarcity***	***Production and Consumption***
Economics Strand	**Content Statement:** 10. People have wants and must make decisions to satisfy those wants.	**Content Statement:** 11. Resources are used to satisfy wants.

A9
Standards of Care & Teaching for Ohio's Infants & Toddlers

Rationale: Supportive evidence for VI(A)(1)d and VI(C)(1)(c). Common, statewide program standards used by field for the care of infants and toddlers.

Referenced in:

VI(A)(1)d and VI(C)(1)

Standards of Care & Teaching for Ohio's Infants & Toddlers

shaping better futures

BY BUILDING BETTER
PROGRAMS TODAY

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OCTOBER 2008

Ohio's Infant & Toddler Program Standards and Goals

family centered practices

- Program leaders and care teachers work with families to support the health and well-being of infants and toddlers
- Care teachers communicate with families to connect the home and program
- Program leaders and care teachers communicate promptly with families to protect the vulnerability of infants and toddlers
- Decisions related to preferences and changes in the personal care routines of infants and toddlers are made with families

individualized care

- Infants and toddlers experience individualized care in ongoing primary relationships with their care teachers
- Infants and toddlers participate actively in personal care routines that are individually and culturally responsive

professional practice & competencies

- Program leaders and care teachers have the educational qualifications to support the care and learning of infants and toddlers
- Program leaders and care teachers continue to expand their professional knowledge and competencies to support the care and learning of infants and toddlers
- Program leaders and care teachers systematically engage in reflective practice to support the care and learning of infants and toddlers
- Program leaders commit time and resources to support the professional development and reflective practice of care teachers

environmental supports

- The environment makes families feel welcome and supports their participation in the program
- The indoor and outdoor environment is safe, healthy and supports infants' and toddlers' abilities to explore, make choices and access play materials
- The environment supports care teachers' need to carry out their responsibilities efficiently, effectively and professionally

small groups

- Infants and toddlers (six weeks to 36 months) are cared for in small groups

community connections

- The program develops mutually beneficial relationships with the community to address the needs of infants and toddlers comprehensively

Please Note: Shapes aren't intended to convey meaning, they are strictly graphic icons used to identify the standards.

Purpose Statement: Why Are Higher Standards Essential?

The research is clear – early experiences last a lifetime. The quality of early experiences is shaped by the individuals with whom infants and toddlers spend their time and by the environments where they spend their time. As early childhood professionals, we know what children need in order to be successful in both school and in life, yet 40,000 children last year in Ohio were not prepared to succeed as learners when they entered kindergarten. There are 1,892 days from the time babies are born until they enter school. This 1,892 day journey is remarkable, complex and far reaching. Together, we can make sure that the approximately 150,000 babies born in Ohio each year are prepared for school and successful in life.

Every day in Ohio approximately 90,000 children under three years of age are cared for outside of their homes. A number of them are in settings with some level of regulatory oversight, while many others are in settings with no standards. All states, including Ohio, have licensing standards. While basic health and safety standards are important, they are not sufficient to prepare our children for school and life. In fact, *The Standards of Care & Teaching for Ohio's Infants & Toddlers* builds on Ohio's current licensing standards to promote positive outcomes for infants and toddlers.

While much attention has been focused on programming for children three to five years of age, little attention has been paid to infant and toddler programming. The *Standards of Care & Teaching for Ohio's Infants & Toddlers* follows *Ohio's Infant & Toddler Guidelines* as the next step in creating safe, healthy, nurturing and learning places for our youngest children when they are cared for outside of their homes.

Evidence demonstrates that a comprehensive early care and education system with standards for children, professionals and programs leads to better outcomes for children. Ohio recognizes the value of standards and is working towards having them at the heart of all infant and toddler systems development.

Ohio began its standards development with what matters most – the experiences of the child. *Ohio's Infant & Toddler Guidelines* identifies the learning and development that typically take place during the period from birth to 36 months of age. This document, *Standards of Care & Teaching for Ohio's Infants & Toddlers*, identifies what is foundational and essential for programs in supporting the development and learning of infants and toddlers. A third document, *Ohio's Standards for Professional Practice*, will identify the practices for program leaders and care teachers to support the development and learning of infants and toddlers.

The goal of this evolving system is clear – to ensure Ohio's infants and toddlers have positive experiences today in order to ensure positive outcomes tomorrow. The next step is to support families, infant toddler professionals and programs in meeting the expectations identified in these documents.

Ohio's Path to Creating Infant and Toddler Program Standards

FORMING: Team members need guidance and direction as roles and responsibilities are unclear.

Ohio's infant toddler leadership team identified the need to have program standards. The leadership team decided that the approach for this document would be different from the approach taken to develop *Ohio's Infant &Toddler Guidelines*. The writing team for this document would be smaller and composed of individuals who have direct experience with early care and education programs. After the standards were drafted, they would be vetted with national experts for feedback.

STORMING: Team members have increased clarity but uncertainties still persist; decisions don't come easily.

WestEd Center for Child and Family Studies facilitated the initial meeting with the writing team to discuss the purpose and process. The criteria that would guide the process included:

- The standards are foundational and build upon Ohio's licensing standards to move people and programs from what is standard and customary to what is quality and excellence.
- The standards are essential to achieving high-quality infant toddler care based on research.
- The standards can be assessed either through observation or documentation.
- The document is succinct yet meaningful for program leaders and care teachers.

There was considerable discussion about the structure, what to call things, the relationship between things and the relationship of these standards to licensing standards, preschool program guidelines and our quality rating system. Many changes occurred along the way and each change brought new debates and decision points. Eventually there was agreement on the six standards and the guiding principles.

NORMING: Team members' roles/responsibilities become clear; big decisions are made by group agreement and consensus forms.

This was an iterative process. There were leadership team meetings and conversations with WestEd between writing team meetings. Each one of these meetings led to a new path with new insights. There were times when the process felt like it was derailing but the team persevered and in retrospect each difficult meeting led to greater clarity. Having criteria upfront to guide decisions proved to be very helpful.

PERFORMING: Team members have a shared vision, make decisions based on agreed-upon criteria and work autonomously.

WestEd facilitated a call with national experts to elicit their feedback. Their overall impression was favorable. Specific recommendations were incorporated. The document was shared again with the writing team, the leadership team and WestEd prior to its release.

Guiding Principles

The writing team strongly believed that program quality is dependent upon embedding these guiding principles in all program decisions and reflecting them in all program practices.

Professional & Ethical Practices

Early childhood professionals should follow accepted standards of conduct in their interactions with children, families, colleagues and the community in resolving ethical and professional dilemmas. The National Association for the Education of Young Children's Code of Ethical Conduct and Statement of Commitment* (2005), which has also been adopted by the National Association for Family Child Care, provides guidelines for early childhood professionals working in center-based programs and family child care homes, as well as for specialists and early childhood adult educators. *Source: http://www.naeyc.org/about/positions/PSETH05.asp

In addition to ethics, the writing team was concerned about the development of infant toddler care as a profession. Caring for infants and toddlers is a professional activity which requires that program leaders and care teachers possess specific knowledge, skills and attitudes that they bring to their work every day.

Developmentally Appropriate Practice

Developmentally Appropriate Practice "calls for practitioners to consider what is known 1) about child development and learning, 2) about each individual child and 3) about children's social/cultural contexts—and to use this knowledge in generating experiences for children that are both challenging and achievable." (NAEYC)

In essence, care teachers adapt care to each child's current developmental competencies, individual traits and experiences at home and in the community. Being adaptive means giving each infant or toddler enough challenge to foster developmental progress, but not too much challenge, which can be overwhelming. Environments and interactions need to provide a familiar base for young children upon which they can expand their learning and explore novelty.

Cultural & Linguistic Sensitivity

Culture provides the context in which children develop a sense of identity and learn about values, beliefs and expectations for behavior. By building on respectful and trusting relationships with families, programs can achieve consistency of care between home and program by acknowledging the importance of family and culture in the lives of infants and toddlers; incorporating culturally relevant care routines and practices that reflect the home culture; supporting the home language; and being open to learning from families.

Programs should learn about each family's preferences for communicating. They should provide time and space for families and early childhood professionals to talk together, facilitate networking among families in the program and offer support such as translation of written or spoken communication.

Inclusion

All children are born ready to learn and show competencies in different ways. The guiding principles that provide the foundation for the *Standards of Care & Teaching for Ohio's Infant's & Toddlers*—professional and ethical practices, respectful relationships, cultural and linguistic sensitivity and play—support the learning and development of all children, including those with disabilities or other special needs. A program that provides relationship-based and individualized care already has in place the strong philosophy that all children are active participants who are fully included in the program. When necessary, programs and families can work together to identify and to implement accommodations to meet a particular child's needs. In this way, all infants and toddlers can participate fully in high-quality early childhood programs. Such programs are inclusive not just of all children, but of all staff and family members as well.

Respectful Relationships

Relationship-based care recognizes that optimal infant and toddler development in all domains is dependent upon consistent relationships with responsive, nurturing adults. This includes all the adults responsible for care and teaching. Care teachers should interact with infants and toddlers in a way that conveys respect for the child's competence and vulnerability, that is responsive to the child's cues and that acknowledges the child as an active participant in the relationship. Program policies, such as small groups, individualized care, continuity of care and primary care giving, facilitate the building of deep relationships over time.

Building respectful and trusting relationships with families is critical to establishing two-way communication. Families are the experts when it comes to their children. Care teachers depend on that expertise to inform their daily caring and teaching. Likewise, care teachers must share the child's daily experiences with families. Finally, respectful interactions between and among program leaders and care teachers set the tone for all interactions within the program.

Play

Play is an important context in which young children develop and learn. Children's self-motivated exploration of their physical and social environments provides opportunities to learn about the world and each other; to engage in hands-on manipulation of objects; and to practice (with support) developing skills such as communication, conflict resolution and self-regulation. Play also provides an opportunity for caregivers to observe children's behavior, deepen their understanding of each child's development, follow the child's lead and build upon children's discoveries.

Although play is critical for infants and toddlers, it is not the only context in which they develop and learn. Personal care routines provide important opportunities for infants and toddlers to develop relationships and learn about themselves and the world around them. When carried out in a responsive, respectful and relationship-based manner in which the child is an active participant, daily routines provide opportunities for meaningful interaction between the care teacher and the child. Depending on the needs of the child, the tone of the routine can be playful, calming, energetic, or serious…but it should always be meaningful for the child and reflective of intentional practice on the part of the adult.

Acknowledgements

Ohio again enlisted the expertise of WestEd's Center for Child and Family Studies to facilitate this work. The Center is nationally and internationally known for its work in creating the Program for Infant Toddler Care (PITC), the philosophy that is the framework for all Ohio's infant toddler systems development.

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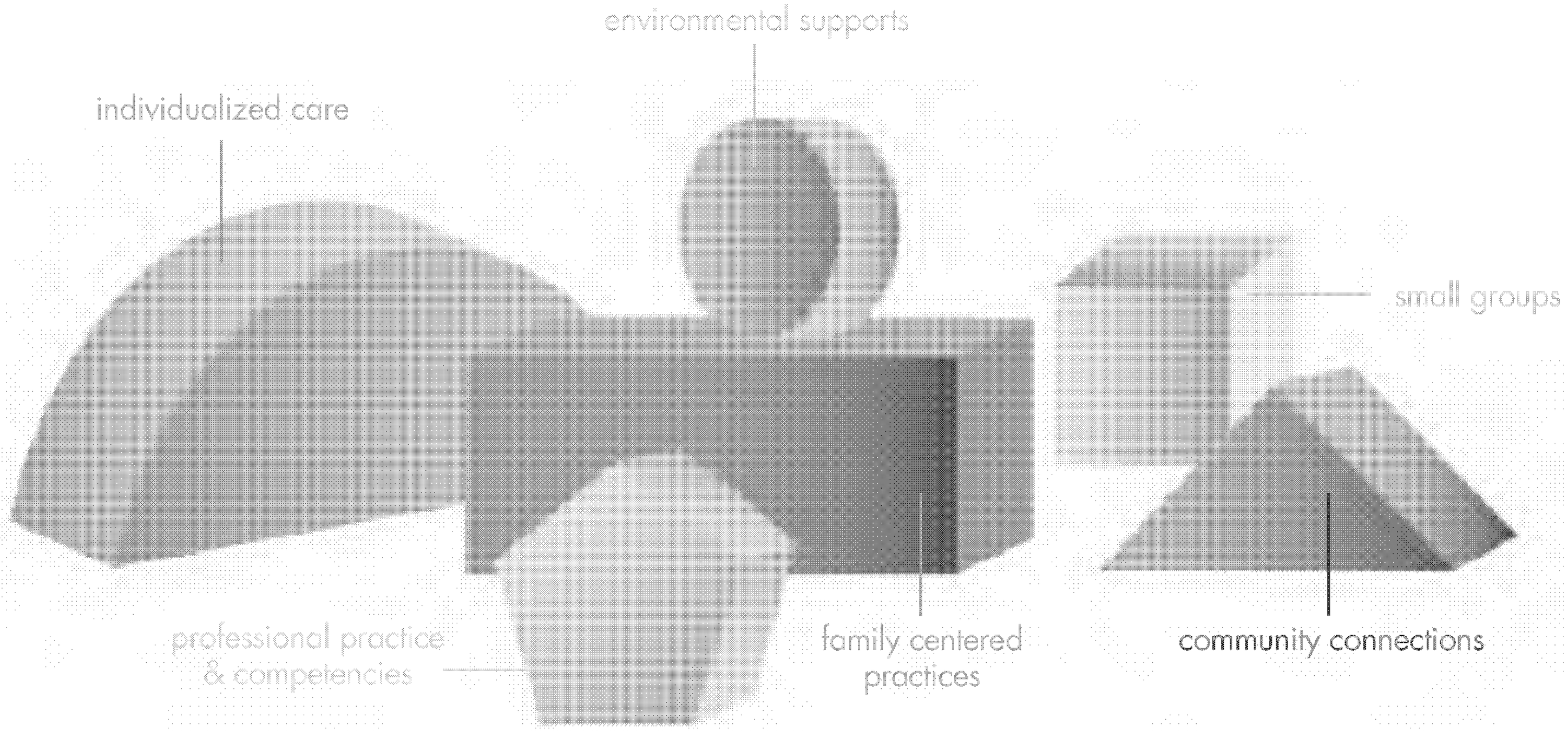
shaping better futures

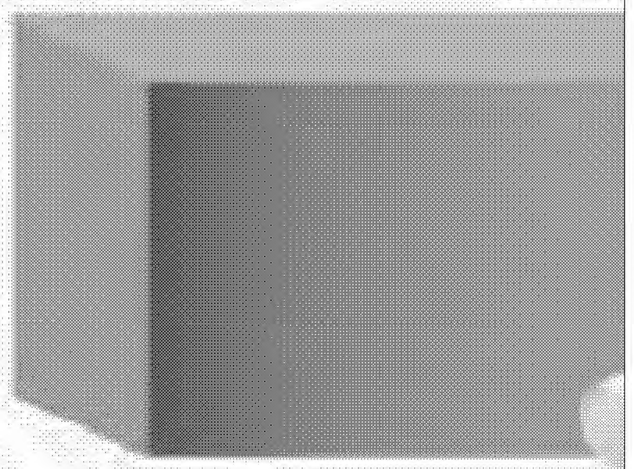
BY BUILDING BETTER PROGRAMS TODAY
THROUGH SIX STANDARDS OF CARE



6 program standards

family centered practices

i feel good when my care teacher and my family know each other well. i like when they show respect for one another. i feel relaxed, secure and happy when i see all the important people in my life working together.



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rationale

family centered practices

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A high-quality infant and toddler program recognizes that families know and understand their young children better than anyone else and that their relationships with their children have a lasting impact. By respecting and supporting the primary role of the family in children's early development, the program orients its practices around each child's experiences at home.

Essential to this working and learning together is communication and shared decision making. Connections between the program and families grow through open, two-way communication and are strengthened when decisions are made together.

By creating strong relationships with family members, the care teachers and program leader create a sense of common purpose. Together with families, they work to foster the well-being, development and learning of the infants and toddlers in their care.

goal

Program leaders and care teachers work with families to support the health and well-being of infants and toddlers

ESSENTIAL An enrollment form written in the family's home language seeks information from the family and is completed prior to the child's first day at the program. The enrollment form includes:

- Child's prenatal and birth history
- Child's current health concerns and developmental progress
- Names and contact information for all family members who share in the care of their child
- Contact information of those who should be notified in case of an emergency
- Preferences related to the use of their child's home language
- Preferences for how best to transition their child into the program
- Cultural and individual care preferences for their child related to nutrition, feeding, diapering/toileting and sleeping habits
- Expectations on how the program can best support the development and learning goals for their child

ESSENTIAL A program handbook written in the family's home language is shared with families prior to the child's first day at the program. The program handbook includes:

- Program's philosophy
- Importance of family preferences and practices in the care and teaching of infants and toddlers
- Importance of open and regular communication in the care and teaching of infants and toddlers
- Procedures to keep infants and toddlers safe including the plan for emergency situations
- Procedures to diminish the spread of communicable disease
- Procedures for updating critical information such as emergency contact information, health concerns and family changes
- Procedures for transitioning infants and toddlers into the program and how they are transitioned within the program
- Importance of screening and ongoing assessment to the care and learning of infants and toddlers, including the ways in which information is gathered and how results are shared and ways in which parents contribute to the assessment process

goal

Care teachers communicate with families to connect the home and program

ESSENTIAL A daily written report is completed by both families and care teachers at the beginning and end of each day. The report includes:

- Details about nutrition, sleep patterns, diapering and toileting that will support the child's personal care routines either in the program or at home
- Health concerns that need to be monitored
- Changes within the family that may affect the child's personal care routines or participation in learning activities
- Changes in the child's mood or interests that may affect participation in personal care routines or learning activities

goal

Program leaders and care teachers communicate promptly with families to protect the vulnerability of infants and toddlers

ESSENTIAL Information is shared verbally and in writing as soon as possible within the same day of occurrence for the following:

- Suspicion of abuse and/or neglect
- A serious incident, injury or medication error to the child
- Health changes of the child

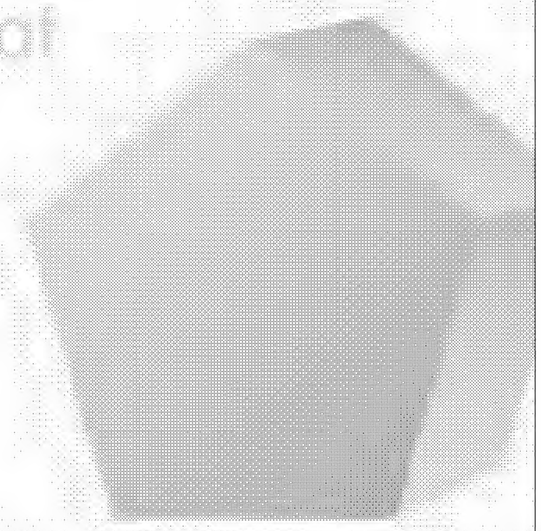
goal

Decisions related to preferences and changes in the personal care routines of infants and toddlers are made with families

ESSENTIAL Programs utilize open door policies, informal and formal conversations and conferences to make decisions with families

professional practice & competencies

my care teacher understands i have a lot of learning to do. she knows what i like to play with – she knows exactly what i need. she understands that babies don't learn in exactly the same way and that each of us is a little different. she works together with my family to find out how i learn at home.



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rationale

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professional practice & competencies

The professional knowledge, skills and dispositions of program leaders and care teachers are essential to building program quality, which in turn supports the optimal development and learning of infants and toddlers. Qualified, competent leaders and care teachers understand how to promote positive outcomes for infants and toddlers. Their professional approach to care and teaching is strengthened through a commitment to continuous improvement. Another essential for care teachers and leaders is to engage in reflective practice to become more sensitive and responsive to infants and toddlers, families and one another. Together, they work to develop and maintain a positive emotional climate in the program and help everyone feel supported and nurtured.

Formal knowledge, the on-going expansion of skills and knowledge and an individual's commitment to the profession of early care and education lead to teacher effectiveness. A disposition shared by effective care teachers is a desire to continuously learn from the children and their families, their program leader, their colleagues and others. This promotes professional growth. Another disposition shared by effective program leaders is a desire to engage everyone, including themselves, in continuous improvement. Effective program leaders put systems in place and engage in practices to support continuous program improvement.

goal

Program leaders and care teachers have the educational qualifications to support the care and learning of infants and toddlers

ESSENTIAL Program leaders have a minimum of a bachelor's degree in Early Childhood Education or related field

ESSENTIAL Care teachers have a minimum of an associate' s degree in Early Childhood Education or Career Pathways Level Three

goal

Program leaders and care teachers continue to expand their professional knowledge and competencies to support the care and learning of infants and toddlers

ESSENTIAL Program leaders and care teachers complete at least 15 hours of professional development annually to support their written professional development plan

goal

Program leaders and care teachers systematically engage in reflective practice to support the care and learning of infants and toddlers

ESSENTIAL Care teachers assigned to a primary group of infants and toddlers meet weekly to plan and implement care and teaching strategies based on observations and documentation

ESSENTIAL Care teachers assess their classrooms annually using a standardized instrument and input from families to develop a classroom action plan

ESSENTIAL Program leaders assess their program annually using a standardized instrument and input from families to develop a program action plan

goal

Program leaders commit time and resources to support the professional development and reflective practice of care teachers

Program leaders:

ESSENTIAL Provide at least two hours of paid, planning time per week for all care teachers

ESSENTIAL Assign a mentor to all new care teachers during their first year of employment

ESSENTIAL Provide 15 hours of paid professional development annually

ESSENTIAL Provide substitutes to relieve staff of care teaching responsibilities so they can engage in collaboration and professional development opportunities

ESSENTIAL Increase compensation and benefits for care teachers as they increase their education and professional competencies

ESSENTIAL Provide paid sick leave, vacation leave and personal leave

ESSENTIAL Conduct regularly scheduled meetings to share information and concerns and plan occasional gatherings to foster collaborative working relationships

ESSENTIAL Observe care teachers twice a year prior to their annual performance evaluation to recognize strengths and to identify ongoing professional development goals on their professional development plan

small groups

in a small group i get to know my care teacher and other children really well. it's eas for me to make friends.

my care teacher can give me the attention i need.

with only a few people around i can easily focus on learning and not get over stimulated.

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rationale

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small groups

Small groups are essential to providing relationship-based infant and toddler care. In small groups, care teachers develop a close relationship with each child, children form friendships with one another and the whole group grows together in care. A small group makes it easier for care teachers to develop close relationships with each child to support learning and to supervise children and ensure their safety. With fewer children and adults in an environment, illness is less likely to be passed from one person to another. Care teachers can also be more sensitive to signs of illness and can easily keep track of each child's nutrition and medication needs.

Communication and collaboration between care teachers and families occur naturally in a small group. With a small number of people to get to know, everyone becomes connected with one another in a short period of time. A small group fosters a sense of belonging and togetherness for everyone—infants and toddlers, their families and their care teachers.

goal

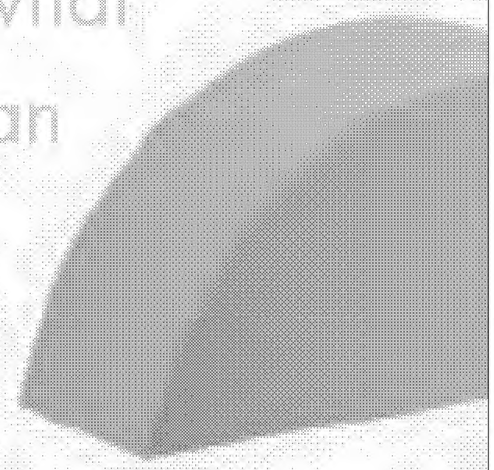
Infants and toddlers (six weeks to 36 months) are cared for in small groups

ESSENTIAL In centers, the group size for infants and toddlers must not exceed eight with a minimum of two care teachers

ESSENTIAL Family child care homes must not care for more than two children under the age of 36 months

individualized care

i need a special friend to care for me.
i need a person i get to know well and
a person who gets to know me well.
i need someone who knows what
i like to eat, how sensitive i can
be during diaper changes
and how i need to be
comforted to fall asleep.



(b)(6)

rationale

individualized care

(b)(6)

Each infant and toddler represents a unique blend of temperament, relationship experiences and cultural experiences. In order to support each child's development and learning most effectively, programs must individualize care. Individualization is best accomplished through primary care and the continuity of primary relationships in care. Teaming with a secondary care teacher, a child's primary care teacher is principally responsible for meeting that child's emotional and physical needs. The relationship that grows between the child and primary care teacher supports the child's development of emotional security and self regulation. Personal care routines are conducted in a manner that invites the child to participate. Participating together with a care teacher in routines helps the child deepen their relationship with the care teacher.

During personal care routines, the primary care teacher individualizes each routine and connects the child's experiences in the care setting with the child's family culture. The primary care teacher works together with the family to ensure that the care provided is responsive to the child's needs and learning interests and is reflective of the family's goals and values. This collaborative, personal approach to care is supportive of all children including infants and toddlers with disabilities or other special needs. In summary, routines offer a time when relationships are built and strengthened and play and learning occur.

goal

Infants and toddlers experience individualized care in ongoing primary relationships with their care teachers

ESSENTIAL Infants and toddlers are assigned and cared for by primary care teachers who remain with them until age three. Primary care teachers are responsible for:

- Responding promptly to child's cues of distress
- Performing most personal care routines
- Interacting and talking with the child about what they are experiencing during personal care routines and play
- Providing developmentally appropriate play and learning activities based on the child's interests and temperament
- Communicating daily with families and providing developmental progress at least twice a year
- Making decisions with the family when there are changes in care routines and when questions or concerns arise
- Keeping records of daily routine care, developmental progress and incidents and injury
- Observing and documenting progress weekly to inform curriculum planning
- Conducting developmental screenings within 60 days of enrollment or obtaining screening results from the child's medical home
- Making referrals if necessary and participating in the Individualized Family Service Plan (IFSP) as appropriate
- Teaming with a secondary care teacher to ensure that the child is with someone familiar when the primary care teacher is not there
- Informing the secondary care teacher of child's status and needs before the child is left in that teacher's care

goal

Infants and toddlers participate actively in personal care routines that are individually and culturally responsive

ESSENTIAL Primary care teachers individualize personal care routines and play. Individualization includes:

- Implementing families' cultural preferences and practices related to feeding, sleeping, diapering/ toileting and nutrition
- Adapting to individual and developmental feeding, sleeping and toileting schedules while attending to recommended health and safety practices
- Varying supervision to meet different activities' requirements
- Adjusting the pace of personal care routines, play and learning to match the pace and rhythm of the child
- Facilitating appropriate transition strategies upon daily entry and departure, between play and routine activities and when transitioning to a new setting and care teachers

environmental supports

i need a caring place where i feel safe, where i can move and explore freely. i need a healthy place where i stay well and can concentrate where everything is just right for me. i place that's emotionally soothing and pleasing. i especially like a place where my friends, my care teacher and i can enjoy our time together.

(b)(6)

rationale

environmental supports

(b)(6)

Program environments should be designed to enhance relationships and learning. Both indoor and outdoor environments for infants and toddlers must promote the children's safety, physical and emotional health. Infant care teachers need both indoor and outdoor environments that facilitate nurturing and supervision of children. The environment should be inclusive of all children and adapted to each child's needs. Because infants and toddlers learn and develop competencies through movement, exploration and appropriate challenges, their environment should offer a variety of experiences. It should be a place where they can freely move, make choices and explore.

For infant care teachers, the environment should help them be efficient and productive and support them as professionals. The environment should be welcoming to everyone—children, families, care teachers and other program staff. It should be a place where everyone can easily interact with one another, share meaningful experiences and come together to enjoy the relationships they are developing. By seeing themselves reflected in the environment, children and their families gain a sense of belonging.

goal

The environment makes families feel welcome and supports their participation in the program

ESSENTIAL The environment supports family centered practices. Family centered environments have:

- Space arranged for private conversations, individual family needs and social networking
- Photos and items reflective of the families' culture throughout the program
- Communication areas in each classroom to exchange written information

goal

The indoor and outdoor environment is safe, healthy and supports infants and toddlers abilities' to explore, make choices and access play materials

ESSENTIAL The environment is safe. Safe environments are:

- Free of visual obstructions that impede supervision
- Monitored daily to ensure space, materials, equipment and furnishings are safe, compliant with manufacturer's specifications and in good repair
- Free of hot liquids
- Staffed with professionals who are vigilant about who they release children to, requiring advance approval and a copy of the person's drivers license or identification card prior to releasing a child
- Equipped with locked storage in each classroom and in common areas throughout the program to keep hazardous materials and personal items out of the reach of children

ESSENTIAL The environment promotes movement, exploration and play. Environments that promote movement, exploration and play have:

- 50 square feet of usable, indoor floor space per child
- 75 square feet of open outdoor space per child with direct access or adjacency to the classroom
- Schedules that include daily opportunities for outdoor play
- No more than two groups accessing the outdoor play space at any time
- Duplicate toys, books and materials accessible to children of differing abilities on open child sized shelving

ESSENTIAL The environment is healthy. Healthy environments have:

- Separate diapering and meal preparation areas with their own adjacent sinks
- Toilets and sinks accessible to both children and staff in each classroom
- Space, materials, equipment and furnishings that are clean and sanitized daily or more frequently if needed
- Appropriate ventilation
- Outdoor shade structures
- Neutral colored walls, furniture and floor coverings
- Tiles and floor coverings to absorb noise
- A well-thought out lighting plan that includes natural light
- Individual child cubbies to store children's belongings to reduce the transmission of communicable disease

ESSENTIAL The environment supports development across all domains. Developmentally appropriate environments have:

- Functional areas both indoors and outdoors
- Functional areas arranged to support quiet, active, individual and small group play
- Furnishings that are child size, stable and predictable
- Soft furnishings for privacy and quiet play
- Space arranged to promote eye-to-eye contact and reciprocal communication during personal care routines and play
- Toys, books and materials to support individual development, interests and needs

goal

The environment supports care teachers' needs to carry out their responsibilities efficiently, effectively and professionally

ESSENTIAL The environment supports safety, care teaching responsibilities and comfort. Staff centered environments have:

- Convenient access to supplies and materials for personal care routines
- Seating and equipment to support interactions during personal care routines, play and learning
- Convenient access to teaching materials, locked children's files and personal items
- Classrooms with a phone and mobile communication device
- Dedicated teacher work space that includes a computer, printer and digital camera

community connections

I'm comforted when I'm in a place that knows how to take care of my special needs. It's good to know that there is support available if my family or I need it. When I see people from my community here, I feel like we all belong together.

(b)(6)

rationale

(b)(6)

community connections

To be recognized for the important role it plays in the community, an infant and toddler program must make efforts to become known, build partnerships and gain access to community resources. By reaching out to the surrounding community, a program can become familiar with safety and emergency personnel, health care professionals (including mental health professionals), child care resource and referral services, early intervention professionals, school professionals, public and private non-profit social service organizations and local businesses. Any of these people and organizations may become partners that support the infant and toddler program.

Rather than being isolated, a program that makes community connections may become better appreciated for its contribution to the community and discover opportunities to work together with professionals, businesses and others to promote the well-being and development of the community's youngest citizens.

goal

The program develops mutually beneficial relationships with the community to address the needs of infants and toddlers comprehensively

ESSENTIAL Provides families with information related to a medical home, health care professionals, interpreters or other community resources

ESSENTIAL Connects families to social networks to support individual family needs

ESSENTIAL Participates in local, county and state initiatives to increase program visibility and support

ESSENTIAL Collaborates with local, county and state agencies and organizations to share knowledge and resources

Glossary

ASSESSMENT

Regular or ongoing observation and recording of children's behavior and progress, utilizing tools such as developmental checklists, anecdotal records and portfolios.

CAREER PATHWAYS

An assigned level calculated by data in the Professional Development Registry. Data used to calculate professional designation is based on a combination of formal education, experience and ongoing professional development. www.ohpdnetwork.org

CONTINUITY OF CARE

The policy and practice of keeping primary care teachers and children together throughout the three years of the infant/toddler period, or during the period of the child's enrollment in the program.

DEVELOPMENTAL DOMAINS

Six areas of infant and toddler learning and development: Physical Health, Emotional Development, Social Development, Motor Development, Language Development and Cognitive Development. Milestones are outlined in Ohio's Infant & Toddler Guidelines. http://jfs.ohio.gov/cdc/InfantToddler.pdf

EARLY CHILDHOOD DEGREE

Early Childhood Education, Human Ecology, Child Development, Family Studies, Child & Family, Community Studies or Elementary Education with four courses in Child Development.

INFANT CARE TEACHER
(SEE PRIMARY CARE TEACHER)

An early childhood professional with the education, training and experience to support the learning and development of children birth to 36 months of age.

INTENTIONAL PRACTICE

An approach to practice that reflects an understanding of knowledge about child development and an understanding of the needs and strengths of the children in their care. Care teachers adapt care both in experiences they plan and also during spontaneous play.

PERSONAL CARE ROUTINES

Care procedures such as diapering, dressing, feeding and eating, or administering medication that are adapted to an individual child's needs. Personalized care is carried out by a care teacher who has developed a close relationship with a child. It takes into account the child's individual traits, temperament, family and culture.

PRIMARY CARE TEACHER
(SEE INFANT CARE TEACHER)

An early childhood professional with the education, training and experience to support the learning and development of children birth to 36 months of age who has principal responsibility for providing and coordinating the care (including safety, health, development, learning and emotional well-being) of infants and toddlers and for building a partnership with the children's families. Primary caregiving is not exclusive caregiving and works best when infant care teachers support each other in a team.

PROFESSIONAL DEVELOPMENT PLAN

Written, individualized plan used to document the ongoing training and professional development needs of staff, related to the meeting of specific performance goals, which must be completed within 30 days of hire and updated at least annually. A sample form is available at www.stepuptoquality.org.

PROFESSIONAL DEVELOPMENT REGISTRY

A computer-based system that compiles the profiles of individuals in the early care and education field and calculates, based on experience, training and/or credentials, a career pathways level for each professional. www.ohpdnetwork.org.

PROGRAM LEADERS

Manage and supervise the daily operation of an early childhood program. The program leader may own the program or work for an entity that has fiscal responsibility for the program.

REFLECTIVE PRACTICE

Thoughtfully and regularly question, assess and evaluate the child's development, play and learning activities and methods of care and teaching then making informed and immediate changes to achieve desired results.

The building of professional relationships based on trust and support among staff, families and children that provides a context for self-awareness, observation, acknowledgement of and respectful communication about differences, adaptation or integration, openness to multiple perspectives. Reflective practice depends on a foundation of trust and time and space to engage in introspection, both individually and as a team.

SCREENING

A process using an age-appropriate standardized tool relevant to the population served. The screening is used to identify developmental levels of the children enrolled to support instruction. Examples of screening tools are: Ages and Stages Questionnaire (ASQ), Ages and Stages Questionnaire – Social Emotional (ASQ:SE), Devereaux Early Childhood Assessment for Infants and Toddlers (DECA-I/T).

STANDARDIZED INSTRUMENTS USED FOR PROGRAM ASSESSMENT

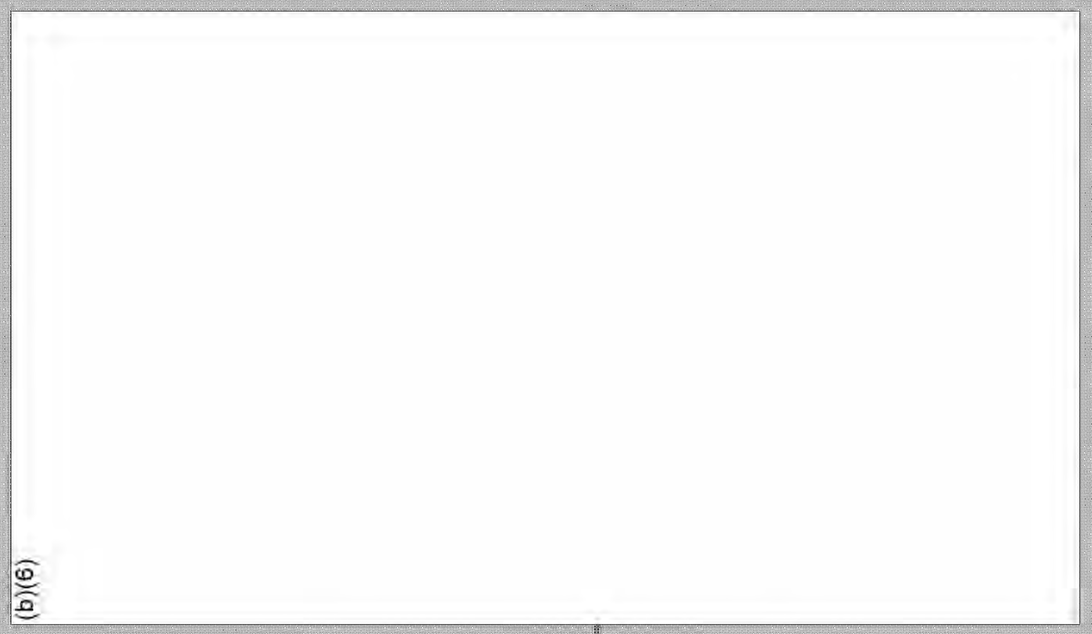
A tool such as an observational rating scale, questionnaire, or interview form that is designed to be used in a consistent manner. The purpose of standardizing an assessment instrument is to ensure that different people use or complete it in the same way and thereby are likely to produce the same ratings, responses or scores. Standardized assessments are used to measure children's developmental progress and classroom quality.

TRANSITION

Intentional, systematic process used to help a child move, emotionally and physically, from one place or activity to another. Strategies used when the child enters and moves within the program help the child, the family and care teachers learn about each other, the best ways to meet the child's needs and contribute to building a respectful relationship between the family and program.

USABLE FLOOR SPACE

Indoor activity space not including bathrooms or diapering areas; halls, corridors, or stairways; offices, teacher work spaces, or staff/family rooms; isolation areas; food-preparation areas; laundry areas; storage spaces or closets; sleeping areas; observation rooms; or floor space occupied by cubbies, shelves, or large structures not easily moved.



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early experiences last a

If you have questions or concerns about your child or a child in your care, please contact your health care provider or 1-800-755-Grow or visit www.ohiohelpmegrow.org

A10
Ohio Early Learning Program Guidelines

Rationale: Supportive evidence for VI(A)(1)d and VI(C)(1)(c). Common, statewide program standards used by field in programs for children ages three to five.

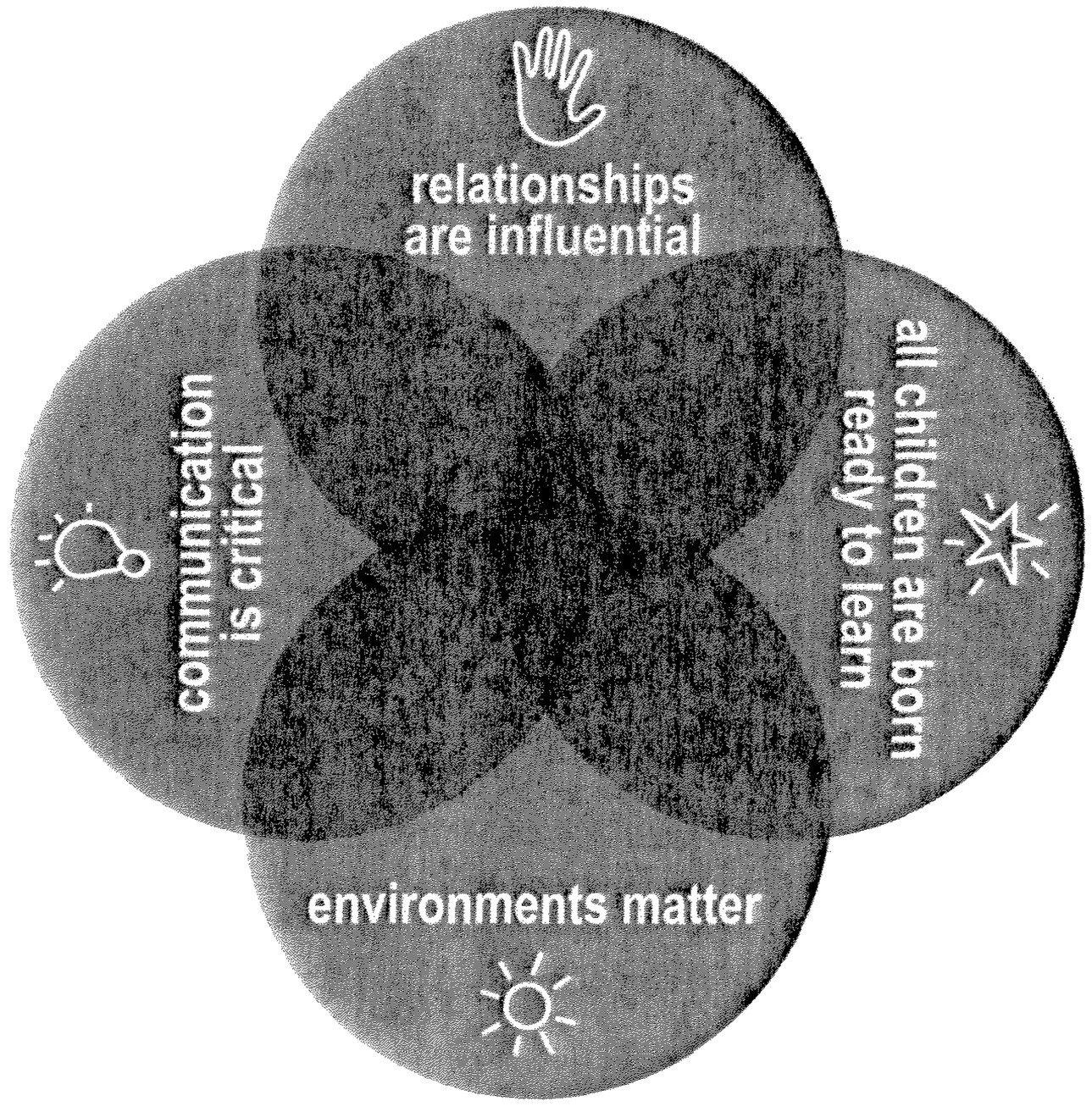
Referenced in:

VI(A)(1)d and VI(C)(1)

CENTER FOR

STUDENTS
FAMILIES
&
COMMUNITIES

EARLY LEARNING PROGRAM GUIDELINES



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We ought to try to reach what is beyond our grasp—

E. Eisner, 1998

Preamble

Ohio's early learning program guidelines have been crafted with an eye to the future. The desired outcomes are grounded in current research and evaluation studies, developed out of the wisdom and guidance of experts, and inspired by the good work of the National Association for the Education of Young Children (NAEYC), Head Start Performance Standards (HSPS), and the Division for Early Childhood of the Council for Exceptional Children (DEC).

The sense of urgency to accomplish what may be beyond our reach exists because our children deserve our attention and, as early childhood leaders, teachers, friends and mentors, we are part of the hope for a brighter future. We have an obligation to give the very best to our children and to their families because the investment in children is not only about the future, but also about what matters "right now in the present."

Table of Contents

Introduction

Ohio's Early Learning Program Guidelines were developed to provide a framework for preschool and child care programs to better meet the educational needs of children.

The Early Learning Program Guidelines will serve as the foundation for all programs funded through the Ohio Department of Education, Office of Early Learning and School Readiness. The guidelines encompass the desired outcomes and goals considered essential for children's learning and healthy development.

The guidelines are organized into four sections, each with desired outcomes, goals and indicators. The following definitions are for your reference:

Outcome – is an intended end result or desired achievement.

Goal – is the end result or the purpose to which an endeavor is directed.

Indicator – is a checkpoint to monitor progress toward the benchmark or goal.

These guidelines were constructed on the following beliefs:

- children are competent and resourceful learners;
- children can and do make meaning of complex ideas and concepts;
- children want to and do contribute to their own learning;
- learning takes place through social interaction;
- learning experiences can be tailored for different periods in a child's life and also for the contribution to the intellectual and social child of the future;
- learning experiences can take place in the context of play as well as through structured activities in the hands of competent teachers;
- families have the right to participate in their child's educational journey;
- families desire to be competent parents;
- families have a right to educational experiences that recognize their cultural, linguistic and racial identity;
- teachers hold a position of power and by sharing the power contribute to the learning of all;
- teachers grow in confidence and competence through relationships and connections with children, families, peers and community services; and
- teachers, by virtue of their position, have an obligation to do the very best for children within their care.

The Office of Early Learning and School Readiness looks forward to working with you to understand how together we can be the very best for our most precious resource, our children.

Section I:

All Children Are Born Ready To Learn

Development and learning are inextricably tied to the health and well-being of children. Risk factors such as low birth weight, chronic health conditions, inadequate nutrition, poor oral health, and inconsistent social and emotional support can be detrimental to development and learning. Quality early learning programs can be a source of protection for young children by linking families to health, social and nutritional services and also by attending to risk factors identified through medical and developmental screenings.

"Ensuring that all children have access to services through multiple entry points throughout early childhood is necessary if the needs of particular children and families are to be identified and met" (*Building Bridges: A Comprehensive System for Healthy Development and School Readiness*, January 2004).

The first section of Ohio's Early Learning Program Guidelines focuses on one desired outcome: *Programs support the health and well-being of young children.* Programs will meet this outcome through four broad goals that address physical health, developmental achievements, well-child care and appropriate nutrition and fitness.

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OUTCOME 1:
Programs support the health and well-being of young children.

GOAL 1: Health and developmental screenings of all children occur within 60 days of each child's entrance into the program.

INDICATORS

A: All children enrolled in the program receive health screenings, which at a minimum include vision, dental, height, weight, hearing, lead and hematacrit screenings.

B: All children enrolled in the program receive language and age - appropriate, standardized developmental screenings, which at a minimum address speech/language, cognitive, gross/fine motor and social/emotional/behavioral development, using instruments with normative scores relevant to the population.

GOAL 2: Children with health or developmental needs will be referred within 90 days of identification through a follow-up process as determined by the program.

INDICATORS

A: Children are referred to the appropriate professionals based upon screening results.

B: Each child's record contains written documentation of the dates of referral, any follow-up services provided and communication with the service provider and family.

Date Verified

REFERENCES:

Head Start Performance Standards

Building an Early Learning System for Ohio's Children

Early Childhood Program Standards and Accreditation Performance Criteria (NAEYC)

OUTCOME 1:
Programs support the health and well-being of young children.

GOAL 3: Families have a primary health care provider (medical home) for well-child care.

INDICATOR

A: The program provides assistance to families in securing a primary health care provider (medical home) for well-child care.

GOAL 4: Programs will contribute to children's physical development.

INDICATORS

A: Programs provide nutritious meals and snacks that accommodate individual needs.

B: Programs provide families with guidance relative to children's nutrition, health, safety and fitness.

C: Programs provide children with daily activities to promote physical fitness and healthy lifestyles.

REFERENCES:

Head Start Performance Standards

Child and Adult Food Program Guidelines

www.surgeongeneral.gov

Probes to Facilitate Strategic Design and Action

OUTCOME 1:
Programs support the health and well-being of young children.

GOAL 1: Health and developmental screenings of all children occur within 60 days of each child's entrance into the program.

- How will the program conduct screenings in the required time frame?
- What community providers are needed to assist with and/or conduct screenings?
- How will the program track the screening process?
- If any screenings are not conducted, when and how will they be addressed?
- How was the screening instrument selected? How will the staff be educated to use the instrument?
- What assurances are in place for the reliability of administration across teachers?
- What are the primary languages of children? What is the plan to administer the screening in their language?

GOAL 2: Children with health or developmental needs will be referred within 90 days of identification through a follow-up process as determined by the program.

- How will the screening and referral information be communicated to families?
- Who is responsible for obtaining permission for referrals?
- What is the process for meeting the 90-day time frame?
- What is the process for making referrals, tracking the information and reporting back to the provider?
- Who is responsible for the referrals and community linkages?
- What mechanisms are in place to support communication among staff, families and community providers to assure follow-up services are received?

GOAL 3: Families have a primary health care provider (medical home) for well-child care.

- How are children in need of a primary care health provider identified?
- How does the program work with community resources (Medicaid, CHIP, Healthy Start/Healthy Families) to secure access to a primary health care provider?
- How does the program involve families and assist them in obtaining a primary health care provider?

GOAL 4: Programs will contribute to children's physical development.

- How will the program assure that USDA guidelines are met?
- Who plans the menus for the provision of nutritious meals and snacks?
- How will the program accommodate individual needs (cultural and ethnic, food allergies, special diets)?
- How will the program assist families in accessing nutritional resources (WIC, Food Stamps, food banks, summer programs)?
- What is the plan to provide nutrition, health, safety and fitness education to families?
- What is the plan for meeting the physical activity needs of children?

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Section II:

Environments Matter

Research has made evident that the early years are a time of significant language, cognitive and social growth. "The mounting body of literature known to many educators today as constructivist education is united by the central idea that children actively construct meaning for themselves. These meanings, unique to each child, are embedded in family and culture and built over time. Because of this, a basic aim of education should be to begin with children's personal meanings as the foundation on which to build new learning. But in order to do so, those of us who work with young children may need to open our lenses more widely, let go of some of our pre-set ideas, and be willing and able to see what children put before us" (Carlsson-Paige).

The educational opportunities and experiences afforded children in the early years make a difference. Curriculum experiences must be rich with problems to solve, provide reasons and opportunities to use language and develop new vocabulary words, and engage children's intellectual abilities. These experiences must be well planned and organized, and instructional strategies must be designed with intention to support, challenge, scaffold, and extend children's abilities and skills.

Section II identifies the features of quality curriculum and environments as well as the essential competencies educators must possess in order to help all children succeed in the preschool years.

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OUTCOME 1:
The learning environment supports young children's thinking abilities, learning processes, social competencies and development.

GOAL 1: A comprehensive curriculum is utilized that addresses child development objectives and Ohio's Early Learning Content Standards.

INDICATORS

A: The program adopts and implements a written, research-based curriculum that is comprehensive, as evidenced by the inclusion of motor, social-emotional, language and cognitive development, general knowledge and skills, relative to Ohio's Early Learning Content Standards.

B: The program has a documented process used to align the curriculum experiences to Ohio's Early Learning Content Standards and Indicators.

C: The curriculum is enhanced to address the learning needs of individual children.

REFERENCES:

Early Childhood Program Standards and Accreditation Performance Criteria (NAEYC)
Ohio's Early Learning Content Standards
Nolet & McLaughlin, *Accessing the General Curriculum*

OUTCOME 1:
The learning environment supports young children's thinking abilities, learning processes, social competencies and development.

GOAL 2: Learning is facilitated through the design of spaces, the use of time, and the selection of materials.

INDICATORS

A: Classrooms will demonstrate continuous improvement on the Early Languages and Literacy Classroom Observation (ELLCO) components throughout the year. Classrooms are required to receive a score of four on the Early Language and Literacy Classroom Observation sections.

B: The organization of the classroom supports children's learning and the practice of newly acquired intellectual and academic skills.

C: The organization of the classroom helps children develop self-management, conflict resolution and social interaction skills.

D: Children are provided opportunities to use technology in the service of learning.

E: Time is used to maximize learning.

F: Programs provide varied opportunities and materials to build understanding of diversity in culture, family composition, differing abilities, language and gender.

REFERENCES:

Gartrell, al., *The Power of Guidance*

Carter & Curtis, D., *Designs for Living and Learning*

Lee, V., *Inequality at the Starting Gate*

Early Childhood Program Standards and Accreditation Performance Criteria (NAEYC)

OUTCOME 1:
The learning environment supports young children's thinking abilities, learning processes, social competencies and development

GOAL 3: Assessments are selected and used to make, adjust and refine instructional decisions and to evaluate child progress.

INDICATORS

A: Educators conduct and participate in the required assessments, including Get It Got It Go (GGG) and the ELLCO.

B: Educators use a curriculum-based assessment process that includes multiple strategies and that is linguistically, age and developmentally appropriate.

C: Educators regularly use assessment data to design learning experiences, plan curriculum, monitor progress, select materials and adjust instructional practices to support learning.

D: Families have formal and informal opportunities to understand and contribute to the assessment process.

GOAL 4: Educational experiences are provided using intentional teaching strategies to facilitate concept development, content knowledge, creativity and problem solving.

INDICATORS

A: Curricula and assessments guide educators' intentional implementation of learning opportunities.

B: Learning experiences develop children's content knowledge and attend to meta-cognitive skills: reflecting, predicting, hypothesizing and questioning.

REFERENCES:

Early Childhood Program Standards and Accreditation Peerformance Criteria (NAEYC)

Bowman, B., Donovan, S & Burns, M.S. (Eds)., *Eager to Learn*

OUTCOME 2:
Educators have the knowledge and skills necessary to support children's learning.

GOAL 1: All early childhood educators will have the essential competencies necessary to provide high quality instruction.

INDICATORS

A: Classroom teachers have at least a two-year degree in early childhood education with a teacher license.

B: All special education staff members have the required qualifications.

C: All other staff members have documentation in their personnel files that they meet the minimum qualifications as required by law, rule or program policy.

D: Classroom teachers will have core knowledge and skills to implement Ohio's Early Learning Content Standards.

E: Classroom teachers will have core knowledge and skills related to early childhood education.

REFERENCES:

Early Childhood Program Standards and Accreditation Performance Criteria (NAEYC)

Bowman, B., Donovan, S & Burns, M.S. (Eds)., *Eager to Learn*

OUTCOME 2:
Educators have the knowledge and skills necessary to support children's learning.

GOAL 2: Educators demonstrate nurturing and supportive relationships with children to promote self-assurance and competence.

INDICATORS

A: Educators demonstrate respect for children through their actions and language.

B: Educators evaluate and adjust their actions to be responsive to differing abilities, temperaments, activity levels and developmental abilities.

C: Educators provide opportunities to support and enhance children's sense of accomplishment.

D: Educators encourage positive social interaction, conflict resolution and self-regulation through modeling, problem solving and guidance.

E: The classroom climate is one of respect, encouragement and trust. Activities foster a sense of belonging, create connections among all children and at the same time contribute to each child's unique interests and abilities.

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GOAL 3: Educators demonstrate reflective teaching practices.

INDICATORS

A: Educators and teaching teams identify children's strengths, interests and needs on an ongoing basis.

B: Teaching teams meet on a regular basis to reflect on children's experiences and share curriculum activities and teaching practices.

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REFERENCES:

Early Childhood Program Standards and Accreditation Performance Criteria (NAEYC)

Early Language and Literacy Classroom Observation (ELLCO)

Head Start Performance Standards

The Praxis Series

Program Review Instrument for Systems Monitoring of Head Start and Early Head Start Grantees (PRISM)

Probes to Facilitate Strategic Design and Action

OUTCOME 1:
The learning environment supports young children's thinking abilities, learning processes, social competencies and development.

GOAL 1: A comprehensive curriculum is utilized that addresses child development objectives and Ohio's Early Learning Content Standards.

- By what process will the curriculum be selected and evaluated? Who will be involved?
- What opportunities will be provided to families to participate in the selection and evaluation of the curriculum?
- Does the curriculum align with the program's philosophy and vision?
- What is the professional development plan for teachers on the use of the curriculum?
- Does the curriculum address diversity related to culture and ability?
- What process will be used to assure that learning experiences reflect the essential content and processes of Ohio's Early Learning Content indicators?
- Who will be involved in the process?
- How will staff receive training related to the needs of individual learners?
- Who will guide teachers to adjust, modify and enhance curriculum to address the ethnicity, culture, language and family traditions of children?

GOAL 2: Learning is facilitated through the design of spaces, the use of time and the selection of materials.

- What will be the process for program review of ELLCO data?
- How will the information be shared with staff and families?
- How will the leadership team guide the improvement process and plan?
- How will the learning space be designed to encourage exploration, experimentation and discovery?
- By what process will materials and resources be reviewed to reflect children's growing competence with problem solving and language skills?
- How can children and families contribute to the learning spaces to reflect their values, interests and traditions?
- How will problem solving, creativity and new connections to learning be planned and documented?
- How will spaces be designed to help children learn more about each other, make connections and promote interaction?

- What spaces and materials foster independence?
- How will technology be used to promote children's and teacher's learning?
- How will children be provided access and adequate time to use technology appropriately in the service of learning?
- How will "time" be monitored to assure flexibility for learning and interests?
- How will daily routines and transitions be used to maximize learning, conversation and socialization?
- How will the daily schedule provide predictability, flexibility and responsiveness to individual needs; indoor and outdoor experiences; balance between rest and activity; and time for large and small group and child-initiated activity.
- How will the schedule accommodate teachers' learning from each other about the use of time?
- How will families be involved in the selection and use of the materials for learning?

GOAL 3: Assessments are selected and used to make, adjust and refine instructional decisions and to evaluate child progress.

- What is the plan for teachers to understand and administer Get It, Got It, Go (GGG)?
- How will Early Language and Literacy Classroom Observation (ELLCO) self-assessment data be used to inform program practices and policies?
- How will assessment strategies such as observations, checklists, rating scales, portfolios and work samples be reviewed and used to adjust and refine learning experiences?
- What evidence will be required to demonstrate that the learning experiences reflect the content and processes of Ohio's Early Learning Content Standards?
- What is the plan for teachers and administrators to review and use the GGG data to adjust and refine instruction?
- What is the plan for teachers and administrators to use and review curriculum-based assessment information to adjust teaching strategies and plan for learning experiences?
- How will programs involve families in understanding and participating in the assessment process?

GOAL 4: Educational experiences are provided using intentional teaching strategies to facilitate concept development, content knowledge, creativity and problem solving.

- How will child progress be documented in meeting learning goals?
- How will teachers and administrators demonstrate evidence of focused teaching strategies, such as the scaffolding of learning and enhanced experiences to support children's complex thinking abilities?
- How will educators assess children's approaches to learning and thinking skills?
- How will educators use information to extend learning?

(b)(6)

OUTCOME 2:
Educators have the knowledge and skills necessary to support children's learning.

GOAL 1: All early childhood educators will have the essential competencies necessary to provide high quality instruction.

- How will programs help staff meet the requirement of a teacher degree?
- What are the plans to assist teachers who may want to continue their study?
- If applicable, what will programs do to help staff meet requirements?
- How will programs ensure that teachers know and understand the meaning and use of Ohio Early Learning Content Standards to inform instruction?
- How will staff be engaged in dialogue and activities regarding curriculum experiences, indicators and instruction?
- How will the program ensure that teachers have knowledge of child development and the ways in which young children learn?

GOAL 2: Educators demonstrate nurturing and supportive relationships with children to promote self-assurance and competence.

- What is the plan to observe and provide teachers feedback and support to assure that their interactions with children are positive and respectful?
- How will programs invite feedback from families related to classroom climate?
- How will the program use feedback from families?
- Is the classroom culture positive and nurturing for all members? How do you know this to be true?
- Are experiences designed to provide support and challenge at the same time? How do you know this to be true?
- What evidence is there that teachers and children learn to collaborate, express differences, resolve conflicts, and respect other cultures, interests, and needs for learning?
- How will the leadership team provide regular observation and feedback for all teachers?
- How will the leadership team use the results of observations to support teacher practices and professional development?

GOAL 3: Educators demonstrate reflective teaching practices.

- How will the program support teachers in time management to assist in their regular and systematic child observations?
- What assurances will teachers have for planning reflection?
- How will teachers be given support for focused study and research of their practices?

(b)(6)

Section III:

Relationships Are Influential

The foundation for language and intellectual development and motivation is through social and emotional interactions and relationships. That is, young children develop, learn and thrive in an environment of relationships. They flourish when their interactions with family and other significant adults provide security, nurturing, guidance and positive encouragement.

Who our children spend time with matters greatly. Our children deserve to be connected to adults who nurture their self worth, respect their understanding of experiences and support their growing abilities.

Equally important are the relationships and support we give to our parents and educators. Carlina Rinaldi points out that "What we strive to give our children, we must also give to our staff." A school brings together children, parents and educators and can be seen "as a system of relationships and communication within a social and cultural system" (*Set for Success*, 2002).

Section III addresses outcomes to assure children, parents and educators are in environments that intentionally promote supportive relationships leading to success.

(b)(6)

OUTCOME 1:
Staff members receive supportive supervision and participate in ongoing professional development to ensure their knowledge and skills reflect the profession's expanding knowledge base.

GOAL 1: The leadership team provides for continuous learning.

INDICATORS

A: The program has an agency-wide professional development plan for all staff that is reviewed at least once every year.

B: The leadership team will regularly observe teachers in the classroom to impact practice.

C: Administrators establish an organizational climate to foster relationships, teamwork, collaboration and shared study of teaching practices.

GOAL 2: All educators participate in ongoing professional development that reflects current research and program data.

INDICATORS

A: Each educator has a written professional development plan.

B: Each educator engages in ongoing, job-embedded professional development.

OUTCOME 2:
The program establishes and maintains relationships with each child's family to foster children's development and learning.

GOAL 1: Program staff engages families to increase their knowledge of child development, parenting skills and self-confidence.

INDICATORS

A: Families have multiple, varying opportunities to participate in their children's education.

B: The program engages families to assist them in supporting their child's learning.

REFERENCES:

Early Childhood Program Standards and Accreditation Peerformance Criteria (NAEYC)

Head Start Performance Standards

Probes to Facilitate Strategic Design and Action

OUTCOME 1:
Staff members receive supportive supervision and participate in ongoing professional development to ensure their knowledge and skills reflect the profession's expanding knowledge base.

GOAL 1: The leadership team provides for continuous learning.

- What is the plan to assess the ongoing needs of the staff?
- How will the leadership team communicate the information to the staff?
- How will coaching and mentoring be provided to meet staff needs?
- How will the program determine costs and allocate resources to implement the plan?
- How will the program use the results of teacher observations to determine and meet professional development needs?
- What mechanism will be in place to provide opportunities for interactions among staff members that promote problem-solving, professional growth and knowledge sharing?
- How will the leadership team support and promote creativity and encourage innovation?
- How will the leadership team foster the safe exchange of ideas among staff members?

GOAL 2: All educators participate in ongoing professional development that reflects current research and program data.

- How will educators work with the leadership team to identify professional development goals with timelines?
- How will the program ensure that the course content is relevant to classroom practice?
- How will the program provide educators with opportunities to meet and solve problems on a regular basis, in order to put knowledge into practice?

OUTCOME 2:
The program establishes and maintains relationships with each child's family to foster children's development and learning.

GOAL 1: Program staff engages families to increase their knowledge of child development, parenting skills and self-confidence.

- How will the program be designed to be welcoming, accessible and respectful of children and their families?
- What is the plan for formal communication between the program and families?
- What mechanisms are in place to receive input from families?
- How will the program gather information from families about children's interests, developmental needs, and family concerns and goals?
- What is the plan to assist families to support their children's learning?

(b)(6)

Section IV:

Communication Is Critical

The heart of any organization is its people. The values, vision, norms and expectations that staff bring to the work ultimately become the culture of the organization. Quality early education programs foster inquiry, dialogue and exchange of ideas through a sustainable communication "system" among all members of the education and service community, as demonstrated by:

- Shared leadership and responsibility for the work and the outcomes;
- Shared institutional values and high expectations;
- A commitment to continuous research and learning to build competence, enhance knowledge and refine skills;
- An organizational structure that supports the vision and the goals through time and staff support.

"Embrace collective autonomy as the only way to close the gaps between the current reality and the shared vision, and embrace collective accountability in establishing responsibility for closing the gaps" (Zmuda, A., Kuklis, R., & Kline, E. (2004). *Transforming schools*).

We work in a field where what we do matters a lot! It is through our relationships with others and increased communication of our progress, challenges and success that we build a community of individuals who are passionate about and connected to the success of all children.

The outcomes in Section IV describe the features and responsibility of leadership to assure that our programs are meeting the needs of children, families, staff and the community.

(b)(6)

OUTCOME 1:
Programs communicate with families, communities and schools for the purpose of coordination and continuity of services.

GOAL 1: Communication among community agencies, schools, organizations and families benefit children.

INDICATORS

A: Written agreements are used to achieve outcomes.

B: Formal and informal networks with providers are established for the mutual benefit of the program, families and the community.

GOAL 2: A transition process is implemented to assure educational and service continuity for children.

INDICATORS

A: Transition is viewed as an ongoing process that includes delineated components and defined responsibilities.

B: Programs assist families with their transitions to and from other programs.

C: Joint professional development related to transition occurs with school and community partners.

REFERENCES:

Early Childhood Program Standards and Accreditation Performance Criteria (NAEYC)

Head Start Performance Standards

Early Childhood Special Education Program Design and Evaluation Guide (ODE)

Pianta, *Successful Kindergarten Transition*

OUTCOME 2:
All programs will demonstrate responsibility for their obligations to their children, families and communities.

GOAL 1: Each program has established policies and procedures developed by a governing body.

INDICATORS

A: A governing body is responsible for program and fiduciary oversight and the delivery of high quality services to children and families.

B: The formal structure of the governing body has defined procedures for input regarding policies and procedures from families, stakeholders and community members.

GOAL 2: Programs will demonstrate fiscal accountability and management through effective administrative practices.

INDICATORS

A: Internal controls are established to demonstrate fiscal accountability.

B: The program retains a qualified fiscal officer to ensure fiscal accountability and management.

C: Audits are completed in accordance with state and federal regulations.

D: Periodic reports of financial status and program operation are shared with both staff and the governing body in order to maintain program accountability.

REFERENCES:

Early Childhood Program Standards and Accreditation Performance Criteria (NAEYC)

Head Start Performance Standards

OUTCOME 2:
All programs will demonstrate responsibility for their obligations to their children, families and communities.

GOAL 3: Data from multiple sources are systematically used to assess conditions, practices, policies and program performance on a regular basis.

INDICATORS

A: The governing body and leadership team conduct an annual self-assessment with stakeholders to evaluate accomplishments of program goals and objectives. Sources, at minimum, include information from the following:

- Data reported to ODE;
- Curriculum-embedded assessment data;
- Program licensure report;
- Family input and feedback;
- Complaint records; and
- Fiscal reports.

B: The program conducts a community assessment at least every three years to understand resources and needs.

REFERENCES:

Baldrige Operating Standards

Head Start Performance Standards

Probes to Facilitate Strategic Design and Action

OUTCOME 1:
Programs communicate with families, communities and schools for the purpose of coordination and continuity of services.

GOAL 1: Communication among community agencies, schools, organizations and families benefit children.

- What is the plan to develop agreements, memoranda of understanding and systematic communication among community partners and professionals?
- What is the process for engaging families and school districts relative to the IEP?
- What is the program's plan to evaluate its success relative to collaboration, communication and linkages?

GOAL 2: A transition process is implemented to assure educational and service continuity for children.

- Who will develop the transition plan, and how will it be evaluated and revised based upon data analysis of child success and family satisfaction?
- What is the plan to provide general information on enrollment procedures and practices, visiting opportunities and program options?
- Who is responsible for developing and implementing procedures to share child and family information and to transfer records?
- What process will be developed to facilitate the transfer of information among professionals, programs and/or providers?
- What are the cross-agency opportunities for professional development?

OUTCOME 2:
All programs will demonstrate responsibility for their obligations to their children, families and communities.

GOAL 1: Each program has established policies and procedures developed by a governing body.

- What is the structure and representation of the governing body?
- How does the governing body develop and implement personnel policies?
- How will these policies be made known to staff?
- How will the governing body receive input from stakeholders, which include families and community members?
- What are the procedures for dispute and conflict resolution?

GOAL 2: Programs will demonstrate fiscal accountability and management through effective administrative practices.

- What financial policies and procedures are implemented to provide evidence of sound fiscal accountability (e.g., bank reconciliations, operating budgets, balance sheets)?
- How will the program demonstrate standard accounting practices?
- What are the credentials of the fiscal officer?
- What process will be in place to evaluate the fiscal officer's performance?
- How will the auditing firm be selected?
- What is the length of time of the contract with the auditing firm and why?
- How will the leadership team and governing body communicate and share program accountability and financial information?

GOAL 3: Data from multiple sources are systematically used to assess conditions, practices, policies and program performance on a regular basis.

- How will the program collect evaluation data?
- Who will analyze data to determine progress, identify areas of improvement, develop corrective action plans and develop a report for dissemination?
- What systems will be in place for communication across all levels of the program (families, community leaders, stakeholders)?
- What tool will be used for a community assessment?
- With whom will the program collaborate to conduct a community assessment?

Glossary of Terms

Accountability

The systematic collection and analysis of information that holds schools, educators and others responsible for student outcomes. Standards-based accountability refers to collecting and reporting information related to student progress on achieving established standards. (Armstrong, J. (2002) What is an accountability model? Education Commission of the States, www.ecs.org.)

Administrator

The administrator is the person(s) responsible for supervision, oversight and ongoing operation of the program.

Alignment

Alignment is the coherence and/or correlation of products, processes and services to meet a desired end result. In a standards-based education system, alignment refers to the coherence across standards (end result), curriculum (product), assessment (process) and professional development (service).

Assessment

Assessment is the process of gathering information about children from several forms of evidence, and then organizing and interpreting that information (see formative and summative assessment).

Assessment System

An assessment system allows for decisions to be made about curriculum, special interventions, behavioral supports, eligibility for services and program improvement. A well-designed assessment system provides educators with information to make informed decisions.

Authentic Assessments

Natural or authentic real-life tasks, examples of children's work, observations of children in naturalistic settings and ratings of children's everyday behaviors provide accurate reflections of their abilities. Authentic assessments of children occur within the context of the regular classroom on tasks similar to what they are accustomed to and from persons with whom they are familiar.

Benchmark

A benchmark is a specific component of the knowledge or skills of academic content, performance or operational standards. It can be characterized as being declarative, procedural or contextual in the type of knowledge it describes.

Child-Centered Program

A child-centered program is one that is designed to meet the individual needs of children. It promotes the well-being of children by addressing the development and learning of children and the supportive services that may be needed or desired by families.

Coaching

Coaching usually involves the guidance of a veteran educator to assist teachers and other educators in skill building. Coaching, like teaching, is not a routine activity. It must be focused on instructional goals and planned and be responsive to the needs of the learners and the exigencies of specific classroom situations. Coaches not only develop teachers' knowledge and skills; if they are successful, they also help develop programs' professional cultures as learning organizations.

Cognition/Cognitive

The mental process by which knowledge is acquired; information that comes to be known through reasoning and perception.

Collaboration

Collaboration is a relationship between individuals or organizations to work together toward some undertaking.

Content Standards

Content standards describe the knowledge and skills that students should attain – often called the "what" of "what students should know and be able to do." They indicate the ways of thinking, working, communicating, reasoning, and investigating the important and enduring ideas, concepts, issues, dilemmas and knowledge essential to the discipline (see Early Learning Content Standards).

Continuous Improvement Planning

The process of continuous improvement includes planning, acting upon the plan, studying the results of the actions and, when necessary, revising those actions.

Criterion Referenced

Criterion referenced tests are designed to measure how thoroughly a student has learned a particular body of knowledge without regard to how well other students have learned it. A criterion referenced score is one in which the skill (criterion) necessary for successfully performing each level is defined and measured and the skill level is either met or not met. Comparative data, unlike norm-referenced, are not needed in order to understand the scores.

Curriculum

Curriculum means an organized framework that (1) provides for guiding developmentally appropriate activities in the learning environment that encompass the developmental domains to foster a child's success through active learning; (2) delineates the content that children are to learn; (3) delineates the processes through which children achieve goals; and (4) describes what teachers do to help children achieve these goals.

Curriculum-Based Assessment

Curriculum-based assessment is a method of assessment that is integrated within the curriculum. The teacher assesses the children using the classroom activity itself and not a separate procedure.

Documentation

For administrators, documentation includes formal written records of action, policies and procedures that are maintained as a part of the program's ongoing operation. For teachers, documentation refers to information gathered about children; academic documentation may include children's work samples and teacher observations.

Early Childhood Environmental Rating Scale (ECERS)

The ECERS is a standardized tool used to measure the quality of the classroom environment. ECERS covers 37 quality aspects, which are divided into two parts: Provisions for Learning and Teaching and Interactions.

Early Language and Literacy Classroom Observation (ELLCO)

The ELLCO is a standardized observation tool used to describe the extent to which classrooms provide children optimal support for their language and literacy development. The ELLCO consists of three components: Literacy environment checklist, Classroom Observation, and Teacher Interaction and Literacy Activities Rating Scale.

Early Learning Content Standards

Ohio's Early Learning Content Standards describe essential concepts and skills for young children. Based on research, these achievable indicators emerge as a result of early learning experiences.

Early Learning Program Guidelines

The Ohio Early Learning Guidelines document is a framework for program operation. The guidelines describe desirable outcomes and goals for early learning programs.

Educators

Educator is the term used for all adults working with children, regardless of the level of formal qualifications held. The use of the term is based on the belief that all adults who work with children contribute to their learning.

Efficacy

Efficacy is the power or capacity to produce a desired effect or effectiveness.

Entrance

Entrance means the first day children are in attendance for education and care.

Evaluation

Evaluation is a process by which one carefully examines and judges the program and services. The evaluation system of an early learning program consists of three parts: child assessment, program assessment and progress monitoring.

Family Literacy

Family literacy encompasses parents', children's and extended family members' use of literacy at home, at work, at school and in their community life.

Formative Assessment

Formative assessment is a general term for any assessment that is collected on an ongoing basis during instruction in order to provide feedback for planning.

Get it, Got it, Go!

Get it, Got it, Go! is a literacy screen used to (1) monitor child progress, and (2) monitor teacher interventions with respect to early reading skills.

Goal

A goal is the end result or the purpose to which an endeavor is directed.

Governing Body

The governing body is the entity that is responsible for program and fiscal oversight and for coordinating program and community services.

Head Start Performance Standards (HSPS)

The Head Start Performance Standards are the mandatory regulations that grantees and delegate agencies must implement in order to operate a Head Start program.

Indicator

An indicator is a checkpoint to monitor progress toward the benchmark or goal.

Intentional Teaching

Intentional teaching is a term used to describe teaching strategies that may address specific skills and/or knowledge needed by some or all students. Intentionality is the directed, designed and rich interactions between children and teachers in which teachers purposefully challenge, scaffold and extend learning to promote attaining and mastering children's skills.

Interagency Agreement

An interagency agreement is a formal, written document between two or more entities that describes the roles and responsibilities of the parties involved. The purpose of such agreement is to achieve mutually beneficial outcomes.

Leadership Team

The leadership team is the designated program staff responsible for assisting educators in meeting the educational goals of children and the professional development needs of the teaching staff.

Learning Environment

The learning environment includes the physical environment, teacher-children interactions, curriculum, assessment and materials.

Medical Home

The medical home is a reference to a primary care physician responsible for the well-being and care of children.

Memorandum of Understanding (MOU)

A memorandum of understanding is a formal, written document between two or more entities that describes the roles and responsibilities of the parties involved.

Mentor

If teachers are to become skilled at independently identifying and addressing the idiosyncratic learning problems of their students, they must learn to reflect critically on student work, as well as on their own teaching practices. For beginning teachers who have not developed the habit of reflecting on their own teaching, the veteran or mentor may model the process: identifying a problem and proposing and analyzing for the beginner a variety of solutions.

Metacognition/Metacognitive

The process of helping children think about their own thinking, problem solving abilities and the language used to express their thinking.

National Association for the Education of Young Children (NAEYC)

The National Association for the Education of Young Children is a nationally recognized organization whose mission is to serve and act on behalf of the needs, rights and well-being of all young children with primary focus on the provision of educational and developmental services and resources.

Norm Referenced

Norm referenced refers to an individual's performance on a test that is judged in comparison to other individuals tested, rather than against a set of criteria, as with criterion-referenced.

Obligation

The term obligation describes a binding course of action, duty or promise, or a social or moral contract.

Outcome

An outcome is an intended end result or desired achievement.

Partnerships

Partnerships are shared goals with mutually beneficial interests and outcomes. Partnerships are developed through a process that identifies shared goals to benefit all partners.

Pedagogy

Pedagogy is the art and science of teaching. Good pedagogy always requires a certain level of knowledge about a subject area (content) and also the application of that knowledge relevant to the subject area.

Portfolio Assessments

Portfolio assessments contain student work reflecting their accomplishments toward significant curriculum goals, particularly those that require complex thinking and the use of multiple resources. Because the assessment of student performance on these tasks can provide evidence of their accomplishments and thereby serve as a tool to support the instructional process, portfolio assessment can bolster the efficacy of teachers, encouraging them to consider deeply how students are progressing. In addition, portfolios invite students to reflect on and take responsibility for their own progress, the assessment process, and, ultimately, their own learning. Finally, portfolios provide parents and the wider community with credible evidence of student achievement, and inform policy and practice at every level of the educational system.

Praxis

The Praxis Series tests were designed to measure the academic achievement and proficiency of individuals entering or completing teacher preparation programs. The series include content-specific tests, pedagogical tests and basic skills tests.

PRISM

The Program Review Instrument for Systems Monitoring (PRISM) is used by the U.S. Department of Health and Human Services to monitor federally funded Head Start programs.

Probe

A probe is a prompt to provoke thinking and dialogue about how best to achieve a desired result.

Professional Development

Professional development is the continuing education process beyond the initial degree or training. Teachers need a wide variety of experiences and opportunities to help further their knowledge and skills about the art of teaching and learning. Job-embedded professional development is often the most valuable and rewarding. Educators use their work environment as an active laboratory for problem solving through actual situations that affect the children and families that they serve.

Program Evaluation

Program evaluation is a process that looks at factors relating to the quality of the classroom or other care settings. Those factors might include available equipment and supplies, teacher qualifications, adult-to-child interactions, adult-to-child ratios, parent and community involvement, child progress data, and child referrals.

Referral

A referral is the recommendation that a child receive further diagnostic evaluation or the act of seeking outside services from another entity on behalf of children and/or their families.

Reflective Teaching Practice

Reflective practice is the systemic inquiry into one's teaching practice and the deliberate attention to one's experience. More specifically, reflective practice is a conscious, systematic and deliberate process of framing and re-framing classroom practice, in light of the consequences of actions, democratic principles, educational beliefs, values and preferred visions teachers bring to the teaching and learning process.

Research-based

A research-based activity applies rigorous, systematic and objective procedures to obtain reliable and valid knowledge about education activities and programs.

Scaffolding

Scaffolding is a teaching strategy used to facilitate a student's ability to build on prior knowledge and internalize new information. Scaffolding strategies are just beyond the level of what a student can do alone. The teacher provides the scaffolds so that the student can accomplish, with assistance, the tasks that he or she could otherwise not accomplish. Scaffolds may include models, cues, prompts, hints, partial solutions and think-aloud modeling to get the student to that next stage or level.

School Readiness

Children that are school ready are physically healthy, have engaged in positive social experiences with other children, are learning to manage their feelings, have good communication skills, and are enthusiastic and curious about learning. It is through home, early learning and childcare experiences, and the support of their community, that children enter kindergarten ready for success.

Screening

Screening is a procedure conducted to determine children's skills, abilities, and/or health and nutritional needs at any given "point in time." Screenings are usually conducted using standardized instruments that indicate whether children may need further assessment, additional instructional supports, intervention, or health related or family support services. The screening process usually consists of vision, hearing, speech, general development, health, mental health and social development.

Stakeholders

Stakeholders are individuals or organizations, public or private, which have an interest in the program's actions and successes.

Standards-based Education

Standards-based education is a framework for planning, delivering, monitoring and improving academic programs. In standards-based education, student learning is the focus. Standards-based education aims for high expectations for all and a deep level of student understanding of content that goes beyond traditional textbook-based or lesson-based instruction.

Summative Assessment

Summative assessments are used at the end of instruction to determine whether objectives have been met.

Teachers

Lead teachers are responsible for helping children meet their educational objectives through well designed learning experiences.

Teaching Teams

Teaching teams is a term used to describe a teacher and an assistant teacher or teachers who form peer-to-peer support groups for sharing instructional strategies and best practices.

Transition

Transition is the process of changing from one form, state, activity or place to another. In our early learning programs, the goal of transition is to facilitate connections and stable relationships among the various areas in which competence develops: families, classrooms, teachers, schools and communities.

USDA

The United States Department of Agriculture (USDA) is the federal agency that governs the Food Stamp, School Lunch, School Breakfast and WIC programs administered by the states.

Women, Infants and Children (WIC)

A USDA program administered by the Ohio Department of Health to safeguard the health of low-income women, infants and children up to age 5 who are at nutrition risk, by providing nutritious foods to supplement diets, information on healthy eating, and referrals to health care.

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All children are born ready to learn

Relationships are influential

Environments matter

Communication is critical

(b)(6)

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A11
Section 3301.90 of the Ohio Revised Code

Rationale: Supportive evidence for (VI)(A)(3). Ohio Revised Code 3301.90 demonstrates the permanency of the Early Childhood Advisory Council, which helps to support and sustain consistent governance for the State of Ohio.

Referenced in:

VI(A)(3)

Ohio Revised Code – Title XXXIII: Education

3301.90 Early childhood advisory council.

The governor shall create the early childhood advisory council in accordance with 42 U.S.C. 9837b(b)(1) and shall appoint one of its members to serve as chairperson of the council. The council shall serve as the state advisory council on early childhood education and care, as described in 42 U.S.C. 9837b(b)(1). In addition to the duties specified in 42 U.S.C. 9837b(b)(1), the council shall advise the state regarding the creation and duties of the center for early childhood development and shall promote family-centered programs and services that acknowledge and support the social, emotional, cognitive, intellectual, and physical development of children and the vital role of families in ensuring the well-being and success of children.

Added by 128th General Assembly File No. 9, HB 1, § 101.01, eff. 10/16/2009.

Effective Date: 07-01-2004

See 129th General Assembly File No. 39, SB 171, §4.

Attachment B:

High-Quality, Accountable Programs

B1
SUTQ Center Program Standards

Rationale: Supportive evidence for VI(B)(1). Program standards used by rated centers; aligned with Ohio's Early Learning Program Guidelines.

Referenced in:

VI(B)(1)

	Numbers Matter	Qualified Administrators & Teachers Matter	Ongoing Professional Development Matters	Administrative Supports Matter	Children's Experiences Matter
	RATIO, GROUP SIZE (Group size twice the ratio)	**STAFF EDUCATION AND QUALIFICATIONS**	**SPECIALIZED TRAINING**	**ADMINISTRATIVE PRACTICES**	**EARLY LEARNING**
STEP THREE	At no time may group size for children 0 - 18 months exceed 10 children. **Infants/Toddlers** 0-12 months - 1:4 or 2:8 or 3:10 12-18 months – 1:5 18-36 months - 1:6 **Preschoolers** 36-48 months - 1:10 48-60 months - 1:10 **Family or Mixed Age Groups** 0-36 months - 1:4 36-60 months - 1:10 **School-Agers** 5-15 years - 1:15 * Alternate Pathway Available (National Accreditation or overall ERS score of 5)	Administrator has a BA in ECE or related field or the Career Pathways Level 4 **AND** Each classroom has a Lead Teacher with an AA in ECE or related field for school age teachers or Career Pathways Level 3 **AND** 50% of Classrooms have Assistant Teachers who have a CDA or Career Pathways Level 2	Administrators, Lead Teachers, and Assistant Teachers receive a minimum of 20 clock hours of specialized training every two years. 10 hours of specialized training must be completed prior to an initial rating being awarded. After completion of 10 hours of pre-requisites, the training must be completed with topics related to the individual's PD plan. Training must be approved as listed on the PD registry at: www.opdn.org Individuals who are currently enrolled in a degree granting program in early childhood or a related field can use coursework to fulfill the training requirement.	**Program Planning/Evaluation** A quality improvement plan is completed and implemented based on a PAS self-assessment, classroom assessments, and input from parents and staff and updated annually. **AND** **Human Resource Development** Administrator and all teachers must have an annual professional development plan that at a minimum includes a performance appraisal, goals, and a plan for completing specialized training. **AND** **Benefits/Compensation** **3 of the following:** Salary structure based on education and length of employment; employer offers and/or pays a portion of health insurance; 5 days of paid leave; Paid professional membership; Education benefits (T.E.A.C.H.); Retirement; Discount on child care	Program utilizes a written, evidence based comprehensive curriculum. Curriculum planning is aligned with the Infant/Toddler Guidelines and/or Ohio's Pre-K Content Standards and/or Ohio's K-12 Standards to maximize growth across a broad range of developmental and content areas. Children are assessed systematically utilizing both formal and informal methods to inform intentional teaching and the sharing of progress with families. **AND** All children (except school age) receive a developmental screening within 60 days of enrollment and annually thereafter. Referrals, if needed, are completed within 90 days.
STEP TWO	At no time may group size for children 0- 12 months exceed 10 children. **Infants/Toddlers** 0-12 months - 1:5 12-18 months – 1:6 18-36 months - 1:7 **Preschoolers** 36-48 months - 1:10 48-60 months - 1:12 **Family or Mixed Age Groups** 0-36 months - 1: 5 36-60 months - 1:10 **School-Agers** 5-15 years – 1:16 * Alternate Pathway Available (National Accreditation or overall ERS score of 5)	Administrator has an AA in ECE or related field or Career Pathways Level 3 **AND** 50% of Lead Teachers have an AA in ECE or related field for school age teachers or Career Pathways Level 3	Administrators, Lead Teachers, and Assistant Teachers receive a minimum of 20 clock hours of specialized training every two years. 10 hours of specialized training must be completed prior to an initial rating being awarded. After completion of 10 hours of pre-requisites, the training must be completed with topics related to the individual's PD plan. Training must be approved as listed on the PD registry at: www.opdn.org Individuals who are currently enrolled in a degree granting program in early childhood or a related field can use coursework to fulfill the training requirement.	**Program Planning/Evaluation** A quality improvement plan is completed and implemented based on a PAS self-assessment and classroom assessments and is updated annually. **AND** **Human Resource Development** Administrator and all teachers must have an annual professional development plan that at a minimum includes a performance appraisal, goals, and a plan for completing specialized training. **AND** **Benefits/Compensation** **2 of the following:** Salary structure based on education and length of employment; employer offers and/or pays a portion of health insurance; 5 days of paid leave; Paid professional membership; Education benefits (T.E.A.C.H.); Retirement; Discount on child care	Program utilizes a written, evidence based comprehensive curriculum. Curriculum planning is aligned with the Infant/Toddler Guidelines and/or Ohio's Pre-K Content Standards and/or Ohio's K-12 Standards to maximize growth across a broad range of developmental and content areas. **AND** All children (except school age) receive a developmental screening within 60 days of enrollment and annually thereafter. Referrals, if needed, are completed within 90 days. Results are formally communicated with families.
STEP ONE	At no time may group size for children 0- 12 months exceed 10 children. **Infants/Toddlers** 0-12 months - 1:5 or 2:10 12-18 months - 1:6 18-36 months - 1:7 30-36 months – 1:8 **Preschoolers** 36-48 months - 1:12 48-60 months - 1:14 **Family or Mixed Age Groups** 0-36 months - 1:5 36-60 months - 1:12 **School-Agers** 5-15 years - 1:18	Administrator has a CDA or Career Pathways Level 2 **AND** One Lead Teacher with an AA in ECE or Career Pathways Level 3 Stand alone school age programs must have one Lead Teacher with an AA in related field or Career Pathways Level 3	Administrators, Lead Teachers, and Assistant Teachers receive a minimum of 20 clock hours of specialized training every two years. 10 hours of specialized training must be completed prior to an initial rating being awarded. After completion of 10 hours of pre-requisites, the training must be completed with topics related to the individual's PD plan. Training must be approved as listed on the PD registry at: www.opdn.org Individuals who are currently enrolled in a degree granting program in early childhood or a related field can use coursework to fulfill the training requirement.	**Program Planning/Evaluation** Program completes a quality improvement plan based on results of their annual PAS self-assessment. **AND** **Human Resource Development** Administrator and all teachers must have an annual professional development plan that at a minimum includes a performance appraisal and a plan for completing specialized training. **AND** **Benefits/Compensation** **1 of the following:** Salary structure based on education and length of employment; employer offers and/or pays a portion of health insurance; 5 days of paid leave; Paid professional membership; Education benefits (T.E.A.C.H.); Retirement; Discount on child care	Programs must have a copy of the following: • Ohio's Early Childhood Core Knowledge and Competencies • Infant/Toddler Program Standards • Infant/Toddler Guidelines • Early Learning Program Guidelines • Ohio's Pre-K Content Standards • Ohio's K – 12 Standards • Ohio's Core Knowledge & Competencies for Afterschool Professionals • Quality Guidelines For Ohio's Afterschool Programs

B2

SUTQ Large Family Child Care Home (Type A)

Rationale: Supportive evidence for VI(B)(1). Program standards used by rated large family child care providers; aligned with Ohio's Early Learning Program Guidelines.

Referenced in:

VI(B)(1)

	Numbers Matter	Qualified Administrators & Teachers Matter	Ongoing Professional Development Matters	Administrative Supports Matter	Children's Experiences Matter
	RATIO, GROUP SIZE Group size 2X the ratio	**STAFF EDUCATION AND QUALIFICATIONS**	**SPECIALIZED TRAINING**	**ADMINISTRATIVE PRACTICES**	**EARLY LEARNING**
STEP THREE	Be NAFCC or Montessori Accredited **OR** Ratio 1:4 or 2:9 or 3:12 **OR** Score an overall score of 5 on the Family Child Care Environment Rating Scale and no less than 4 on each subscale	Administrator has an AA in ECE or the Career Pathways Level 3 **AND** Each Lead Teacher has an AA in ECE or related field for school age teachers, or a Career Pathways Level 3 **AND** 50 % of Assistant Teachers have a CDA or Career Pathways Level 2.	Administrators, Lead Teachers and Assistant Teachers receive a minimum of 15 clock hours of specialized training annually. The specialized training must be approved by ODJFS. Training hours must be job specific and/or related to the age group(s) of children that the program serves.	**Program Planning/Evaluation** A program action plan is completed and implemented based on a annual self-assessment and input from parents and staff. **AND** **Human Resource Development** Administrator and all teachers must have a professional development plan that at a minimum includes a performance appraisal, goals, and a plan for completing specialized training. **AND** **Benefits/Compensation** **3 of the following:** Salary structure based on education and length of employment; employer offers and/or pays a portion of health insurance; 5 days of paid leave; Paid professional membership; Paid specialized training/tuition; Retirement fund; Discount on child care; T.E.A.C.H.	Program has an identified curriculum and planning is aligned with Ohio's Pre-K Content Standards, and/or Infant Toddler Guidelines, and/or Ohio's K-12 Standards, and informs on-going child assessment. **AND** All children (except school age) receive a developmental screening within 60 days of enrollment. Referrals, if needed, are completed within 90 days. **AND** Program creates and implements an annual action plan based on self-assessment results using the FCCRS. **AND** Children's progress is formally communicated with parents. **AND** A formal transition process is utilized for when children enter and/or exit the program.
STEP TWO	NAFCC Accreditation self-study is completed and proof of observation being applied for **OR** Ratio 1:5 or 2:10 or 3:12 **OR** Score an overall score of 5 on the Family Child Care Environment Rating Scale or no less than 4.0 on each subscale	Administrator has an AA in ECE or Career Pathways Level 3 **AND** One Lead Teacher has an AA in ECE or related field for school age teachers or Career Pathways Level 3	Administrators, Lead Teachers, and Assistant Teachers receive a minimum of 10 clock hours of specialized training annually. The specialized training must be approved by ODJFS. Training hours must be job specific and/or related to the age group(s) of children that the program serves.	**Program Planning/Evaluation** A program action plan is completed and implemented based on an annual self-assessment. **AND** **Human Resource Development** Administrator and all teachers must have a professional development plan that at a minimum includes a performance appraisal, goals, and a plan for completing specialized training. **AND** **Benefits/Compensation** **2 of the following:** Salary structure based on education and length of employment; employer offers and/or pays a portion of health insurance; 5 days of paid leave; Paid professional membership; Paid specialized training/tuition Retirement fund; Discount on child care; T.E.A.C.H.	Program has an identified curriculum and planning is aligned with the Infant/Toddler Guidelines and/or Ohio's Pre-K Content Standards and/or Ohio's K-12 Standards. **AND** All children (except school age) receive a developmental screening within 60 days of enrollment. Referrals, if needed, are completed within 90 days. **AND** An annual self-assessment using the FCCRS is conducted. **AND** Children's progress is formally communicated with parents. **AND** A formal transition process is utilized for when children enter and/or exit the program.
STEP ONE	Purchase the "Guide to Achieving NAFCC Accreditation" and complete Chapter 5. **AND** Ratio 2:12 or 1:5 if youngest child is under 12 months and only one staff member is present.	Administrator has a CDA **OR** Career Pathways Level I equaling 40 points or more	Administrators, Lead Teachers, and Assistant Teachers receive a minimum of 5 clock hours of specialized training annually. The specialized training must be approved by ODJFS. Training hours must be job specific and/or related to the age group(s) of children that the program serves.	**Program Planning/Evaluation** Administrator conducts an annual self-assessment. **AND** **Human Resource Development** Administrator and all teachers must have a professional development plan that at a minimum includes a performance appraisal and a plan for completing specialized training. **AND** **Benefits/Compensation** **1 of the following:** Salary structure based on education and length of employment; employer offers and/or pays a portion of health insurance; 5 days of paid leave; Paid professional membership; Paid specialized training/tuition; Discount on child care; T.E.A.C.H.	Programs serving infants/toddlers must have a copy of Ohio's Infant Toddler Guidelines available for use. **AND** Programs serving preschoolers must have a copy of Ohio's Pre-K Content Standards and Ohio's Early Learning Program Guidelines available for use. **AND** Programs serving school age children must have a copy of Ohio's K-12 Standards available for use. **AND** A formal transition process is utilized for when children enter and/or exit the program.

Benchmark and Indicators Type A Homes: Programs must meet licensing threshold requirements to be eligible to participate.

B3

K-12 Standards

Rationale: Common, statewide academic content standards to which early learning content and program standards are aligned. This demonstrates important alignment along birth-12 educational continuum.

Referenced in:

VI(C)(1)

COMMON CORE STATE STANDARDS FOR

English Language Arts
&
Literacy in History/Social Studies, Science, and Technical Subjects

Table of Contents

Introduction

The Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects ("the Standards") are the culmination of an extended, broad-based effort to fulfill the charge issued by the states to create the next generation of K–12 standards in order to help ensure that all students are college and career ready in literacy no later than the end of high school.

The present work, led by the Council of Chief State School Officers (CCSSO) and the National Governors Association (NGA), builds on the foundation laid by states in their decades-long work on crafting high-quality education standards. The Standards also draw on the most important international models as well as research and input from numerous sources, including state departments of education, scholars, assessment developers, professional organizations, educators from kindergarten through college, and parents, students, and other members of the public. In their design and content, refined through successive drafts and numerous rounds of feedback, the Standards represent a synthesis of the best elements of standards-related work to date and an important advance over that previous work.

As specified by CCSSO and NGA, the Standards are (1) research and evidence based, (2) aligned with college and work expectations, (3) rigorous, and (4) internationally benchmarked. A particular standard was included in the document only when the best available evidence indicated that its mastery was essential for college and career readiness in a twenty-first-century, globally competitive society. The Standards are intended to be a living work: as new and better evidence emerges, the Standards will be revised accordingly.

The Standards are an extension of a prior initiative led by CCSSO and NGA to develop College and Career Readiness (CCR) standards in reading, writing, speaking, listening, and language as well as in mathematics. The CCR Reading, Writing, and Speaking and Listening Standards, released in draft form in September 2009, serve, in revised form, as the backbone for the present document. Grade-specific K–12 standards in reading, writing, speaking, listening, and language translate the broad (and, for the earliest grades, seemingly distant) aims of the CCR standards into age- and attainment-appropriate terms.

The Standards set requirements not only for English language arts (ELA) but also for literacy in history/social studies, science, and technical subjects. Just as students must learn to read, write, speak, listen, and use language effectively in a variety of content areas, so too must the Standards specify the literacy skills and understandings required for college and career readiness in multiple disciplines. Literacy standards for grade 6 and above are predicated on teachers of ELA, history/social studies, science, and technical subjects using their content area expertise to help students meet the particular challenges of reading, writing, speaking, listening, and language in their respective fields. It is important to note that the 6–12 literacy standards in history/social studies, science, and technical subjects are not meant to replace content standards in those areas but rather to supplement them. States may incorporate these standards into their standards for those subjects or adopt them as content area literacy standards.

As a natural outgrowth of meeting the charge to define college and career readiness, the Standards also lay out a vision of what it means to be a literate person in the twenty-first century. Indeed, the skills and understandings students are expected to demonstrate have wide applicability outside the classroom or workplace. Students who meet the Standards readily undertake the close, attentive reading that is at the heart of understanding and enjoying complex works of literature. They habitually perform the critical reading necessary to pick carefully through the staggering amount of information available today in print and digitally. They actively seek the wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews. They reflexively demonstrate the cogent reasoning and use of evidence that is essential to both private deliberation and responsible citizenship in a democratic republic. In short, students who meet the Standards develop the skills in reading, writing, speaking, and listening that are the foundation for any creative and purposeful expression in language.

June 2, 2010

Key Design Considerations

CCR and grade-specific standards

The CCR standards anchor the document and define general, cross-disciplinary literacy expectations that must be met for students to be prepared to enter college and workforce training programs ready to succeed. The K–12 grade-specific standards define end-of-year expectations and a cumulative progression designed to enable students to meet college and career readiness expectations no later than the end of high school. The CCR and high school (grades 9–12) standards work in tandem to define the college and career readiness line—the former providing broad standards, the latter providing additional specificity. Hence, both should be considered when developing college and career readiness assessments.

Students advancing through the grades are expected to meet each year's grade-specific standards, retain or further develop skills and understandings mastered in preceding grades, and work steadily toward meeting the more general expectations described by the CCR standards.

Grade levels for K–8; grade bands for 9–10 and 11–12

The Standards use individual grade levels in kindergarten through grade 8 to provide useful specificity; the Standards use two-year bands in grades 9–12 to allow schools, districts, and states flexibility in high school course design.

A focus on results rather than means

By emphasizing required achievements, the Standards leave room for teachers, curriculum developers, and states to determine how those goals should be reached and what additional topics should be addressed. Thus, the Standards do not mandate such things as a particular writing process or the full range of metacognitive strategies that students may need to monitor and direct their thinking and learning. Teachers are thus free to provide students with whatever tools and knowledge their professional judgment and experience identify as most helpful for meeting the goals set out in the Standards.

An integrated model of literacy

Although the Standards are divided into Reading, Writing, Speaking and Listening, and Language strands for conceptual clarity, the processes of communication are closely connected, as reflected throughout this document. For example, Writing standard 9 requires that students be able to write about what they read. Likewise, Speaking and Listening standard 4 sets the expectation that students will share findings from their research.

Research and media skills blended into the Standards as a whole

To be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, and report on information and ideas, to conduct original research in order to answer questions or solve problems, and to analyze and create a high volume and extensive range of print and nonprint texts in media forms old and new. The need to conduct research and to produce and consume media is embedded into every aspect of today's curriculum. In like fashion, research and media skills and understandings are embedded throughout the Standards rather than treated in a separate section.

Shared responsibility for students' literacy development

The Standards insist that instruction in reading, writing, speaking, listening, and language be a shared responsibility within the school. The K–5 standards include expectations for reading, writing, speaking, listening, and language applicable to a range of subjects, including but not limited to ELA. The grades 6–12 standards are divided into two sections, one for ELA and the other for history/social studies, science, and technical subjects. This division reflects the unique, time-honored place of ELA teachers in developing students' literacy skills while at the same time recognizing that teachers in other areas must have a role in this development as well.

Part of the motivation behind the interdisciplinary approach to literacy promulgated by the Standards is extensive research establishing the need for college and career ready students to be proficient in reading complex informational text independently in a variety of content areas. Most of the required reading in college and workforce training programs is informational in structure and challenging in content; postsecondary education programs typically provide students with both a higher volume of such reading than is generally required in K–12 schools and comparatively little scaffolding.

The Standards are not alone in calling for a special emphasis on informational text. The 2009 reading framework of the National Assessment of Educational Progress (NAEP) requires a high and increasing proportion of informational text on its assessment as students advance through the grades.

Distribution of Literary and Informational Passages by Grade in the 2009 NAEP Reading Framework

Grade	Literary	Informational
4	50%	50%
8	45%	55%
12	30%	70%

Source: National Assessment Governing Board. (2008). *Reading framework for the 2009 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office.

The Standards aim to align instruction with this framework so that many more students than at present can meet the requirements of college and career readiness. In K–5, the Standards follow NAEP's lead in balancing the reading of literature with the reading of informational texts, including texts in history/social studies, science, and technical subjects. In accord with NAEP's growing emphasis on informational texts in the higher grades, the Standards demand that a significant amount of reading of informational texts take place in and outside the ELA classroom. Fulfilling the Standards for 6–12 ELA requires much greater attention to a specific category of informational text—literary nonfiction—than has been traditional. Because the ELA classroom must focus on literature (stories, drama, and poetry) as well as literary nonfiction, a great deal of informational reading in grades 6–12 must take place in other classes if the NAEP assessment framework is to be matched instructionally.[1] To measure students' growth toward college and career readiness, assessments aligned with the Standards should adhere to the distribution of texts across grades cited in the NAEP framework.

NAEP likewise outlines a distribution across the grades of the core purposes and types of student writing. The 2011 NAEP framework, like the Standards, cultivates the development of three mutually reinforcing writing capacities: writing to persuade, to explain, and to convey real or imagined experience. Evidence concerning the demands of college and career readiness gathered during development of the Standards concurs with NAEP's shifting emphases: standards for grades 9–12 describe writing in all three forms, but, consistent with NAEP, the overwhelming focus of writing throughout high school should be on arguments and informative/explanatory texts.[2]

Distribution of Communicative Purposes by Grade in the 2011 NAEP Writing Framework

Grade	To Persuade	To Explain	To Convey Experience
4	30%	35%	35%
8	35%	35%	30%
12	40%	40%	20%

Source: National Assessment Governing Board. (2007). *Writing framework for the 2011 National Assessment of Educational Progress, pre-publication edition.* Iowa City, IA: ACT, Inc.

It follows that writing assessments aligned with the Standards should adhere to the distribution of writing purposes across grades outlined by NAEP.

Focus and coherence in instruction and assessment

While the Standards delineate specific expectations in reading, writing, speaking, listening, and language, each standard need not be a separate focus for instruction and assessment. Often, several standards can be addressed by a single rich task. For example, when editing writing, students address Writing standard 5 ("Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach") as well as Language standards 1–3 (which deal with conventions of standard English and knowledge of language). When drawing evidence from literary and informational texts per Writing standard 9, students are also demonstrating their comprehension skill in relation to specific standards in Reading. When discussing something they have read or written, students are also demonstrating their speaking and listening skills. The CCR anchor standards themselves provide another source of focus and coherence.

The same ten CCR anchor standards for Reading apply to both literary and informational texts, including texts in history/social studies, science, and technical subjects. The ten CCR anchor standards for Writing cover numerous text types and subject areas. This means that students can develop mutually reinforcing skills and exhibit mastery of standards for reading and writing across a range of texts and classrooms.

[1]The percentages on the table reflect the sum of student reading, not just reading in ELA settings. Teachers of senior English classes, for example, are not required to devote 70 percent of reading to informational texts. Rather, 70 percent of student reading across the grade should be informational.
[2]As with reading, the percentages in the table reflect the sum of student writing, not just writing in ELA settings.

What is Not Covered by the Standards

The Standards should be recognized for what they are not as well as what they are. The most important intentional design limitations are as follows:

1. The Standards define what all students are expected to know and be able to do, not how teachers should teach. For instance, the use of play with young children is not specified by the Standards, but it is welcome as a valuable activity in its own right and as a way to help students meet the expectations in this document. Furthermore, while the Standards make references to some particular forms of content, including mythology, foundational U.S. documents, and Shakespeare, they do not—indeed, cannot—enumerate all or even most of the content that students should learn. The Standards must therefore be complemented by a well-developed, content-rich curriculum consistent with the expectations laid out in this document.

2. While the Standards focus on what is most essential, they do not describe all that can or should be taught. A great deal is left to the discretion of teachers and curriculum developers. The aim of the Standards is to articulate the fundamentals, not to set out an exhaustive list or a set of restrictions that limits what can be taught beyond what is specified herein.

3. The Standards do not define the nature of advanced work for students who meet the Standards prior to the end of high school. For those students, advanced work in such areas as literature, composition, language, and journalism should be available. This work should provide the next logical step up from the college and career readiness baseline established here.

4. The Standards set grade-specific standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. No set of grade-specific standards can fully reflect the great variety in abilities, needs, learning rates, and achievement levels of students in any given classroom. However, the Standards do provide clear signposts along the way to the goal of college and career readiness for all students.

5. It is also beyond the scope of the Standards to define the full range of supports appropriate for English language learners and for students with special needs. At the same time, all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary in their post–high school lives.

   Each grade will include students who are still acquiring English. For those students, it is possible to meet the standards in reading, writing, speaking, and listening without displaying native-like control of conventions and vocabulary.

   The Standards should also be read as allowing for the widest possible range of students to participate fully from the outset and as permitting appropriate accommodations to ensure maximum participation of students with special education needs. For example, for students with disabilities *reading* should allow for the use of Braille, screen-reader technology, or other assistive devices, while *writing* should include the use of a scribe, computer, or speech-to-text technology. In a similar vein, *speaking* and *listening* should be interpreted broadly to include sign language.

6. While the ELA and content area literacy components described herein are critical to college and career readiness, they do not define the whole of such readiness. Students require a wide-ranging, rigorous academic preparation and, particularly in the early grades, attention to such matters as social, emotional, and physical development and approaches to learning. Similarly, the Standards define literacy expectations in history/social studies, science, and technical subjects, but literacy standards in other areas, such as mathematics and health education, modeled on those in this document are strongly encouraged to facilitate a comprehensive, schoolwide literacy program.

Students Who are College and Career Ready in Reading, Writing, Speaking, Listening, and Language

The descriptions that follow are not standards themselves but instead offer a portrait of students who meet the standards set out in this document. As students advance through the grades and master the standards in reading, writing, speaking, listening, and language, they are able to exhibit with increasing fullness and regularity these capacities of the literate individual.

They demonstrate independence.

Students can, without significant scaffolding, comprehend and evaluate complex texts across a range of types and disciplines, and they can construct effective arguments and convey intricate or multifaceted information. Likewise, students are able independently to discern a speaker's key points, request clarification, and ask relevant questions. They build on others' ideas, articulate their own ideas, and confirm they have been understood. Without prompting, they demonstrate command of standard English and acquire and use a wide-ranging vocabulary. More broadly, they become self-directed learners, effectively seeking out and using resources to assist them, including teachers, peers, and print and digital reference materials.

They build strong content knowledge.

Students establish a base of knowledge across a wide range of subject matter by engaging with works of quality and substance. They become proficient in new areas through research and study. They read purposefully and listen attentively to gain both general knowledge and discipline-specific expertise. They refine and share their knowledge through writing and speaking.

They respond to the varying demands of audience, task, purpose, and discipline.

Students adapt their communication in relation to audience, task, purpose, and discipline. They set and adjust purpose for reading, writing, speaking, listening, and language use as warranted by the task. They appreciate nuances, such as how the composition of an audience should affect tone when speaking and how the connotations of words affect meaning. They also know that different disciplines call for different types of evidence (e.g., documentary evidence in history, experimental evidence in science).

They comprehend as well as critique.

Students are engaged and open-minded—but discerning—readers and listeners. They work diligently to understand precisely what an author or speaker is saying, but they also question an author's or speaker's assumptions and premises and assess the veracity of claims and the soundness of reasoning.

They value evidence.

Students cite specific evidence when offering an oral or written interpretation of a text. They use relevant evidence when supporting their own points in writing and speaking, making their reasoning clear to the reader or listener, and they constructively evaluate others' use of evidence.

They use technology and digital media strategically and capably.

Students employ technology thoughtfully to enhance their reading, writing, speaking, listening, and language use. They tailor their searches online to acquire useful information efficiently, and they integrate what they learn using technology with what they learn offline. They are familiar with the strengths and limitations of various technological tools and mediums and can select and use those best suited to their communication goals.

They come to understand other perspectives and cultures.

Students appreciate that the twenty-first-century classroom and workplace are settings in which people from often widely divergent cultures and who represent diverse experiences and perspectives must learn and work together. Students actively seek to understand other perspectives and cultures through reading and listening, and they are able to communicate effectively with people of varied backgrounds. They evaluate other points of view critically and constructively. Through reading great classic and contemporary works of literature representative of a variety of periods, cultures, and worldviews, students can vicariously inhabit worlds and have experiences much different than their own.

How to Read This Document

Overall Document Organization

The Standards comprise three main sections: a comprehensive K–5 section and two content area–specific sections for grades 6–12, one for ELA and one for history/social studies, science, and technical subjects. Three appendices accompany the main document.

Each section is divided into strands. K–5 and 6–12 ELA have Reading, Writing, Speaking and Listening, and Language strands; the 6–12 history/ social studies, science, and technical subjects section focuses on Reading and Writing. Each strand is headed by a strand-specific set of College and Career Readiness Anchor Standards that is identical across all grades and content areas.

Standards for each grade within K–8 and for grades 9–10 and 11–12 follow the CCR anchor standards in each strand. Each grade-specific standard (as these standards are collectively referred to) corresponds to the same-numbered CCR anchor standard. Put another way, each CCR anchor standard has an accompanying grade-specific standard translating the broader CCR statement into grade-appropriate end-of-year expectations.

Individual CCR anchor standards can be identified by their strand, CCR status, and number (R.CCR.6, for example). Individual grade-specific standards can be identified by their strand, grade, and number (or number and letter, where applicable), so that RI.4.3, for example, stands for Reading, Informational Text, grade 4, standard 3 and W.5.1a stands for Writing, grade 5, standard 1a. Strand designations can be found in brackets alongside the full strand title.

Who is responsible for which portion of the Standards

A single K–5 section lists standards for reading, writing, speaking, listening, and language across the curriculum, reflecting the fact that most or all of the instruction students in these grades receive comes from one teacher. Grades 6–12 are covered in two content area–specific sections, the first for the English language arts teacher and the second for teachers of history/social studies, science, and technical subjects. Each section uses the same CCR anchor standards but also includes grade-specific standards tuned to the literacy requirements of the particular discipline(s).

Key Features of the Standards

Reading: Text complexity and the growth of comprehension

The Reading standards place equal emphasis on the sophistication of what students read and the skill with which they read. Standard 10 defines a grade-by-grade "staircase" of increasing text complexity that rises from beginning reading to the college and career readiness level. Whatever they are reading, students must also show a steadily growing ability to discern more from and make fuller use of text, including making an increasing number of connections among ideas and between texts, considering a wider range of textual evidence, and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in texts.

Writing: Text types, responding to reading, and research

The Standards acknowledge the fact that whereas some writing skills, such as the ability to plan, revise, edit, and publish, are applicable to many types of writing, other skills are more properly defined in terms of specific writing types: arguments, informative/explanatory texts, and narratives. Standard 9 stresses the importance of the writing-reading connection by requiring students to draw upon and write about evidence from literary and informational texts. Because of the centrality of writing to most forms of inquiry, research standards are prominently included in this strand, though skills important to research are infused throughout the document.

Speaking and Listening: Flexible communication and collaboration

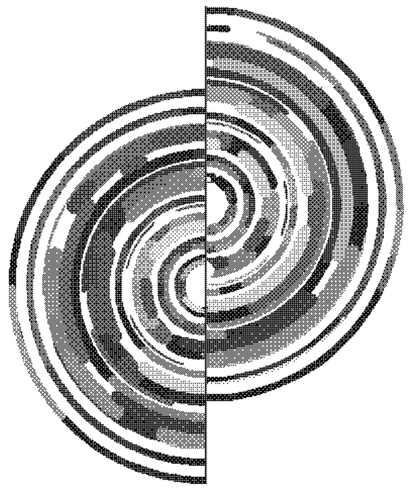
Including but not limited to skills necessary for formal presentations, the Speaking and Listening standards require students to develop a range of broadly useful oral communication and interpersonal skills. Students must learn to work together, express and listen carefully to ideas, integrate information from oral, visual, quantitative, and media sources, evaluate what they hear, use media and visual displays strategically to help achieve communicative purposes, and adapt speech to context and task.

Language: Conventions, effective use, and vocabulary

The Language standards include the essential "rules" of standard written and spoken English, but they also approach language as a matter of craft and informed choice among alternatives. The vocabulary standards focus on understanding words and phrases, their relationships, and their nuances and on acquiring new vocabulary, particularly general academic and domain-specific words and phrases.

Appendices A, B, and C

Appendix A contains supplementary material on reading, writing, speaking and listening, and language as well as a glossary of key terms. Appendix B consists of text exemplars illustrating the complexity, quality, and range of reading appropriate for various grade levels with accompanying sample performance tasks. Appendix C includes annotated samples demonstrating at least adequate performance in student writing at various grade levels.



STANDARDS FOR

English Language Arts
&
Literacy in History/Social Studies, Science, and Technical Subjects

K–5

College and Career Readiness Anchor Standards for Reading

The K–5 standards on the following pages define what students should understand and be able to do by the end of each grade. They correspond to the College and Career Readiness (CCR) anchor standards below by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Key Ideas and Details

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.*
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range of Reading and Level of Text Complexity

10. Read and comprehend complex literary and informational texts independently and proficiently.

*Please see "Research to Build and Present Knowledge" in Writing and "Comprehension and Collaboration" in Speaking and Listening for additional standards relevant to gathering, assessing, and applying information from print and digital sources.

Note on range and content of student reading

To build a foundation for college and career readiness, students must read widely and deeply from among a broad range of high-quality, increasingly challenging literary and informational texts. Through extensive reading of stories, dramas, poems, and myths from diverse cultures and different time periods, students gain literary and cultural knowledge as well as familiarity with various text structures and elements. By reading texts in history/social studies, science, and other disciplines, students build a foundation of knowledge in these fields that will also give them the background to be better readers in all content areas. Students can only gain this foundation when the curriculum is intentionally and coherently structured to develop rich content knowledge within and across grades. Students also acquire the habits of reading independently and closely, which are essential to their future success.

Reading Standards for Literature K–5

RI

The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.*

Kindergartners:	Grade 1 students:	Grade 2 students:
Key Ideas and Details		
1. With prompting and support, ask and answer questions about key details in a text.	1. Ask and answer questions about key details in a text.	1. Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text.
2. With prompting and support, retell familiar stories, including key details.	2. Retell stories, including key details, and demonstrate understanding of their central message or lesson.	2. Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.
3. With prompting and support, identify characters, settings, and major events in a story.	3. Describe characters, settings, and major events in a story, using key details.	3. Describe how characters in a story respond to major events and challenges.
Craft and Structure		
4. Ask and answer questions about unknown words in a text.	4. Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.	4. Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.
5. Recognize common types of texts (e.g., storybooks, poems).	5. Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.	5. Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.
6. With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.	6. Identify who is telling the story at various points in a text.	6. Acknowledge differences in the points of view of characters, including by speaking in a different voice for each character when reading dialogue aloud.
Integration of Knowledge and Ideas		
7. With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).	7. Use illustrations and details in a story to describe its characters, setting, or events.	7. Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.
8. (Not applicable to literature)	8. (Not applicable to literature)	8. (Not applicable to literature)
9. With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.	9. Compare and contrast the adventures and experiences of characters in stories.	9. Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.
Range of Reading and Level of Text Complexity		
10. Actively engage in group reading activities with purpose and understanding.	10. With prompting and support, read prose and poetry of appropriate complexity for grade 1.	10. By the end of the year, read and comprehend literature, including stories and poetry, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Reading Standards for Literature K–5

RI

Grade 3 students:		Grade 4 students:		Grade 5 students:	
Key Ideas and Details					
1.	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	1.	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	1.	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
2.	Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	2.	Determine a theme of a story, drama, or poem from details in the text; summarize the text.	2.	Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
3.	Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	3.	Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).	3.	Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).
Craft and Structure					
4.	Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.	4.	Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).	4.	Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.
5.	Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.	5.	Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.	5.	Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.
6.	Distinguish their own point of view from that of the narrator or those of the characters.	6.	Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.	6.	Describe how a narrator's or speaker's point of view influences how events are described.
Integration of Knowledge and Ideas					
7.	Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).	7.	Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.	7.	Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).
8.	(Not applicable to literature)	8.	(Not applicable to literature)	8.	(Not applicable to literature)
9.	Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series).	9.	Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.	9.	Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.
Range of Reading and Level of Text Complexity					
10.	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 2–3 text complexity band independently and proficiently.	10.	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.	10.	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4–5 text complexity band independently and proficiently.

Reading Standards for Informational Text K–5

RI

Kindergartners:	Grade 1 students:	Grade 2 students:
Key Ideas and Details		
1. With prompting and support, ask and answer questions about key details in a text.	1. Ask and answer questions about key details in a text.	1. Ask and answer such questions as *who, what, where, when, why,* and *how* to demonstrate understanding of key details in a text.
2. With prompting and support, identify the main topic and retell key details of a text.	2. Identify the main topic and retell key details of a text.	2. Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
3. With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.	3. Describe the connection between two individuals, events, ideas, or pieces of information in a text.	3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
Craft and Structure		
4. With prompting and support, ask and answer questions about unknown words in a text.	4. Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.	4. Determine the meaning of words and phrases in a text relevant to a *grade 2 topic or subject area*.
5. Identify the front cover, back cover, and title page of a book.	5. Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	5. Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.
6. Name the author and illustrator of a text and define the role of each in presenting the ideas or information in a text.	6. Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.	6. Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
Integration of Knowledge and Ideas		
7. With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).	7. Use the illustrations and details in a text to describe its key ideas.	7. Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
8. With prompting and support, identify the reasons an author gives to support points in a text.	8. Identify the reasons an author gives to support points in a text.	8. Describe how reasons support specific points the author makes in a text.
9. With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).	9. Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).	9. Compare and contrast the most important points presented by two texts on the same topic.
Range of Reading and Level of Text Complexity		
10. Actively engage in group reading activities with purpose and understanding.	10. With prompting and support, read informational texts appropriately complex for grade 1.	10. By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Reading Standards for Informational Text K–5

RI

Grade 3 students:		Grade 4 students:		Grade 5 students:	
Key Ideas and Details					
1.	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	1.	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	1.	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
2.	Determine the main idea of a text; recount the key details and explain how they support the main idea.	2.	Determine the main idea of a text and explain how it is supported by key details; summarize the text.	2.	Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
3.	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	3.	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	3.	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
Craft and Structure					
4.	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 3 topic or subject area*.	4.	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.	4.	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*.
5.	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.	5.	Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.	5.	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
6.	Distinguish their own point of view from that of the author of a text.	6.	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.	6.	Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.
Integration of Knowledge and Ideas					
7.	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).	7.	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.	7.	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
8.	Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).	8.	Explain how an author uses reasons and evidence to support particular points in a text.	8.	Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
9.	Compare and contrast the most important points and key details presented in two texts on the same topic.	9.	Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.	9.	Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
Range of Reading and Level of Text Complexity					
10.	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently.	10.	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.	10.	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.

Reading Standards: Foundational Skills (K–5)

RF

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These foundational skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: good readers will need much less practice with these concepts than struggling readers will. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

Note: In kindergarten, children are expected to demonstrate increasing awareness and competence in the areas that follow.

Kindergartners:	Grade 1 students:
Print Concepts	
1. Demonstrate understanding of the organization and basic features of print. a. Follow words from left to right, top to bottom, and page by page. b. Recognize that spoken words are represented in written language by specific sequences of letters. c. Understand that words are separated by spaces in print. d. Recognize and name all upper- and lowercase letters of the alphabet.	1. Demonstrate understanding of the organization and basic features of print. a. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
Phonological Awareness	
2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes). a. Recognize and produce rhyming words. b. Count, pronounce, blend, and segment syllables in spoken words. c. Blend and segment onsets and rimes of single-syllable spoken words. d. Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonent-vowel-consonent, or CVC) words.* (This does not include CVCs ending with /l/, /r/, or /x/.) e. Add or substitute individual sounds (phonemes) in simple, one-syllable words to make new words.	2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes). a. Distinguish long from short vowel sounds in spoken single-syllable words. b. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends. c. Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words. d. Segment spoken single-syllable words into their complete sequence of individual sounds (phonemes).

*Words, syllables, or phonemes written in /slashes/refer to their pronunciation or phonology.
Thus, /CVC/ is a word with three phonemes regardless of the number of letters in the spelling of the word.

Reading Standards: Foundational Skills (K–5)

RF

Note: In kindergarten children are expected to demonstrate increasing awareness and competence in the areas that follow.

Kindergartners:	Grade 1 students:	Grade 2 students:
Phonics and Word Recognition		
3. Know and apply grade-level phonics and word analysis skills in decoding words. a. Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary or many of the most frequent sound for each consonant. b. Associate the long and short sounds with common spellings (graphemes) for the five major vowels. c. Read common high-frequency words by sight (e.g., *the*, *of*, *to*, *you*, *she*, *my*, *is*, *are*, *do*, *does*). d. Distinguish between similarly spelled words by identifying the sounds of the letters that differ.	3. Know and apply grade-level phonics and word analysis skills in decoding words. a. Know the spelling-sound correspondences for common consonant digraphs. b. Decode regularly spelled one-syllable words. c. Know final -e and common vowel team conventions for representing long vowel sounds. d. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word. e. Decode two-syllable words following basic patterns by breaking the words into syllables. f. Read words with inflectional endings. g. Recognize and read grade-appropriate irregularly spelled words.	3. Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words. b. Know spelling-sound correspondences for additional common vowel teams. c. Decode regularly spelled two-syllable words with long vowels. d. Decode words with common prefixes and suffixes. e. Identify words with inconsistent but common spelling-sound correspondences. f. Recognize and read grade-appropriate irregularly spelled words.
Fluency		
4. Read emergent-reader texts with purpose and understanding.	4. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	4. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Reading Standards: Foundational Skills (K–5)

RF

Grade 3 students:	Grade 4 students:	Grade 5 students:
Phonics and Word Recognition		
3. Know and apply grade-level phonics and word analysis skills in decoding words. a. Identify and know the meaning of the most common prefixes and derivational suffixes. b. Decode words with common Latin suffixes. c. Decode multisyllable words. d. Read grade-appropriate irregularly spelled words.	3. Know and apply grade-level phonics and word analysis skills in decoding words. a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.	3. Know and apply grade-level phonics and word analysis skills in decoding words. a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
Fluency		
4. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	4. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	4. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

College and Career Readiness Anchor Standards for Writing

The K–5 standards on the following pages define what students should understand and be able to do by the end of each grade. They correspond to the College and Career Readiness (CCR) anchor standards below by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Text Types and Purposes*

1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

Production and Distribution of Writing

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Research to Build and Present Knowledge

7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

*These broad types of writing include many subgenres. See Appendix A for definitions of key writing types.

Note on range and content of student writing

To build a foundation for college and career readiness, students need to learn to use writing as a way of offering and supporting opinions, demonstrating understanding of the subjects they are studying, and conveying real and imagined experiences and events. They learn to appreciate that a key purpose of writing is to communicate clearly to an external, sometimes unfamiliar audience, and they begin to adapt the form and content of their writing to accomplish a particular task and purpose. They develop the capacity to build knowledge on a subject through research projects and to respond analytically to literary and informational sources. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and extended time frames throughout the year.

Writing Standards K–5

W

The following standards for K–5 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.* The expected growth in student writing ability is reflected both in the standards themselves and in the collection of annotated student writing samples in Appendix C.

Kindergartners:	Grade 1 students:	Grade 2 students:
Text Types and Purposes		
1. Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., *My favorite book is . . .*).	1. Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.	1. Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., *because*, *and*, *also*) to connect opinion and reasons, and provide a concluding statement or section.
2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.	2. Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.	2. Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.
3. Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.	3. Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.	3. Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.
Production and Distribution of Writing		
4. (Begins in grade 3)	4. (Begins in grade 3)	4. (Begins in grade 3)
5. With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.	5. With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed.	5. With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.
6. With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.	6. With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.	6. With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
Research to Build and Present Knowledge		
7. Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).	7. Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).	7. Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
8. With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.	8. With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.	8. Recall information from experiences or gather information from provided sources to answer a question.
9. (Begins in grade 4)	9. (Begins in grade 4)	9. (Begins in grade 4)
Range of Writing		
10. (Begins in grade 3)	10. (Begins in grade 3)	10. (Begins in grade 3)

Writing Standards K–5

W

Grade 3 students:	Grade 4 students:	Grade 5 students:
Text Types and Purposes		
1. Write opinion pieces on topics or texts, supporting a point of view with reasons. a. Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons. b. Provide reasons that support the opinion. c. Use linking words and phrases (e.g., *because*, *therefore*, *since*, *for example*) to connect opinion and reasons. d. Provide a concluding statement or section.	1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information. a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose. b. Provide reasons that are supported by facts and details. c. Link opinion and reasons using words and phrases (e.g., *for instance*, *in order to*, *in addition*). d. Provide a concluding statement or section related to the opinion presented.	1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information. a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose. b. Provide logically ordered reasons that are supported by facts and details. c. Link opinion and reasons using words, phrases, and clauses (e.g., *consequently*, *specifically*). d. Provide a concluding statement or section related to the opinion presented.
2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic and group related information together; include illustrations when useful to aiding comprehension. b. Develop the topic with facts, definitions, and details. c. Use linking words and phrases (e.g., *also*, *another*, *and*, *more*, *but*) to connect ideas within categories of information. d. Provide a concluding statement or section.	2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c. Link ideas within categories of information using words and phrases (e.g., *another*, *for example*, *also*, *because*). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section related to the information or explanation presented.	2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c. Link ideas within and across categories of information using words, phrases, and clauses (e.g., *in contrast*, *especially*). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section related to the information or explanation presented.
3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally. b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations. c. Use temporal words and phrases to signal event order. d. Provide a sense of closure.	3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a. Orient the reader by establishing a situationand introducing a narrator and/or characters; organize an event sequence that unfolds naturally. b. Use dialogue and description to develop experiences and events or show the responses of characters to situations. c. Use a variety of transitional words and phrases to manage the sequence of events. d. Use concrete words and phrases and sensory details to convey experiences and events precisely. e. Provide a conclusion that follows from the narrated experiences or events.	3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. b. Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations. c. Use a variety of transitional words, phrases, and clauses to manage the sequence of events. d. Use concrete words and phrases and sensory details to convey experiences and events precisely. e. Provide a conclusion that follows from the narrated experiences or events.

Writing Standards K–5

Grade 3 students:	Grade 4 students:	Grade 5 students:
Production and Distribution of Writing		
4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 3 on pages 28 and 29.)	5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 4 on pages 28 and 29.)	5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 5 on pages 28 and 29.)
6. With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.	6. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	6. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.
Research to Build and Present Knowledge		
7. Conduct short research projects that build knowledge about a topic.	7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.	7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
8. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.	8. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.	8. Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
9. (Begins in grade 4)	9. Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grade 4 Reading standards* to literature (e.g., "Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character's thoughts, words, or actions]."). b. Apply *grade 4 Reading standards* to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text").	9. Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grade 5 Reading standards* to literature (e.g., "Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]"). b. Apply *grade 5 Reading standards* to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]").
Range of Writing		
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

College and Career Readiness Anchor Standards for Speaking and Listening

The K–5 standards on the following pages define what students should understand and be able to do by the end of each grade. They correspond to the College and Career Readiness (CCR) anchor standards below by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Comprehension and Collaboration

1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

Presentation of Knowledge and Ideas

4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Note on range and content of student speaking and listening

To build a foundation for college and career readiness, students must have ample opportunities to take part in a variety of rich, structured conversations—as part of a whole class, in small groups, and with a partner. Being productive members of these conversations requires that students contribute accurate, relevant information; respond to and develop what others have said; make comparisons and contrasts; and analyze and synthesize a multitude of ideas in various domains.

New technologies have broadened and expanded the role that speaking and listening play in acquiring and sharing knowledge and have tightened their link to other forms of communication. Digital texts confront students with the potential for continually updated content and dynamically changing combinations of words, graphics, images, hyperlinks, and embedded video and audio.

Speaking and Listening Standards K–5

SL

The following standards for K–5 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.*

Kindergartners:	Grade 1 students:	Grade 2 students:
Comprehension and Collaboration		
1. Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.	1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. c. Ask questions to clear up any confusion about the topics and texts under discussion.	1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by linking their comments to the remarks of others. c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.	2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.	2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.	3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.	3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
Presentation of Knowledge and Ideas		
4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.	4. Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.	4. Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
5. Add drawings or other visual displays to descriptions as desired to provide additional detail.	5. Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.	5. Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
6. Speak audibly and express thoughts, feelings, and ideas clearly.	6. Produce complete sentences when appropriate to task and situation. (See grade 1 Language standards 1 and 3 on page 26 for specific expectations.)	6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 2 Language standards 1 and 3 on pages 26 and 27 for specific expectations.)

Speaking and Listening Standards K–5

SL

Grade 3 students:	Grade 4 students:	Grade 5 students:
Comprehension and Collaboration		
1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others. d. Explain their own ideas and understanding in light of the discussion.	1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions and carry out assigned roles. c. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others. d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.	1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions and carry out assigned roles. c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others. d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.	3. Identify the reasons and evidence a speaker provides to support particular points.	3. Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.
Presentation of Knowledge and Ideas		
4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	4. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
5. Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.	5. Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.	5. Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 on pages 28 and 29 for specific expectations.)	6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standards 1 on pages 28 and 29 for specific expectations.)	6. Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See grade 5 Language standards 1 and 3 on pages 28 and 29 for specific expectations.)

College and Career Readiness Anchor Standards for Language

The K–5 standards on the following pages define what students should understand and be able to do by the end of each grade. They correspond to the College and Career Readiness (CCR) anchor standards below by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Conventions of Standard English

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Knowledge of Language

3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Vocabulary Acquisition and Use

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Note on range and content of student language use

To build a foundation for college and career readiness in language, students must gain control over many conventions of standard English grammar, usage, and mechanics as well as learn other ways to use language to convey meaning effectively. They must also be able to determine or clarify the meaning of grade-appropriate words encountered through listening, reading, and media use; come to appreciate that words have nonliteral meanings, shadings of meaning, and relationships to other words; and expand their vocabulary in the course of studying content. The inclusion of Language standards in their own strand should not be taken as an indication that skills related to conventions, effective language use, and vocabulary are unimportant to reading, writing, speaking, and listening; indeed, they are inseparable from such contexts.

Language Standards K–5

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The following standards for grades K–5 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. *Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.* Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*). See the table on page 30 for a complete list and Appendix A for an example of how these skills develop in sophistication.

Kindergartners:	Grade 1 students:	Grade 2 students:
Conventions of Standard English		
1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Print many upper- and lowercase letters. b. Use frequently occurring nouns and verbs. c. Form regular plural nouns orally by adding /s/ or /es/ (e.g., *dog, dogs*; *wish, wishes*). d. Understand and use question words (interrogatives) (e.g., *who, what, where, when, why, how*). e. Use the most frequently occurring prepositions (e.g., *to, from, in, out, on, off, for, of, by, with*). f. Produce and expand complete sentences in shared language activities.	1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Print all upper- and lowercase letters. b. Use common, proper, and possessive nouns. c. Use singular and plural nouns with matching verbs in basic sentences (e.g., *He hops*; *We hop*). d. Use personal, possessive, and indefinite pronouns (e.g., *I, me, my; they, them, their; anyone, everything*). e. Use verbs to convey a sense of past, present, and future (e.g., *Yesterday I walked home; Today I walk home; Tomorrow I will walk home*). f. Use frequently occurring adjectives. g. Use frequently occurring conjunctions (e.g., *and, but, or, so, because*). h. Use determiners (e.g., articles, demonstratives). i. Use frequently occurring prepositions (e.g., *during, beyond, toward*). j. Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to prompts.	1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Use collective nouns (e.g., *group*). b. Form and use frequently occurring irregular plural nouns (e.g., *feet, children, teeth, mice, fish*). c. Use reflexive pronouns (e.g., *myself, ourselves*). d. Form and use the past tense of frequently occurring irregular verbs (e.g., *sat, hid, told*). e. Use adjectives and adverbs, and choose between them depending on what is to be modified. f. Produce, expand, and rearrange complete simple and compound sentences (e.g., *The boy watched the movie; The little boy watched the movie; The action movie was watched by the little boy*).
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize the first word in a sentence and the pronoun *I*. b. Recognize and name end punctuation. c. Write a letter or letters for most consonant and short-vowel sounds (phonemes). d. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.	2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize dates and names of people. b. Use end punctuation for sentences. c. Use commas in dates and to separate single words in a series. d. Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words. e. Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.	2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize holidays, product names, and geographic names. b. Use commas in greetings and closings of letters. c. Use an apostrophe to form contractions and frequently occurring possessives. d. Generalize learned spelling patterns when writing words (e.g., cage → badge; boy → boil). e. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.

Language Standards K–5

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Kindergartners:	Grade 1 students:	Grade 2 students:
Knowledge of Language		
3. (Begins in grade 2)	3. (Begins in grade 2)	3. Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Compare formal and informal uses of English.
Vocabulary Acquisition and Use		
4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content.* a. Identify new meanings for familiar words and apply them accurately (e.g., knowing *duck* is a bird and learning the verb *to duck*). b. Use the most frequently occurring inflections and affixes (e.g., *-ed*, *-s*, *re-*, *un-*, *pre-*, *-ful*, *-less*) as a clue to the meaning of an unknown word.	4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Use frequently occurring affixes as a clue to the meaning of a word. c. Identify frequently occurring root words (e.g., *look*) and their inflectional forms (e.g., *looks*, *looked*, *looking*).	4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., *happy/unhappy*, *tell/retell*). c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *addition*, *additional*). d. Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., *birdhouse, lighthouse, housefly; bookshelf, notebook, bookmark*). e. Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.
5. With guidance and support from adults, explore word relationships and nuances in word meanings. a. Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent. b. Demonstrate understanding of frequently occurring verbs and adjectives by relating them to their opposites (antonyms). c. Identify real-life connections between words and their use (e.g., note places at school that are *colorful*). d. Distinguish shades of meaning among verbs describing the same general action (e.g., *walk, march, strut, prance*) by acting out the meanings.	5. With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings. a. Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent. b. Define words by category and by one or more key attributes (e.g., a *duck* is a bird that swims; a *tiger* is a large cat with stripes). c. Identify real-life connections between words and their use (e.g., note places at home that are *cozy*). d. Distinguish shades of meaning among verbs differing in manner (e.g., *look, peek, glance, stare, glare, scowl*) and adjectives differing in intensity (e.g., *large, gigantic*) by defining or choosing them or by acting out the meanings.	5. Demonstrate understanding of word relationships and nuances in word meanings. a. Identify real-life connections between words and their use (e.g., describe foods that are *spicy* or *juicy*). b. Distinguish shades of meaning among closely related verbs (e.g., *toss, throw, hurl*) and closely related adjectives (e.g., *thin, slender, skinny, scrawny*).
6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.	6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).	6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

Language Standards K–5

L

Grade 3 students:	Grade 4 students:	Grade 5 students:
Conventions of Standard English		
1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences. b. Form and use regular and irregular plural nouns. c. Use abstract nouns (e.g., *childhood*). d. Form and use regular and irregular verbs. e. Form and use the simple (e.g., *I walked; I walk; I will walk*) verb tenses. f. Ensure subject-verb and pronoun-antecedent agreement.* g. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified. h. Use coordinating and subordinating conjunctions. i. Produce simple, compound, and complex sentences.	1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Use relative pronouns (*who, whose, whom, which, that*) and relative adverbs (*where, when, why*). b. Form and use the progressive (e.g., *I was walking; I am walking; I will be walking*) verb tenses. c. Use modal auxiliaries (e.g., *can, may, must*) to convey various conditions. d. Order adjectives within sentences according to conventional patterns (e.g., *a small red bag* rather than *a red small bag*). e. Form and use prepositional phrases. f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.* g. Correctly use frequently confused words (e.g., *to, too, two; there, their*).*	1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences. b. Form and use the perfect (e.g., *I had walked; I have walked; I will have walked*) verb tenses. c. Use verb tense to convey various times, sequences, states, and conditions. d. Recognize and correct inappropriate shifts in verb tense.* e. Use correlative conjunctions (e.g., *either/or, neither/nor*).
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize appropriate words in titles. b. Use commas in addresses. c. Use commas and quotation marks in dialogue. d. Form and use possessives. e. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., *sitting, smiled, cries, happiness*). f. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words. g. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.	2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use correct capitalization. b. Use commas and quotation marks to mark direct speech and quotations from a text. c. Use a comma before a coordinating conjunction in a compound sentence. d. Spell grade-appropriate words correctly, consulting references as needed.	2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use punctuation to separate items in a series.* b. Use a comma to separate an introductory element from the rest of the sentence. c. Use a comma to set off the words *yes* and *no* (e.g., *Yes, thank you*), to set off a tag question from the rest of the sentence (e.g., *It's true, isn't it?*), and to indicate direct address (e.g., *Is that you, Steve?*). d. Use underlining, quotation marks, or italics to indicate titles of works. e. Spell grade-appropriate words correctly, consulting references as needed.

Language Standards K–5

L

Grade 3 students:	Grade 4 students:	Grade 5 students:
Knowledge of Language		
3. Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Choose words and phrases for effect.* b. Recognize and observe differences between the conventions of spoken and written standard English.	3. Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Choose words and phrases to convey ideas precisely.* b. Choose punctuation for effect.* c. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).	3. Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style. b. Compare and contrast the varieties of English (e.g., dialects, registers) used in stories, dramas, or poems.
Vocabulary Acquisition and Use		
4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content,* choosing flexibly from a range of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., *agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat*). c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *company, companion*). d. Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.	4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 4 reading and content,* choosing flexibly from a range of strategies. a. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *telegraph, photograph, autograph*). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.	4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 5 reading and content,* choosing flexibly from a range of strategies. a. Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *photograph, photosynthesis*). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
5. Demonstrate understanding of word relationships and nuances in word meanings. a. Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., *take steps*). b. Identify real-life connections between words and their use (e.g., describe people who are *friendly* or *helpful*). c. Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., *knew, believed, suspected, heard, wondered*).	5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Explain the meaning of simple similes and metaphors (e.g., *as pretty as a picture*) in context. b. Recognize and explain the meaning of common idioms, adages, and proverbs. c. Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).	5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figurative language, including similes and metaphors, in context. b. Recognize and explain the meaning of common idioms, adages, and proverbs. c. Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.
6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).	6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., *quizzed, whined, stammered*) and that are basic to a particular topic (e.g., *wildlife, conservation,* and *endangered* when discussing animal preservation).	6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., *however, although, nevertheless, similarly, moreover, in addition*).

Language Progressive Skills, by Grade

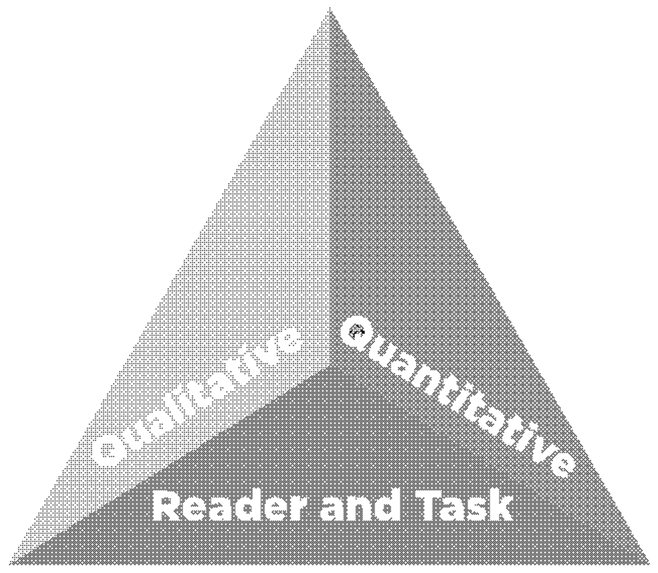
The following skills, marked with an asterisk (*) in Language standards 1–3, are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking.

Standard	Grade(s)							
	3	4	5	6	7	8	9–10	11–12
L.3.1f. Ensure subject-verb and pronoun-antecedent agreement.								
L.3.3a. Choose words and phrases for effect.								
L.4.1f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.								
L.4.1g. Correctly use frequently confused words (e.g., *to/too/two; there/their*).								
L.4.3a. Choose words and phrases to convey ideas precisely.*								
L.4.3b. Choose punctuation for effect.								
L.5.1d. Recognize and correct inappropriate shifts in verb tense.								
L.5.2a. Use punctuation to separate items in a series.†								
L.6.1c. Recognize and correct inappropriate shifts in pronoun number and person.								
L.6.1d. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).								
L.6.1e. Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.								
L.6.2a. Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.								
L.6.3a. Vary sentence patterns for meaning, reader/listener interest, and style.‡								
L.6.3b. Maintain consistency in style and tone.								
L.7.1c. Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.								
L.7.3a. Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.								
L.8.1d. Recognize and correct inappropriate shifts in verb voice and mood.								
L.9–10.1a. Use parallel structure.								

*Subsumed by L.7.3a
†Subsumed by L.9–10.1a
‡Subsumed by L.11–12.3a

Standard 10: Range, Quality, and Complexity of Student Reading K–5

Measuring Text Complexity: Three Factors



Qualitative evaluation of the text: Levels of meaning, structure, language conventionality and clarity, and knowledge demands

Quantitative evaluation of the text: Readability measures and other scores of text complexity

Matching reader to text and task: Reader variables (such as motivation, knowledge, and experiences) and task variables (such as purpose and the complexity generated by the task assigned and the questions posed)

Note: More detailed information on text complexity and how it is measured is contained in Appendix A.

Range of Text Types for K–5

Students in K–5 apply the Reading standards to the following range of text types, with texts selected from a broad range of cultures and periods.

Literature			Informational Text
Stories	**Dramas**	**Poetry**	**Literary Nonfiction and Historical, Scientific, and Technical Texts**
Includes children's adventure stories, folktales, legends, fables, fantasy, realistic fiction, and myth	Includes staged dialogue and brief familiar scenes	Includes nursery rhymes and the subgenres of the narrative poem, limerick, and free verse poem	Includes biographies and autobiographies; books about history, social studies, science, and the arts; technical texts, including directions, forms, and information displayed in graphs, charts, or maps; and digital sources on a range of topics

* Read-aloud
** Read-along

Texts Illustrating the Complexity, Quality, and Range of Student Reading K–5

	Literature: Stories, Drama, Poetry	Informational Texts: Literary Nonfiction and Historical, Scientific, and Technical Texts
K*	▪ *Over in the Meadow* by John Langstaff (traditional) (c1800)* ▪ *A Boy, a Dog, and a Frog* by Mercer Mayer (1967) ▪ *Pancakes for Breakfast* by Tomie DePaola (1978) ▪ *A Story, A Story* by Gail E. Haley (1970)* ▪ *Kitten's First Full Moon* by Kevin Henkes (2004)*	▪ *My Five Senses* by Aliki (1962)** ▪ *Truck* by Donald Crews (1980) ▪ *I Read Signs* by Tana Hoban (1987) ▪ *What Do You Do With a Tail Like This?* by Steve Jenkins and Robin Page (2003)* ▪ *Amazing Whales!* by Sarah L. Thomson (2005)*
1*	▪ "Mix a Pancake" by Christina G. Rossetti (1893)** ▪ *Mr. Popper's Penguins* by Richard Atwater (1938)* ▪ *Little Bear* by Else Holmelund Minarik, illustrated by Maurice Sendak (1957)** ▪ *Frog and Toad Together* by Arnold Lobel (1971)** ▪ *Hi! Fly Guy* by Tedd Arnold (2006)	▪ *A Tree Is a Plant* by Clyde Robert Bulla, illustrated by Stacey Schuett (1960)** ▪ *Starfish* by Edith Thacher Hurd (1962) ▪ *Follow the Water from Brook to Ocean* by Arthur Dorros (1991)** ▪ *From Seed to Pumpkin* by Wendy Pfeffer, illustrated by James Graham Hale (2004)* ▪ *How People Learned to Fly* by Fran Hodgkins and True Kelley (2007)*
2–3	▪ "Who Has Seen the Wind?" by Christina G. Rossetti (1893) ▪ *Charlotte's Web* by E. B. White (1952)* ▪ *Sarah, Plain and Tall* by Patricia MacLachlan (1985) ▪ *Tops and Bottoms* by Janet Stevens (1995) ▪ *Poppleton in Winter* by Cynthia Rylant, illustrated by Mark Teague (2001)	▪ *A Medieval Feast* by Aliki (1983) ▪ *From Seed to Plant* by Gail Gibbons (1991) ▪ *The Story of Ruby Bridges* by Robert Coles (1995)* ▪ *A Drop of Water: A Book of Science and Wonder* by Walter Wick (1997) ▪ *Moonshot: The Flight of Apollo 11* by Brian Floca (2009)
4–5	▪ *Alice's Adventures in Wonderland* by Lewis Carroll (1865) ▪ "Casey at the Bat" by Ernest Lawrence Thayer (1888) ▪ *The Black Stallion* by Walter Farley (1941) ▪ "Zlateh the Goat" by Isaac Bashevis Singer (1984) ▪ *Where the Mountain Meets the Moon* by Grace Lin (2009)	▪ *Discovering Mars: The Amazing Story of the Red Planet* by Melvin Berger (1992) ▪ *Hurricanes: Earth's Mightiest Storms* by Patricia Lauber (1996) ▪ *A History of US* by Joy Hakim (2005) ▪ *Horses* by Seymour Simon (2006) ▪ *Quest for the Tree Kangaroo: An Expedition to the Cloud Forest of New Guinea* by Sy Montgomery (2006)

Note: Given space limitations, the illustrative texts listed above are meant only to show individual titles that are representative of a wide range of topics and genres. (See Appendix B for excerpts of these and other texts illustrative of K–5 text complexity, quality, and range.) At a curricular or instructional level, within and across grade levels, texts need to be selected around topics or themes that generate knowledge and allow students to study those topics or themes in depth. On the next page is an example of progressions of texts building knowledge across grade levels.

*Children at the kindergarten and grade 1 levels should be expected to read texts independently that have been specifically written to correlate to their reading level and their word knowledge. Many of the titles listed above are meant to supplement carefully structured independent reading with books to read along with a teacher or that are read aloud to students to build knowledge and cultivate a joy in reading.

Staying on Topic Within a Grade and Across Grades: How to Build Knowledge Systematically in English Language Arts K–5

Building knowledge systematically in English language arts is like giving children various pieces of a puzzle in each grade that, over time, will form one big picture. At a curricular or instructional level, texts—within and across grade levels—need to be selected around topics or themes that systematically develop the knowledge base of students. Within a grade level, there should be an adequate number of titles on a single topic that would allow children to study that topic for a sustained period. The knowledge children have learned about particular topics in early grade levels should then be expanded and developed in subsequent grade levels to ensure an increasingly deeper understanding of these topics. Children in the upper elementary grades will generally be expected to read these texts independently and reflect on them in writing. However, children in the early grades (particularly K–2) should participate in rich, structured conversations with an adult in response to the written texts that are read aloud, orally comparing and contrasting as well as analyzing and synthesizing, in the manner called for by the *Standards*.

Preparation for reading complex informational texts should begin at the very earliest elementary school grades. What follows is one example that uses domain-specific nonfiction titles across grade levels to illustrate how curriculum designers and classroom teachers can infuse the English language arts block with rich, age-appropriate content knowledge and vocabulary in history/social studies, science, and the arts. Having students listen to informational read-alouds in the early grades helps lay the necessary foundation for students' reading and understanding of increasingly complex texts on their own in subsequent grades.

Exemplar Texts on a Topic Across Grades	K	1	2–3	4–5
The Human Body **Students can begin learning about the human body starting in kindergarten and then review and extend their learning during each subsequent grade.**	**The five senses and associated body parts** • *My Five Senses* by Aliki (1989) • *Hearing* by Maria Rius (1985) • *Sight* by Maria Rius (1985) • *Smell* by Maria Rius (1985) • *Taste* by Maria Rius (1985) • *Touch* by Maria Rius (1985) **Taking care of your body: Overview (hygiene, diet, exercise, rest)** • *My Amazing Body: A First Look at Health & Fitness* by Pat Thomas (2001) • *Get Up and Go!* by Nancy Carlson (2008) • *Go Wash Up* by Doering Tourville (2008) • *Sleep* by Paul Showers (1997) • *Fuel the Body* by Doering Tourville (2008)	**Introduction to the systems of the human body and associated body parts** • *Under Your Skin: Your Amazing Body* by Mick Manning (2007) • *Me and My Amazing Body* by Joan Sweeney (1999) • *The Human Body* by Gallimard Jeunesse (2007) • *The Busy Body Book* by Lizzy Rockwell (2008) • *First Encyclopedia of the Human Body* by Fiona Chandler (2004) **Taking care of your body: Germs, diseases, and preventing illness** • *Germs Make Me Sick* by Marilyn Berger (1995) • *Tiny Life on Your Body* by Christine Taylor-Butler (2005) • *Germ Stories* by Arthur Kornberg (2007) • *All About Scabs* by GenichiroYagu (1998)	**Digestive and excretory systems** • *What Happens to a Hamburger* by Paul Showers (1985) • *The Digestive System* by Christine Taylor-Butler (2008) • *The Digestive System* by Rebecca L. Johnson (2006) • *The Digestive System* by Kristin Petrie (2007) **Taking care of your body: Healthy eating and nutrition** • *Good Enough to Eat* by Lizzy Rockwell (1999) • *Showdown at the Food Pyramid* by Rex Barron (2004) **Muscular, skeletal, and nervous systems** • *The Mighty Muscular and Skeletal Systems* Crabtree Publishing (2009) • *Muscles* by Seymour Simon (1998) • *Bones* by Seymour Simon (1998) • *The Astounding Nervous System* Crabtree Publishing (2009) • *The Nervous System* by Joelle Riley (2004)	**Circulatory system** • *The Heart* by Seymour Simon (2006) • *The Heart and Circulation* by Carol Ballard (2005) • *The Circulatory System* by Kristin Petrie (2007) • *The Amazing Circulatory System* by John Burstein (2009) **Respiratory system** • *The Lungs* by Seymour Simon (2007) • *The Respiratory System* by Susan Glass (2004) • *The Respiratory System* by Kristin Petrie (2007) • *The Remarkable Respiratory System* by John Burstein (2009) **Endocrine system** • *The Endocrine System* by Rebecca Olien (2006) • *The Exciting Endocrine System* by John Burstein (2009)

COMMON CORE STATE STANDARDS FOR

Mathematics

Table of Contents

Introduction

Toward greater focus and coherence

> *Mathematics experiences in early childhood settings should concentrate on (1) number (which includes whole number, operations, and relations) and (2) geometry, spatial relations, and measurement, with more mathematics learning time devoted to number than to other topics. Mathematical process goals should be integrated in these content areas.*
>
> — Mathematics Learning in Early Childhood, National Research Council, 2009

> *The composite standards [of Hong Kong, Korea and Singapore] have a number of features that can inform an international benchmarking process for the development of K–6 mathematics standards in the U.S. First, the composite standards concentrate the early learning of mathematics on the number, measurement, and geometry strands with less emphasis on data analysis and little exposure to algebra. The Hong Kong standards for grades 1–3 devote approximately half the targeted time to numbers and almost all the time remaining to geometry and measurement.*
>
> — Ginsburg, Leinwand and Decker, 2009

> *Because the mathematics concepts in [U.S.] textbooks are often weak, the presentation becomes more mechanical than is ideal. We looked at both traditional and non-traditional textbooks used in the US and found this conceptual weakness in both.*
>
> — Ginsburg et al., 2005

> *There are many ways to organize curricula. The challenge, now rarely met, is to avoid those that distort mathematics and turn off students.*
>
> — Steen, 2007

For over a decade, research studies of mathematics education in high-performing countries have pointed to the conclusion that the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country. To deliver on the promise of common standards, the standards must address the problem of a curriculum that is "a mile wide and an inch deep." These Standards are a substantial answer to that challenge.

It is important to recognize that "fewer standards" are no substitute for focused standards. Achieving "fewer standards" would be easy to do by resorting to broad, general statements. Instead, these Standards aim for clarity and specificity.

Assessing the coherence of a set of standards is more difficult than assessing their focus. William Schmidt and Richard Houang (2002) have said that content standards and curricula are coherent if they are:

> *articulated over time as a sequence of topics and performances that are logical and reflect, where appropriate, the sequential or hierarchical nature of the disciplinary content from which the subject matter derives. That is, what and how students are taught should reflect not only the topics that fall within a certain academic discipline, **but also the key ideas** that determine how knowledge is organized and generated within that discipline. This implies*

> *that to be coherent, a set of content standards must evolve from particulars (e.g., the meaning and operations of whole numbers, including simple math facts and routine computational procedures associated with whole numbers and fractions) to deeper structures inherent in the discipline. These deeper structures then serve as a means for connecting the particulars (such as an understanding of the rational number system and its properties).* (emphasis added)

These Standards endeavor to follow such a design, not only by stressing conceptual understanding of key ideas, but also by continually returning to organizing principles such as place value or the properties of operations to structure those ideas.

In addition, the "sequence of topics and performances" that is outlined in a body of mathematics standards must also respect what is known about how students learn. As Confrey (2007) points out, developing "sequenced obstacles and challenges for students...absent the insights about meaning that derive from careful study of learning, would be unfortunate and unwise." In recognition of this, the development of these Standards began with research-based learning progressions detailing what is known today about how students' mathematical knowledge, skill, and understanding develop over time.

Understanding mathematics

These Standards define what students should understand and be able to do in their study of mathematics. Asking a student to understand something means asking a teacher to assess whether the student has understood it. But what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, *why* a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between a student who can summon a mnemonic device to expand a product such as $(a + b)(x + y)$ and a student who can explain where the mnemonic comes from. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding $(a + b + c)(x + y)$. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

The Standards set grade-specific standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. It is also beyond the scope of the Standards to define the full range of supports appropriate for English language learners and for students with special needs. At the same time, all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary in their post-school lives. The Standards should be read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate accommodations to ensure maximum participaton of students with special education needs. For example, for students with disabilities reading should allow for use of Braille, screen reader technology, or other assistive devices, while writing should include the use of a scribe, computer, or speech-to-text technology. In a similar vein, speaking and listening should be interpreted broadly to include sign language. No set of grade-specific standards can fully reflect the great variety in abilities, needs, learning rates, and achievement levels of students in any given classroom. However, the Standards do provide clear signposts along the way to the goal of college and career readiness for all students.

The Standards begin on page 6 with eight Standards for Mathematical Practice.

How to read the grade level standards

Standards define what students should understand and be able to do.

Clusters are groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.

Domains are larger groups of related standards. Standards from different domains may sometimes be closely related.

Domain

Number and Operations in Base Ten **3.NBT**

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Standard

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Cluster

These Standards do not dictate curriculum or teaching methods. For example, just because topic A appears before topic B in the standards for a given grade, it does not necessarily mean that topic A must be taught before topic B. A teacher might prefer to teach topic B before topic A, or might choose to highlight connections by teaching topic A and topic B at the same time. Or, a teacher might prefer to teach a topic of his or her own choosing that leads, as a byproduct, to students reaching the standards for topics A and B.

What students can learn at any particular grade level depends upon what they have learned before. Ideally then, each standard in this document might have been phrased in the form, "Students who already know … should next come to learn …." But at present this approach is unrealistic—not least because existing education research cannot specify all such learning pathways. Of necessity therefore, grade placements for specific topics have been made on the basis of state and international comparisons and the collective experience and collective professional judgment of educators, researchers and mathematicians. One promise of common state standards is that over time they will allow research on learning progressions to inform and improve the design of standards to a much greater extent than is possible today. Learning opportunities will continue to vary across schools and school systems, and educators should make every effort to meet the needs of individual students based on their current understanding.

These Standards are not intended to be new names for old ways of doing business. They are a call to take the next step. It is time for states to work together to build on lessons learned from two decades of standards based reforms. It is time to recognize that standards are not just promises to our children, but promises we intend to keep.

Mathematics | Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

1 Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

2 Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3 Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions,

communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4 Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5 Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

6 Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

7 Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

8 Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

Connecting the Standards for Mathematical Practice to the Standards for Mathematical Content

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction.

The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices.

In this respect, those content standards which set an expectation of understanding are potential "points of intersection" between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit the time, resources, innovative energies, and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development, and student achievement in mathematics.

Mathematics | Kindergarten

In Kindergarten, instructional time should focus on two critical areas: (1) representing, relating, and operating on whole numbers, initially with sets of objects; (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

(1) Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as 5 + 2 = 7 and 7 – 2 = 5. (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

(2) Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

Grade K Overview

Counting and Cardinality

- **Know number names and the count sequence.**
- **Count to tell the number of objects.**
- **Compare numbers.**

Operations and Algebraic Thinking

- **Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**

Number and Operations in Base Ten

- **Work with numbers 11–19 to gain foundations for place value.**

Measurement and Data

- **Describe and compare measurable attributes.**
- **Classify objects and count the number of objects in categories.**

Geometry

- **Identify and describe shapes.**
- **Analyze, compare, create, and compose shapes.**

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Counting and Cardinality K.CC

Know number names and the count sequence.

1. Count to 100 by ones and by tens.
2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

Count to tell the number of objects.

4. Understand the relationship between numbers and quantities; connect counting to cardinality.
   a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
   b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
   c. Understand that each successive number name refers to a quantity that is one larger.
5. Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

Compare numbers.

6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.[1]
7. Compare two numbers between 1 and 10 presented as written numerals.

Operations and Algebraic Thinking K.OA

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

1. Represent addition and subtraction with objects, fingers, mental images, drawings[2], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
3. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
4. For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
5. Fluently add and subtract within 5.

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[1]Include groups with up to ten objects.
[2]Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.)

Number and Operations in Base Ten — K.NBT

Work with numbers 11–19 to gain foundations for place value.

1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Measurement and Data — K.MD

Describe and compare measurable attributes.

1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

2. Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

Classify objects and count the number of objects in each category.

3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[3]

Geometry — K.G

Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.

2. Correctly name shapes regardless of their orientations or overall size.

3. Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

Analyze, compare, create, and compose shapes.

4. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

6. Compose simple shapes to form larger shapes. *For example, "Can you join these two triangles with full sides touching to make a rectangle?"*

[3]Limit category counts to be less than or equal to 10.

Mathematics | Grade 1

In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

(1) Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., "making tens") to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

(2) Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

(3) Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.[1]

(4) Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

[1]Students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.

Grade 1 Overview

Operations and Algebraic Thinking

- **Represent and solve problems involving addition and subtraction.**
- **Understand and apply properties of operations and the relationship between addition and subtraction.**
- **Add and subtract within 20.**
- **Work with addition and subtraction equations.**

Number and Operations in Base Ten

- **Extend the counting sequence.**
- **Understand place value.**
- **Use place value understanding and properties of operations to add and subtract.**

Measurement and Data

- **Measure lengths indirectly and by iterating length units.**
- **Tell and write time.**
- **Represent and interpret data.**

Geometry

- **Reason with shapes and their attributes.**

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Operations and Algebraic Thinking 1.OA

Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.[2]

2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Understand and apply properties of operations and the relationship between addition and subtraction.

3. Apply properties of operations as strategies to add and subtract.[3] *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*

4. Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*

Add and subtract within 20.

5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

Work with addition and subtraction equations.

7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*

8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = □ – 3, 6 + 6 = □.*

Number and Operations in Base Ten 1.NBT

Extend the counting sequence.

1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Understand place value.

2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

   a. 10 can be thought of as a bundle of ten ones — called a "ten."

   b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

   c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

[2]See Glossary, Table 1.
[3]Students need not use formal terms for these properties.

3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Use place value understanding and properties of operations to add and subtract.

4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

6. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Measurement and Data 1.MD

Measure lengths indirectly and by iterating length units.

1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.

2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

Tell and write time.

3. Tell and write time in hours and half-hours using analog and digital clocks.

Represent and interpret data.

4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Geometry 1.G

Reason with shapes and their attributes.

1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.[4]

3. Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

[4]Students do not need to learn formal names such as "right rectangular prism."

Mathematics | Grade 2

In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

(1) Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

(2) Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

(3) Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

(4) Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Grade 2 Overview

Operations and Algebraic Thinking

- **Represent and solve problems involving addition and subtraction.**
- **Add and subtract within 20.**
- **Work with equal groups of objects to gain foundations for multiplication.**

Number and Operations in Base Ten

- **Understand place value.**
- **Use place value understanding and properties of operations to add and subtract.**

Measurement and Data

- **Measure and estimate lengths in standard units.**
- **Relate addition and subtraction to length.**
- **Work with time and money.**
- **Represent and interpret data.**

Geometry

- **Reason with shapes and their attributes.**

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Operations and Algebraic Thinking 2.OA

Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]

Add and subtract within 20.

2. Fluently add and subtract within 20 using mental strategies.[2] By end of Grade 2, know from memory all sums of two one-digit numbers.

Work with equal groups of objects to gain foundations for multiplication.

3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

Number and Operations in Base Ten 2.NBT

Understand place value.

1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

   a. 100 can be thought of as a bundle of ten tens — called a "hundred."

   b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

2. Count within 1000; skip-count by 5s, 10s, and 100s.

3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

Use place value understanding and properties of operations to add and subtract.

5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

6. Add up to four two-digit numbers using strategies based on place value and properties of operations.

7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

9. Explain why addition and subtraction strategies work, using place value and the properties of operations.[3]

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[1]See Glossary, Table 1.
[2]See standard 1.OA.6 for a list of mental strategies.
[3]Explanations may be supported by drawings or objects.

Measurement and Data 2.MD

Measure and estimate lengths in standard units.

1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
3. Estimate lengths using units of inches, feet, centimeters, and meters.
4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

Relate addition and subtraction to length.

5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
6. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

Work with time and money.

7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*

Represent and interpret data.

9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems[4] using information presented in a bar graph.

Geometry 2.G

Reason with shapes and their attributes.

1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[5] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

[4]See Glossary, Table 1.
[5]Sizes are compared directly or visually, not compared by measuring.

Mathematics | Grade 3

In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

(1) Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

(2) Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

(3) Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

(4) Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

Grade 3 Overview

Operations and Algebraic Thinking

- **Represent and solve problems involving multiplication and division.**
- **Understand properties of multiplication and the relationship between multiplication and division.**
- **Multiply and divide within 100.**
- **Solve problems involving the four operations, and identify and explain patterns in arithmetic.**

Number and Operations in Base Ten

- **Use place value understanding and properties of operations to perform multi-digit arithmetic.**

Number and Operations—Fractions

- **Develop understanding of fractions as numbers.**

Measurement and Data

- **Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.**
- **Represent and interpret data.**
- **Geometric measurement: understand concepts of area and relate area to multiplication and to addition.**
- **Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.**

Geometry

- **Reason with shapes and their attributes.**

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Operations and Algebraic Thinking 3.OA

Represent and solve problems involving multiplication and division.

1. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*

2. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*

3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]

4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = □ ÷ 3, 6 × 6 = ?.*

Understand properties of multiplication and the relationship between multiplication and division.

5. Apply properties of operations as strategies to multiply and divide.[2] *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*

6. Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*

Multiply and divide within 100.

7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.[3]

9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

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[1]See Glossary, Table 2.
[2]Students need not use formal terms for these properties.
[3]This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

Number and Operations in Base Ten — 3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.[4]

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Number and Operations—Fractions[5] — 3.NF

Develop understanding of fractions as numbers.

1. Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.
2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.
   a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.
   b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.
3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
   a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
   b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.
   c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*
   d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Measurement and Data — 3.MD

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

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[4]A range of algorithms may be used.
[5]Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.

2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[6] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[7]

Represent and interpret data.

3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

5. Recognize area as an attribute of plane figures and understand concepts of area measurement.

   a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.

   b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.

6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

7. Relate area to the operations of multiplication and addition.

   a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

   b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

   c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.

   d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

8. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

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[6]Excludes compound units such as cm^3 and finding the geometric volume of a container.

[7]Excludes multiplicative comparison problems (problems involving notions of "times as much"; see Glossary, Table 2).

Geometry	3.G

Reason with shapes and their attributes.

1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*

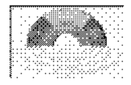
Ohio Revised Science Standards and Model Curriculum
Grades PreK through Eight

INDEX: Topics by Grade Level

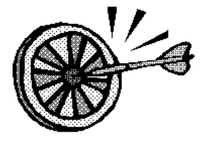
Legend

Environmental Literacy

Technology Literacy



21st Century Skills



Eye of Integration Example

Themes		The Physical Setting		The Living Environment	Science Inquiry and Applications
		Earth and Space Science	**Physical Science**	**Life Science**	
Observations of the Environment *This theme focuses on helping students develop the skills for systematic discovery to understand the science of the natural world around them in greater depth by using scientific inquiry.*	**P**	*Observations of both living and nonliving things in local surroundings. This includes water, the sun, rocks and soil, human-made materials and living organisms. This encourages the examination and exploration of the environment.*			*During the years of PreK to grade 4, all students must develop the ability to:* • *Observe and ask questions about the natural environment;* • *Plan and conduct simple investigations;* • *Employ simple equipment and tools to gather data and extend the senses;* • *Use appropriate mathematics with data to construct reasonable explanations;* • *Communicate about observations, investigations and explanations; and* • *Review and ask questions about the observations and explanations of others.*
		Observations of Nature	**Observations of Objects and Materials**	**Observation of Living Things**	
	K	*Living and nonliving things have specific physical properties that can be used to sort and classify. The physical properties of air and water are presented as they apply to weather.*			
		Daily and Seasonal Changes	**Properties of Everyday Objects and Materials**	**Physical and Behavioral Traits of Living Things**	
	1	*Energy is observed through movement, heating, cooling and the needs of living organisms.*			
		Sun, Energy and Weather	**Motion and Materials**	**Basic Needs of Living Things**	
	2	*Living and nonliving things may move. A moving object has energy. Air moving is wind and wind can make a windmill turn. Changes in energy and movement can cause change to organisms and the environment in which they live.*			
		The Atmosphere	**Changes in Motion**	**Interactions within Habitats**	
Interconnections within Systems *This theme focuses on helping students explore the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry.*	**3**	*Matter is what makes up all substances on Earth. Matter has specific properties and exists in different states Earth's resources are made of matter, can be used by living things and can be used for the energy they contain. There are many different forms of energy. Each living component of an ecosystem is composed of matter and uses energy.*			
		Earth's Resources	**Matter and Forms of Energy**	**Behavior, Growth and Changes**	
	4	*Heat and electrical energy are forms of energy that can be transferred from one location to another. Matter has properties that allow the transfer of heat and electrical energy. Heating and cooling affect the weathering of Earth's surface and Earth's past environments. The processes that shape Earth's surface and the fossil evidence found can help decode Earth's history.*			
		Earth's Surface	**Electricity, Heat and Matter**	**Earth's Living History**	

Themes		The Physical Setting		The Living Environment	Science Inquiry and Applications
		Earth and Space Science	**Physical Science**	**Life Science**	
Interconnections within Systems *This theme focuses on helping students explore the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry.*	**5**	*Cycles on Earth, such as those occurring in ecosystems, in the solar system and in the movement of light and sound, result in describable patterns. Speed is a measurement of movement. Change in speed is related to force and mass*. The transfer of energy drives changes in systems, including ecosystems and physical systems.*			*During the years of grades 5 through 8, all students must have developed the ability to:* • *Identify questions that can be answered through scientific investigations;* • *Design and conduct a scientific investigation;* • *Use appropriate mathematics, tools and techniques to gather data and information;* • *Analyze and interpret data;* • *Develop descriptions, models, explanations and predictions;* • *Think critically and logically to connect evidence and explanations;* • *Recognize and analyze alternative explanations and predications; and* • *Communicate scientific procedures and explanations.*
		Cycles and Patterns in the Solar System	**Light, Sound and Motion**	**Interactions within Ecosystems**	
Order and Organization *This theme focuses on helping students use scientific inquiry to discover patterns, trends, structures and relationships that may be inferred from simple principles. These principles are related to the properties or interactions within and between systems.*	**6**	*All matter is made of small particles called atoms. The properties of matter are based on the order and organization of atoms and molecules. Cells, minerals, rocks and soil are all examples of matter.*			
		Rocks, Minerals and Soil	**Matter and Motion**	**Cellular to Multicellular**	
	7	*Systems can exchange energy and/or matter when interactions occur within systems and between systems. Systems cycle matter and energy in observable and predictable patterns.*			
		Cycles and Patterns of Earth and the Moon	**Conservation of Mass and Energy**	**Cycles of Matter and Flow of Energy**	
	8	*Systems can be described and understood by analysis of the interaction of their components. Energy, forces and motion combine to change the physical features of the Earth. The changes of the physical Earth and the species that have lived on Earth are found in the rock record. For species to continue, reproduction must be successful.*			
		Physical Earth	**Forces and Motion**	**Species and Reproduction**	

*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

PreKindergarten
Introduction to Content Statements

Grade Band Theme: Observations of the Environment

This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.

Science Inquiry and Application

During the years of PreK-4, all students must become proficient in the use of the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:

- *Observe and ask questions about the natural environment;*
- *Plan and conduct simple investigations;*
- *Employ simple equipment and tools to gather data and extend the senses;*
- *Use appropriate mathematics with data to construct reasonable explanations;*
- *Communicate about observations, investigations and explanations; and*
- *Review and ask questions about the observations and explanations of others.*

Strands

Strand Connections: *Observations of both living and nonliving things in local surroundings. This includes water, the sun, rocks and soil, human-made materials and living organisms. This encourages the examination and exploration of the environment.*

Earth and Space Science (ESS)	Physical Science (PS)	Life Science (LS)
Topic: Observations of Nature *This topic focuses on observing, exploring and describing the local natural environment.*	**Topic: Observations of Objects and Materials** *This topic focuses on making sound and observing, exploring and describing properties of objects and materials that can be found in nature, classrooms and homes.*	**Topic: Observations of Living Things** *This topic focuses on observing, exploring and describing external, physically observable characteristics and behaviors of plants and animals found in their local natural environment, in classrooms and in homes.*
Condensed Content Statements		
• Weather changes every day. • The sun and the moon are visible at different times of the day or night. • Water can be observed as lakes, ponds, rivers, streams, the ocean, rainfall, hail, sleet or snow. • Rocks and soil have properties that can help identify them.	• Objects and materials are described by their properties. • Many objects can be made to produce sound.	• There are many distinct environments in Ohio that support different kinds of organisms. • Similarities and differences exist among individuals of the same kinds of plants and animals.

Topic: Daily and Seasonal Changes

This topic focuses on observing, exploring, describing and comparing weather changes, patterns in the sky and changing seasons.

Content Statement

Weather changes every day.

Wind, water and temperature are all part of daily weather changes. Weather changes throughout the day and from day to day.

Note: Seasonal change can be included, based on observable changes as appropriate for this age. This topic is found at greater depth in Kindergarten and grade 5.

Content Elaboration

PreKindergarten Concepts

Wind, temperature and precipitation are parts of the weather that can be observed and experienced. Measurements can be taken and recorded, but the measurements and tools should be age-appropriate (nonstandard). For example, the temperature may be above or below a given point (warmer or colder) or the amount of snow is marked on a dowel rod to check the depth. Review, question and discuss classroom results, including both long- and short-term changes.

Patterns and changes in the weather each day, week or month must be recorded, compared and discussed. Seasonal changes can be included in the discussions, but must be based on actual observations of the weather changes.

Future Application of Concepts

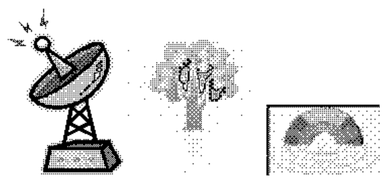
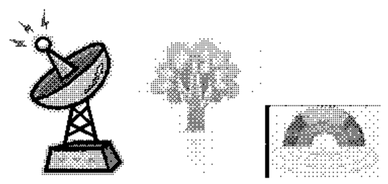
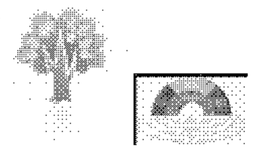
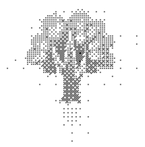
Grades K-2: Weather measurements, the properties of water, and air are explored as they relate to the weather observations and measurement from PreK and Kindergarten.
Grades 3-5: Different states of water are defined in Physical Science. Wind and water are recognized as factors that can change the surface of Earth through the processes weathering and erosion. The tilt and orbit of the Earth and position of the sun are related to the seasons.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This *section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.*

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Make a weather instrument, mechanism or device that can measure wind movement or rainfall amounts (see resources below for helpful strategies). Discuss the best shapes and sizes for the instrument. Find the best location to use the instrument and test it. 	Use tools to collect or measure precipitation amounts (including rain, snow or ice) or measure the speed (faster or slower) and direction of wind (*which way is the wind blowing?*). Ask students for other ways to determine wind direction or rainfall amounts. Gather organize, discuss and document the weather data as a class.  **Note:** Nonstandard measurements should be used to meet this objective.	Make a weather chart or graphic that documents observed weather on a regular basis throughout the year. As a class, compare changes in temperature, precipitation and wind, and include the changes that are observed each day, each week and month to month. 	Recognize that temperature, wind and precipitation are different ways to measure weather. Identify the four different seasons. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Asking effective questions is an important way to encourage exploration and experimentation. Allowing children to design and use their own tools or determine how to measure specific aspects of weather is encouraged. Examples of using inquiry in the classroom and using a weather station can be a good starting point in preparing for inquiry in the classroom.
- Introduce the element of prediction by encouraging children to ask and answer questions about *what happens if…* Provide time and materials for experimental trial and error and exploration. Experiments and investigations should take place inside and outside of the classroom.

Common Misconceptions

- Misconceptions about weather and weather observations at this age often stem from children's literature and expressions (Old Man winter, raining cats and dogs, raining buckets, fog like pea soup). Reading stories that include accurate representation of weather events can be a good start to addressing misconceptions. Collecting and discussing weather data on a regular basis will help to clarify weather at this age. For examples of age-appropriate, scientifically accurate storybooks about rain and wind, visit http://www.magnet.fsu.edu/education/community/scienceinliterature/picturebooks.html.
- NSTA offers publications to address K-4 misconceptions regarding weather by using inquiry in K-4 classrooms (can be used in preschool). NSTA also has specific journal articles that discuss weather misconceptions at http://www.nsta.org/store/?lid=pub.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Jennie–K* is an example of how to design age-appropriate science lessons effectively using inquiry. Many of the techniques for this example can be applied at this age level.

Back to the INDEX

Topic: Daily and Seasonal Changes

This topic focuses on observing, exploring, describing and comparing weather changes, patterns in the sky and changing seasons.

Content Statement

The sun and the moon are visible at different times of the day or night.

The sun is visible only in the daytime, but the moon is visible sometimes at night and sometimes during the day.

Content Elaboration

PreKindergarten Concepts

Observations made about day and night are included in this content statement. Shadows and sunlight can be experienced outside and/or models must be used in the classroom so that differences in shadow lengths can be measured. Changes that occur throughout the day and throughout the year can be recorded, reviewed and discussed. The moon can look different on different nights. Photographs and drawings of the moon can be viewed in books or virtually. Comparisons of the lit portion of the moon can be made once a week (when there are noticeable differences).

The use of technology is recommended to assist in the demonstration of moon and sun visibility to ensure that repeating patterns can be observed, questioned, explained and discussed.

Future Application of Concepts

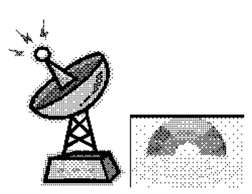
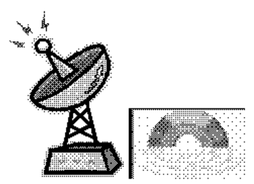
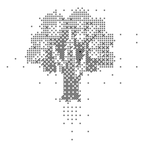
Grades K-2: Observations of the moon, sun and stars continue. The sun is introduced as a primary source of energy that relates to long- and short-term weather changes.
Grades 3-5: The tilt and orbit of the Earth and position of the sun are related to the seasons, the sun is the only star in the solar system and celestial bodies orbit the sun.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design an in-class experiment to model patterns of the sun or moon throughout a 24-hour period that were documented by the class. For example, draw two different pictures of the sun and determine where to place one of the sun pictures to represent where the sun would be in the morning. Place the other picture of the sun on the side of the classroom where the sun would be in the afternoon or evening. Evaluate the placement as a class. Monitor changes throughout the school year. 	Experiment with shadows from the sun. Ask: *What happens to a shadow throughout the day? Can the length of a shadow be measured? How does the shape of a shadow change? Can shadows be made inside?* Use light bulbs, overhead projectors, virtual investigations or combinations of these tools to explore inside shadows. 	Draw or use photographs to document changes that occur with the sun and/or moon throughout one day, month or from season to season. Compare the differences throughout the month or season to find if the same pattern exists the next month or season. 	Recognize that the sun changes position in the sky during the day.  Recall that the moon is visible at night and sometimes during the day.

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Observing the sun, moon and shadows, both inside and outside and then asking effective questions about the observations can help plan further investigation. Asking questions about *what happens when… or what happens if…* can encourage children to predict, experiment and explore with shadows or observed changes in the sun or moon.
- There are many different ways to explore how shadows are forms and what effects changes in the size of shadows. At this age, it is important to allow children to test out their own ideas and explain what they are doing as they experiment. Effective questioning and student-led investigation can support the use of inquiry and the understanding of factors that are needed to change the size and shape of shadows.
- The Willard Smith Planetarium provides examples of introducing space to preschool children. This page describes ways to show the sun's position in the sky.
- NSTA offers a number of science modules (SciPacks) for teachers. This SciPack inquiry module addresses teaching about the sun and energy at an early-childhood level.

Common Misconceptions

- AAAS offers a narrative section on *The Universe* that explains the importance of introducing the sun, moon and stars through observation and discusses common misconceptions of K-2 students at http://www.project2061.org/publications/bsl/online/index.php?chapter=4#A1.
- NASA lists common misconceptions for all ages about the sun and the Earth at http://www-istp.gsfc.nasa.gov/istp/outreach/sunearthmiscons.html.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Elsa–K* is an example of how to use activities and games to interest students in science. While the example is Kindergarten, ideas can be translated to this age group.

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Topic: Daily and Seasonal Changes

This topic focuses on observing, exploring, describing and comparing weather changes, patterns in the sky and changing seasons.

Content Statement

Water can be observed as lakes, ponds, rivers, streams, the ocean, rainfall, hail, sleet or snow.

When it rains, water can create puddles or cause flooding. The puddles and flooding eventually go away. Some areas flood more than others. The ocean is the largest body of water on Earth.

Content Elaboration

PreKindergarten Concepts

Different forms of water, such as rain, snow or sleet, are observed and documented through weather events, classroom investigations or in natural settings. These forms of water can be measured and documented using age-appropriate methods and tools. Studies of available natural streams, lakes or ponds can be related to Life Science (e.g., *what lives in the bodies of water?*) or physical science (e.g., comparing the properties of water to a rock). Include review and class discussions of both questions and findings.

Water is in the air and clouds contain water, but this is difficult to explain at this age. Allowing the observation of fog or steam is one way to demonstrate water is present in air.

Future Application of Concepts

Grades K-2: The properties of water and air are explored as they relate to the weather observations and measurement.

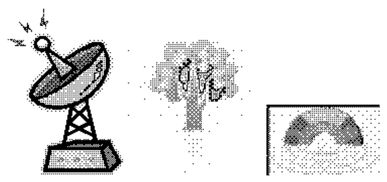
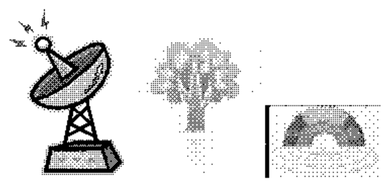
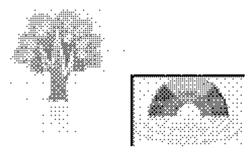
Grades 3-5: Wind and water are recognized as processes that can change the surface of Earth through weathering and erosion. The observed seasons from Kindergarten are related to the sun and the rotation, tilt and orbit of Earth in grade 5.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Make a weather instrument, mechanism or device that can measure wind movement or rainfall amounts (see resources below for helpful strategies). Discuss the best shapes and sizes for the instrument. Find the best location to use the instrument and test it. 	Use tools to collect or measure precipitation amounts (including rain, snow or ice) or measure the speed (faster or slower) and direction of wind (*which way is the wind blowing?*). Ask: *What are other ways to determine wind direction or rainfall amounts?* Gather organize, discuss and document the weather data as a class.  **Note:** Nonstandard measurements should be used to meet this objective.	Compare and contrast (can be done graphically or in a class discussion) a lake and the ocean or a stream and a pond. 	Identify the different locations where water can be found, such as rain, lakes, stream, ponds and the ocean. 

Instructional Strategies and Resources

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- Building and making weather instruments for this age group can be an excellent way to allow children to design and make things using experimentation (trial and error) and inquiry. Examples of the types of instruments students can make and test (including the different types of materials that can be used) are provided.
- To prepare children for the concept of evaporation (introduced in grade 2), draw a chalk outline around a water puddle after a rain event. Monitor changes in the puddle throughout the day or the next day, drawing additional outlines as needed. Use this activity to allow a child to question/investigate what happens to the water and where the water goes.
- Introduce the element of prediction by encouraging children to ask and answer questions about, *what happens if…* Provide time and materials for experimental trial and error and exploration. Experiments and investigations should take place inside and outside of the classroom.

Common Misconceptions

- NSTA offers publications that address K-4 misconceptions regarding water and how to use inquiry in K-4 classrooms. By understanding common misconceptions that exist in early elementary school, preschool teachers can see areas of possible misconception. The NSTA website, http://www.nsta.org/store/?lid=pub, also has specific journal articles that discuss water and weather misconceptions at this age.

Diverse Learners

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Model Curriculum
PreKindergarten
Earth and Space Science (ESS)

Topic: Daily and Seasonal Changes

This topic focuses on observing, exploring, describing and comparing weather changes, patterns in the sky and changing seasons.

Content Statement

Rocks and soil have properties that can help identify them.

Rocks and soil have different colors and textures.

Rocks and soil can be sorted by different colors and textures.

Content Elaboration

PreKindergarten Concepts

Classroom collections of rocks can help illustrate the multitude of colors and textures that are possible in nature. Sorting and comparing the different characteristics of rocks, such as heavy/light, smooth/rough or multiple colors/same color can help identify the unique characteristics.

Actual soil samples should be used to investigate, explain and ask/answer questions about the properties of soil. Examples of some of the properties that can be investigated are soil color (*what happens to the color when the soil is wet or dry?*), composition (*what can be seen in the soil?*) and texture (*how does the soil feel?*).

Note: It is important to use the term "soil" not "dirt." Dirt and soil are not synonymous.

Future Application of Concepts

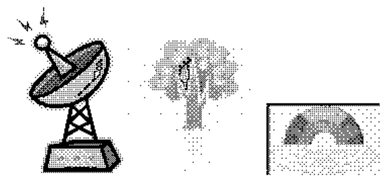
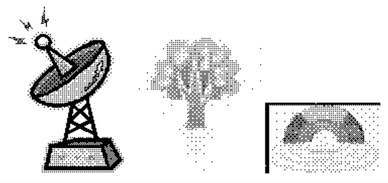
Grades K-2: Objects and materials can be sorted and described by their properties, living things are different than nonliving things, properties of objects and materials can change.
Grades 3-5: Properties of matter (including rocks and soil) and Earth's resources, rocks and soil are investigated further.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Using the results of the *Demonstrating Science Knowledge* section, determine which type of soil would work best for a playground or a small pond (e.g., *does the soil drain water or hold water?*). 	Using sets of different soil samples, experiment with the properties of soil (e.g., color, composition, texture). Questions can include: *What happens to the soil when water is added or when the soil dries? How does the soil feel? What is in the soil? What different colors are in the soil?* 	Make a table or chart that can be used to compare or organize groups of rocks (e.g., the texture of a rock can be used to sort the rock – *does the rock feel smooth, rough or sandy?*) or the weight of the rock or what is "in" the rock (e.g., *is the rock all one color or are there many different colors?*). 	Recognize that rocks and soil can look different and can be sorted in different ways. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Collecting, sorting and investigating soil and rocks should be hands-on (touching and feeling). Inquiry questions include: *What happens when the rock or soil gets wet? What are the colors in the rocks or soil? How does the rock or soil feel?* Working in small groups and having the groups conduct different tests or investigations and then discussing and documenting observations as a class is helpful at this age.
- Finding rocks outside and starting a classroom rock collection encourages children to connect nature to the classroom. Allowing children to determine different ways of sorting rocks to organize them is a good beginning for rock classification later. Asking questions about why or how they are sorting is important. Effective questioning and time for student-led experimentation are important.

Common Misconceptions

- Funded by the National Science Foundation, *Beyond Penguins and Polar Bears* is an online magazine for K-5 teachers. It provides some common misconceptions about sorting rocks at early elementary levels, which can begin at the preschool level when children may think that size or color should be used to identify types of rocks. For common misconceptions about rocks and minerals, visit http://beyondpenguins.nsdl.org/issue/column.php?date=September2008&departmentid=professional&columnid=professional!misconceptions.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Elsa–K* is an example of how to use activities and games to interest students in science. While the example is Kindergarten, ideas can be translated to this age group.

The Annenberg Foundation offers training modules that support Earth and Space Sciences for K-4 teachers. There are numerous resources and video clips of actual classroom practices that can be useful training tools located at http://www.learner.org/resources/series195.html.

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Model Curriculum
Grade PreKindergarten
Life Science (LS)

Topic: Observations of Living Things

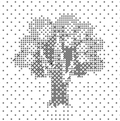
This topic focuses on observing, exploring and describing external, physically observable characteristics and behaviors of plants and animals found in their local natural environment, in classrooms and in homes.

Content Statement

There are many distinct environments in Ohio that support different kinds of organisms.

Plants and animals have traits that improve their chances of living in different environments.

Plants and animals in Ohio interact with one another for food, shelter and nesting.



Content Elaboration

PreKindergarten Concepts

Local environments include school grounds, neighborhoods, homes, parks, streams, ponds, lakes, gardens and zoos. It is more appropriate to focus on easily recognizable features of the local environment, such as presence of water, human-made or naturally occurring.

Scientific inquiry must focus on raising and answering questions about the local environment. The questions raised can be answered through appropriately manipulating environmental factors or through observations (planned or spontaneous). Recognition of the macroscopic and observable features and behaviors of local organisms can be made of the more common living things found in the local environment.

When studying living things, ethical treatment of animals and safety must be employed. Respect for and proper treatment of living things must be modeled. For example, shaking a container, rapping on insect bottles, unclean cages or aquariums, leaving living things in the hot sun or exposure to extreme temperatures (hot or cold) must be avoided. The National Science Teachers Association (NSTA) has a position paper to provide guidance in the ethical use and treatment of animals in the classroom at http://www.nsta.org/about/positions/animals.aspx.

Future Application of Concepts

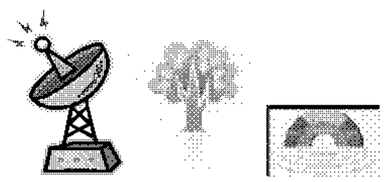
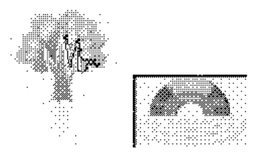
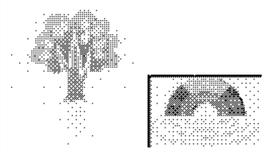
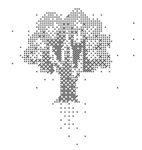
Grades 1-2: The needs of living things and the physically observable traits of living things will be explored.
Grades 3-5: Plants and animals have certain physical or behavioral characteristics that improve their chances of surviving in particular environments.
Grades 6-8: Changes in environmental conditions can affect how beneficial a trait will be for survival and reproductive success of an individual or an entire species.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
In the context of direct exploration of the local environment, take a nature walk.			
Create a diorama or another 3D representation of the local environment, including as many of the living and nonliving things as is grade appropriate. Some of the specimens collected on a nature walk may be included in the diorama. The emphasis should be on use of observation to build an accurate representation.  **Note:** The State of Ohio restricts the collection of some living things. A guide is available at http://dnr.ohio.gov/Portals/9/pdf/pub009.pdf.	Ask what kinds of living and nonliving things will be found in the local environment on a nature walk and then do a study of the local environment to answer questions.  **Note:** The State of Ohio restricts the collection of some living things. A guide is available at http://dnr.ohio.gov/Portals/9/pdf/pub009.pdf.	Explain the interactions between living things and their environment, given a visual representation (e.g., drawings or photographs) or real experiences in nature.  **Note:** Photos of Ohio's wildlife can be found on the Ohio Department of Natural Resources website at http://dnr.ohio.gov/wildlife/dow/Photos/Gallery.aspx?Gallery=Wildlife&PageNo=1.	Describe the characteristics (e.g., color, shape, size, texture, smell) of some local plants (e.g., mint, strawberries, dogwood) and animals (e.g., squirrels, robins, raccoons, skunks). 

Instructional Strategies and Resources

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- Conduct nature walks and have children ask questions about the things they encounter on the walk. Expose children to a variety of environments and document the similarities and differences. A Wild Scavenger Hunt provides a list of common Ohio living things that students might find on a walk. Use this list to facilitate children's observation while exploring the outdoors. Have children determine if the same things found in a park could be found in their backyard and explain the reason for their answers. To assist in identifying and documenting animals observed on class nature walks, animal pictures taken in Ohio can be found on the Ohio Department of Natural Resources website.
- Children learn, develop and foster curiosity by spending quality time outdoors. Ohio's Outdoor Bill of Rights provides information about outdoor education experiences, projects and programs in Ohio that are available for children with summaries of research that support helping children reconnect with nature.
- A Walk in the Words is a virtual experience that highlights living things in a temperate deciduous forest that will be similar to what is found in Ohio. This can be used as a guide to help children recognize and ask questions living things in their local environments.
- NSTA has a position paper to provide guidance in the ethical use and treatment of animals in the classroom. These guidelines can be used if animals are used in the classroom for in-depth study.
- The Guide to Using Animals in the Classroom by the Ohio Department of Natural Resources provides guidance, explains legally which organisms may be collected and offers limited advice on use of animals in the classroom.

Common Misconceptions

- AAAS' Benchmarks 2061 Online, Chapter 15, 5a, *Diversity of Life,* highlights that elementary students hold a much more restricted meaning than biologists for the words "animal" and "plant." Elementary students use number of legs, body covering and habitat to decide whether things are animals. This may lead to incorrect identification of animals. Students may not realize that trees, vegetables and grass are all plants.
- Students may think that plants are not alive. *Beyond Penguins and Polar Bears* is an online magazine for K-5 teachers that provides information for misconceptions about plants.
- At this age, children believe that plants are small green things and animals are mammals that resemble their pets. The Annenberg Media series *Essential Science for Teachers* contains a list of misconceptions that children hold about living things and provides strategies to help build accurate scientific ideas.

Diverse Learners

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- Perkins School for the Blind, Watertown, MA, offers webcast videos including the video chapter *Accessible Science – Life Science*, which encourages the use of terrariums with visually handicapped students instead of aquariums. Find it at http://support.perkins.org/site/PageServer?pagename=Webcasts_Acessible_Science_Life_Science.

Classroom Portals

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Topic: Observations of Living Things

This topic focuses on observing, exploring and describing external, physically observable characteristics and behaviors of plants and animals found in their local natural environment, in classrooms and in homes.

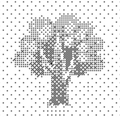
Content Statement

Similarities and differences exist among individuals of the same kinds of plants and animals.

Individuals among plants and animals of the same kind show greater likeness than difference, even though they vary in some traits and behaviors.

Living things have physical traits and behaviors, which influence their survival.

Physical traits and behaviors of plants and animals are sometimes the same and sometimes different from the characteristics ascribed to them in stories.



Content Elaboration

PreKindergarten Concepts

The focus is on plants and animals found in the local environment. Observations of the same kind of plants and animals should include familial groupings (e.g., gaggle of geese) or multiple exposures to different individuals of the same kind of plant and animal (e.g., a nature walk to observe maple, oak, hickory, beech and ash trees) in the local environment. More information on native trees in Ohio can be found on the Ohio State Extension website at http://ohioline.osu.edu/b865/b865_02.html. At this age, it is not appropriate to require that scientific or common names be learned.

The traits and behaviors of living things that are age-appropriate can be observed at the macroscopic level and do not require special scientific knowledge or skills. Four of the five senses can be used to learn about the traits of organisms. The observations made should include counting of easily observable physical features (e.g., eyes, beaks, toes, heads, wings, petals, leaves and similar macroscopic features). Additionally, the sense of touch can be used to help explore some kinds of living things (e.g., trunk of a birch tree, scales of fish).

When studying living things, ethical treatment of animals and safety must be employed. Respect for and proper treatment of living things must be modeled. For example, shaking a container, rapping on insect bottles, unclean cages or aquariums, leaving living things in the hot sun or exposure to extreme temperatures (hot or cold) must be avoided. The National Science Teachers Association (NSTA) has a position paper to provide guidance in the ethical use and treatment of animals in the classroom at http://www.nsta.org/about/positions/animals.aspx.

Note: For health and safety concerns, it is not recommended that the sense of taste be used.

Future Application of Concepts

Grades 1-2: The physical traits and behaviors of living things will be linked to how they obtain the materials they need for survival in the physical environment.
Grades 3-5: Offspring resemble their parents and each other.
Grades 6-8: The characteristics of an organism are a result of inherited traits received from parent(s).

Expectations for Learning: Cognitive Demands

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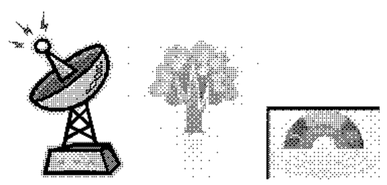
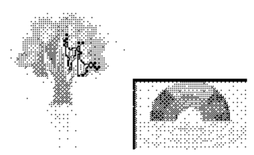
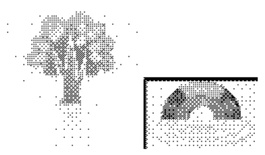
This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Create a diorama or another 3D representation of the local environment, including as many of the living and nonliving things as is grade appropriate. Some of the specimens collected on a nature walk may be included in the diorama. (The emphasis is on use of observation to build an accurate representation).  **Note:** The State of Ohio restricts the collection of some living things. A guide is available at http://dnr.ohio.gov/Portals/9/pdf/pub009.pdf.	Do an observational study to learn which types of birds visit bird feeders filled with seeds from types of local plants. The emphasis is on the observation of interactions between animals and plants. 	Compare several representatives of one kind of plant (daisies, milkweeds, dandelions) or animal (dogs, cats, beetles, rabbits) and with help create a list or other representation of their similarities and differences in size, color, texture and weight.  After reading or listening to fictional stories about living things, determine which traits or characteristics ascribed to the living things in the story are true and which are false.	Recognize examples of organisms that are similar to each other and of the same kind.  Recognize physical features of living things, such as eyes, ears, noses, mouths, teeth, fur, legs, wings, leaves, trunk, stem, front, back, top or bottom.

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Conduct outdoor investigations to observe a variety of animals and plants, documenting similarities and differences between members of the same type (e.g., listen to bird songs and note the differences). Ask questions why one type of animal may differ from another. The Ohio Department of Natural Resources provides CDs with bird songs that can be used for identification.
- The Ohio Department of Natural Resources provides information about observing animals in the wild and animal pictures to help identify and document sightings. The guidelines help children study, preserve and build respect for wildlife in their local environments. The Guide to Using Animals in the Classroom provides guidance and explains legally which organisms may be collected and offers limited advice on use of animals in the classroom.
- Ohio's Outdoor Bill of Rights provides information about outdoor education experiences available for children's with summaries of research that support helping children reconnect with nature. Ohio's parks have a variety of trails, nature centers and yearly activities to provide opportunities to study living things in the natural environment.

Common Misconceptions

- The Annenberg Media series, *Essential Science for Teachers*, offers *Life Science: Sessions 1 and 2*, which provide greater insight to misconceptions children hold about living, dead and nonliving things and strategies to address those misconceptions.
- *Beyond Penguins and Polar Bears* is an online magazine for K-5 teachers that provides information for misconceptions about plants and animals.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

- Perkins School for the Blind, Watertown, MA, offers webcast videos including the video chapter *Accessible Science – Life Science*, which encourages the use of terrariums with visually handicapped students instead of aquariums. Find it at http://support.perkins.org/site/PageServer?pagename=Webcasts_Acessible_Science_Life_Science.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Jeanie–K* is an example of how to teach young children about observations of the living environment.

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Model Curriculum
PreKindergarten
Physical Science (PS)

Topic: Observations of Objects and Materials

This topic focuses on making sound and observing, exploring and describing properties of objects and materials that can be found in nature, classrooms and homes.

Content Statement

Objects and materials are described by their properties.

Color, shape, size, weight and texture are some examples of characteristics that can be used to describe and/or sort objects and materials.

Content Elaboration

PreKindergarten Concepts

Objects are things that can be seen or felt. Objects are made of materials. One object can be made of different materials (e.g., a spoon can be made of wood, plastic or metal). Objects also can be described and sorted by their properties (e.g., color, shape, size, weight, texture, flexibility, temperature). Temperature observations should be limited to descriptors such as hot, warm, cold and cool. Observations of weight are limited to describing objects as heavy or light. Shapes, such as circles, squares and triangles, can be used to describe many things that can be seen. Comparisons can help students sort and describe objects (e.g., *is the wooden block heavier or lighter than the plastic block?*). Standard and nonstandard measuring tools can give additional information about objects. Familiar objects from home, the classroom or the natural environment must be explored and investigated.

Note: For safety reasons, the sense of taste is not recommended. Discussions of taste are limited to experiences outside the classroom. Comparisons of objects are made as a precursor to measurement.

Future Application of Concepts

K-2: The parts of objects and their influences on each other are examined (e.g., changes in objects, including solid-liquid phase).

Grades 3-5: Matter is defined and the idea of gases (e.g., air) is introduced. Measurements of weight and liquid volume are made. The mass* and kind of material remains the same when an object is reshaped or broken into pieces. The properties of solids, liquids and gases, and phase changes are explored.

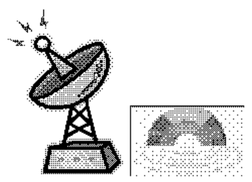
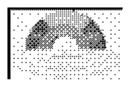
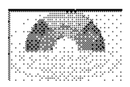
*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design an investigation that uses the properties of objects and materials for identification, classification and understanding function.			
Design a carrier based on information from the Demonstrating Science Knowledge investigation that safely transports various materials from one location to another location that is a considerable distance away (e.g., sand, water, rocks, goldfish in an aquarium, an egg without breaking). 	Investigate the relationship between materials, their characteristics and the behavior of the materials based on observed characteristics (e.g., water is a liquid that flows and therefore is good for swimming, rocks are heavy and can be used to hold down paper when the wind is blowing). 	Given a collection of objects with different shapes, sort them into categories. Share the groups and the properties used to separate the objects with the class to identify similarities and differences (e.g., a sensory box). Create a chart of findings. 	Use observable information (touch, see, hear, smell) to categorize items by creating a system of organization (e.g., objects can be identified by color, shape, texture, smell).

Instructional Strategies and Resources

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- Sorting and Using Materials, an interactive simulation from BBC Schools, allows children to test and sort common objects for their abilities to bend and to determine if they are waterproof. Directions are read to the student when the speaker icon is clicked.
- Grouping and Changing Materials, an interactive simulation from BBC Schools, has students sort objects according to the materials from which they are made. Directions are read to the child when the speaker icon is clicked. The subsequent quiz is not aligned with the content statement.

Common Misconceptions

- Measurement is only linear.
- Any quantity can be measured as accurately as you want.
- The five senses are infallible.
- Children have the *seeing is believing* concept and tend to use sensory reasoning only (Kind, 2004).

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

Select video number 5, *Elsa–K*, from this series of videos on demand produced by Annenberg. Starting at a time of about 8:50, children study magnetic properties of matter by sorting objects into two categories: things that can be picked up by magnets and things that cannot. While content shown in other segments of the video does not apply to this content statement, watching the entire sequence demonstrates how Elsa, a Kindergarten teacher, learns to deal with her bilingual classroom by integrating *appropriate* scientific experiences with lessons that also teach social, motor and communication skills. These instructional skills can be applied to any content statement.

Essential Science for Teachers: Physical Science is a series of videos on demand produced by Annenberg to help elementary teachers teach difficult concepts to children. Session 1, *Properties and Classification of Matter*, from a time of about 19:25 to 27:30, shows a classroom segment where children sort materials by their properties.

The beginning of this video on demand, produced by Annenberg, shows Jennie, a Kindergarten teacher, lead children to make observations about leaves and form a visual representation from their observations. While content shown in other segments of the video does not apply to this content statement, watching the entire sequence demonstrates how Jennie wants to design grade-level-appropriate science activities. The instructional strategies demonstrated can be applied to any content statement.

Model Curriculum
PreKindergarten
Physical Science (PS)

Topic: Observations of Objects and Materials

This topic focuses on making sound and observing, exploring and describing properties of objects and materials that can be found in nature, classrooms and homes.

Content Statement

Many objects can be made to produce sound.

Sound can be produced by touching, blowing or tapping objects.

Content Elaboration

PreKindergarten Concepts

Sound can be made in many ways. Objects like cymbals, the tabletop or drums can be tapped to produce sound. Objects like a rubber band or a guitar string can be plucked to produce sound. Objects like a bottle or a trumpet can be blown into to produce sound. A wide variety of sounds can be made with the same object. For example, a plastic bottle could be tapped or blown into. At this age, sound is explored through situations that can be observed, tested and described (e.g., high and low notes, loudness, softness). A variety of standard and student-constructed instruments must be tested and explored.

Note: Wave descriptions of sound and the propagation of sound energy are not appropriate at this age.

Future Application of Concepts

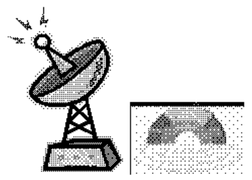
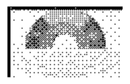
K-2: Exploring sound provides an experiential basis for development of the concepts of motion (vibrations) and energy. The relationship between sound and vibrations and a variety of motions are explored. Forces are necessary to change the motion of objects.
Grades 3-5: The concept of energy is introduced as something that can make things move or cause change. The concept of a medium for sound is introduced and observations of disturbances in liquid and solid media are made.
Grades 6-8: The wave nature of sound is introduced.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Investigate sounds made with homemade instruments.			
Design and make an instrument that can make different sounds by tapping, plucking or blowing. 	Experiment to determine how many different ways sounds can be made from an object (e.g., horn, cymbals, rubber band, guitar, plastic bottle). 	Compare different ways to make loud and soft sounds by tapping, blowing or plucking objects	Identify three ways to make sounds from objects.

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- *Sound and Hearing* is an interactive simulation from BBC Schools that allows children to explore differences in sound. Directions are read to the children by clicking on the speaker icons.
- Allow children to make their own musical instruments and test the different sounds that they make.
- Children should be given the opportunity to feel the vibrations.

Common Misconceptions

- The MSTA Newsletter gives many common misconceptions about sound. Children often think that:
  - Sounds can be produced without using any material objects.
  - Hitting an object harder changes the pitch of the sound produced.
  - Human voice sounds are produced by a large number of vocal cords that all produce different sounds.
  - Loudness and pitch of sounds are the same things.
  - In wind instruments, the instrument itself vibrates (not the internal air column).
  - Music is strictly an art form; it has nothing to do with science.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

Case Studies in Science Education is a series of videos on demand produced by Annenberg that shows teachers working on various reform issues in the classroom. In *Ingrid–Grade 1*, from a time of about 9:00, children explore sound through class demonstrations and activities. Children use rubber bands and geoboards to explore the relationship between pitch, speed and length. At the end of the activity, about half of the children had observations directly pertaining to the objectives. To make sure all children were meeting the objectives, Ingrid compiled common observations that directly pertained to her objectives and shared them with the class. She had children choose one of three ideas to test. As children are doing their tests, Ingrid is circulating and asking children about their conclusions and asking them to show her the tests that support their conclusions. The children then build different instruments and make predictions about the sounds. They are challenged to build a set of drums to give different pitches. While content shown at the beginning of the video does not apply to this content statement, watching the entire sequence demonstrates how Ingrid, a first-grade teacher, learns to deal with students' incorrect ideas. She honors all ideas and writes them down. Then, she has students test each claim and evaluate each statement based on experimental evidence. These instructional skills can be applied to any content area.

Jennie, a Kindergarten teacher, discusses her concerns as she designs grade-level-appropriate science activities in this video on demand produced by Annenberg. While the content is not applicable to this content statement, the instructional strategies demonstrated can be applied to any content area.

Elsa, a Kindergarten teacher, is implementing discovery-oriented activities to make science more active in this video on demand produced by Annenberg. While the content is not applicable to this content statement, the instructional strategies demonstrated can be applied to any content area.

Kindergarten
Introduction to Content Statements

Grade Band Theme: Observations of the Environment

This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.

Science Inquiry and Application

During the years of PreK-4, all students must become proficient in the use of the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:

- *Observe and ask questions about the natural environment;*
- *Plan and conduct simple investigations;*
- *Employ simple equipment and tools to gather data and extend the senses;*
- *Use appropriate mathematics with data to construct reasonable explanations;*
- *Communicate about observations, investigations and explanations; and*
- *Review and ask questions about the observations and explanations of others.*

Strands

Strand Connections: *Living and nonliving things have specific physical properties that can be used to sort and classify. The physical properties of air and water are presented as they apply to weather.*

Earth and Space Science (ESS)	Physical Science (PS)	Life Science (LS)
Topic: Daily and Seasonal Changes *This topic focuses on observing, exploring, describing and comparing weather changes, patterns in the sky and changing seasons.*	**Topic: Properties of Everyday Objects and Materials** *This topic focuses on the production of sound and on observing, exploring, describing and comparing the properties of objects and materials with which the student is familiar.*	**Topic: Physical and Behavioral Traits of Living Things** *This topic focuses on observing, exploring, describing and comparing living things in Ohio.*
Condensed Content Statements		
• Weather changes are long-term and short-term. • The moon, sun and stars are visible at different times of the day or night.	• Objects and materials can be sorted and described by their properties. • Some objects and materials can be made to vibrate to produce sound.	• Living things are different from nonliving things. • Living things have physical traits and behaviors, which influence their survival.

Back to the INDEX

Model Curriculum
Kindergarten
Earth and Space Science (ESS)

Topic: Daily and Seasonal Changes

This topic focuses on observing, exploring, describing and comparing weather changes, patterns in the sky and changing seasons.

Content Statement

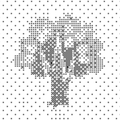
Weather changes are long-term and short-term.

Weather changes occur throughout the day and from day to day.

Air is a nonliving substance that surrounds Earth and wind is air that is moving.

Wind, temperature and precipitation can be used to document short-term weather changes that are observable.

Yearly weather changes (seasons) are observable patterns in the daily weather changes.



Note: The focus is on observing the weather patterns of seasons. The reason for changing seasons is not appropriate for this grade level; this is found in grade 5.

Content Elaboration

Kindergarten Concepts

Wind, temperature and precipitation are components of the weather that can be observed and measured for Kindergarten. The measurements collected and tools used can be nonstandard and must be age-appropriate. For example, the temperature may be above or below a given point (warmer or colder) or the amount of snow is marked on a dowel rod to check the depth.

Weather measurements must be collected on a regular basis throughout the school year and then compared, explained and discussed each week and each month. At the end of the school year, a comparison can be made and seasons can be identified by the patterns that were measured throughout the year. Consistent review and questioning to deepen understanding are essential.

Use technology to compare classroom data to local data, study weather events, communicate and share data with other classrooms, and record classroom data.

Future Application of Concepts

Grades 1-2: The properties of water and air are explored as they relate to the weather observations and measurement from Kindergarten.

Grades 3-5: Different states of water are defined in Physical Sciences. Wind and water are recognized as processes that can change the surface of Earth through weathering and erosion. The observed seasons from Kindergarten are related to the sun and the tilt and orbit of Earth in grade 5.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

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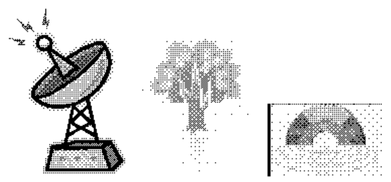
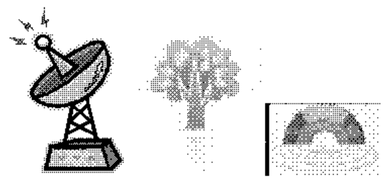
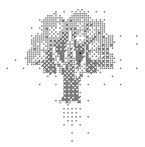
Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
As a class, make a portable weather station that can measure wind, temperature and precipitation amounts. Test and select the best location for the weather station (so that accurate readings can be collected). 	Experiment with different methods or make/use tools to collect precipitation amounts (rain, snow or ice) and measure the speed (faster or slower) and direction of wind (*which way is the wind blowing?*). Ask questions about what happens next, such as: *When the wind increases, what happens to the temperature?*  **Note:** Nonstandard measurements can be used to meet this objective.	Make a weather chart or graphic that documents observed weather on a regular basis throughout the year. As a class, compare changes in temperature, precipitation and wind and include the changes that are observed each day, each week and month to month. 	Identify the four different seasons. Recognize that temperature, wind and precipitation are different ways to measure weather. 

Instructional Strategies and Resources

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- Children need to be encouraged to experiment with ways to measure weather and how to measure weather accurately. Asking effective questions as children are trying different methods is an important part of understanding what the child knows pertaining to measuring weather. Allow children to make their own tools to measure weather using everyday materials. Weather tools, such as windmills, windsocks or rain gauges, can be very creative and artistic products that can actually measure the weather.

Common Misconceptions

- Misconceptions about weather and weather observations at this age often stem from children's literature and expressions (Old Man winter, raining cats and dogs, raining buckets, fog like pea soup). Reading stories that include accurate representation of weather events can be a good start to addressing misconceptions. Collecting and discussing weather data on a regular basis will help to clarify weather at this age. For examples of age-appropriate, scientifically accurate storybooks about rain and wind, visit http://www.magnet.fsu.edu/education/community/scienceinliterature/picturebooks.html.
- NASA lists common misconceptions for all ages about the sun and the Earth, including weather and seasons, at http://www-istp.gsfc.nasa.gov/istp/outreach/sunearthmiscons.html.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

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A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case studies *Jennie–K* and *Elsa–K* are examples of how to design age-appropriate science investigations using activities and games to interest students in science.

The Annenberg Foundation offers training modules that support Earth and Space Sciences for K-4 teachers. There are numerous resources and video clips of actual classroom practices that can be useful training tools at http://www.learner.org/resources/series195.html.

Topic: Daily and Seasonal Changes

This topic focuses on observing, exploring, describing and comparing weather changes, patterns in the sky and changing seasons.

Content Statement

The moon, sun and stars can be observed at different times of the day or night.

The moon, sun and stars are in different positions at different times of the day or night. Sometimes the moon is visible during the night, sometimes the moon is visible during the day and at other times, the moon is not visible at all. The observable shape of the moon changes in size very slowly throughout each day of every month. The sun is visible only during the day.

The sun's position in the sky changes in a single day and from season to season. Stars are visible at night, some are visible in the evening or morning and some are brighter than others.

Content Elaboration

Kindergarten Concepts

Changes in the position of the sun in the sky can be measured and recorded at different times during the school day. Observations also can be made virtually. This data can be compared from month to month to monitor changes. Stars, groups of stars and different phases of the moon can be observed through books or virtually and documented throughout the month. The names of the stars, constellations or moon phases are not appropriate for Kindergarten; only the changes in appearances and what can actually be observed are included. The moon also can be observed in the daylight, at times. Drawings, photographs or other graphics can be used to document student observations.

Demonstrating (either 3-D or virtual) and testing/experimenting (through kits or models) must be used to explain the changing positions (in the sky) of the sun, stars and moon. Review, question and discuss the demonstrations and observations to deepen understanding.

Future Application of Concepts

Grades 1-2: The sun is introduced as a primary source of energy that relates to long- and short-term weather changes.

Grades 3-5: The tilt and orbit of the Earth and position of the sun are related to the seasons, the sun is the only star in the solar system and celestial bodies orbit the sun.

Expectations for Learning: Cognitive Demands

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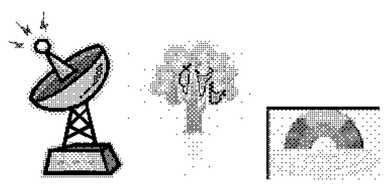
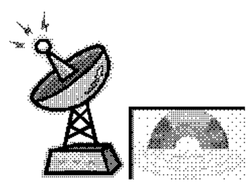
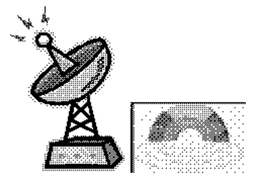
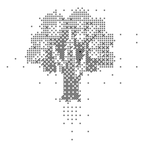
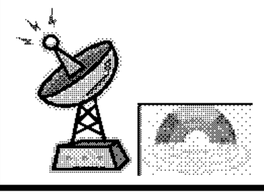
This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
As a class, design and make a sun garden. The garden may contain rocks or other objects that reflect or react to sunlight, such as sundials, solar-powered lights or chimes that require sunlight for movement. Placement of the garden must be based upon the sun-shadow data (see Demonstrating Science Knowledge). The design should be drawn on a map and discussed with the class. 	Experiment with shadows from the sun. Questions to explore include: *What happens to a shadow throughout the day? Can the length of a shadow be measured? How does the shape of the shadow change? Can shadows be made inside?* Use light bulbs, overhead projectors, virtual investigations or combinations of the above to explore inside shadows. 	Collect and record sun-shadow data on a regular basis throughout the school day and school year. Interpret the changes (length, position) in the shadows. Discuss the changes that are observed, the relationship between the changes in the shadows, and the different positions of the sun during the day and in the different seasons. Present findings orally and/or graphically. 	Recognize that the sun changes position in the sky during the day. 
		Make a table or chart to document the changes in the observable (lit) part of the moon throughout a month. Compare the differences throughout the month and then determine if the same pattern exists the next month. 	Recall that the moon is visible at night and sometimes during the day. The visible part of the moon changes throughout the month.

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Observing the sun, moon and shadows, both inside and outside and then asking effective questions about the observations can help plan further investigation. Asking questions about *what happens when… or what happens if…* can encourage children to predict, experiment and explore with shadows or observed changes in the sun or moon.
- There are many different ways to explore how shadows are forms and what effects changes in the size of shadows. At this age, it is important to allow children to test out their own ideas and explain what they are doing as they experiment. Effective questioning and student-led investigation can support the use of inquiry and the understanding of factors that are needed to change the size and shape of shadows.
- Introduce the element of prediction by encouraging children to ask and answer questions about *what happens if…* Provide time and materials for experimental trial and error, and exploration. Experiments and investigations should take place inside and outside of the classroom.
- The Willard Smith Planetarium provides examples of introducing space to preschool children. This page describes ways to show the sun's position in the sky.
- NSTA offers a number of science modules (SciPacks) for teachers. This SciPack inquiry module addresses teaching about the sun and energy at an early-childhood level.

Common Misconceptions

- AAAS offers a narrative section on *The Universe* that explains the importance of introducing the sun, moon and stars through observation and discusses common misconceptions of K-2 students at http://www.project2061.org/publications/bsl/online/index.php?chapter=4#A1.
- *Beyond Penguins and Polar Bears* is an online magazine for K-5 teachers. It lists a number of misconceptions held by students regarding the sun and seasons, including that the sun is actually moving across the sky, rather than understanding it is the Earth that is moving. For more information, visit http://beyondpenguins.nsdl.org/issue/column.php?date=May2008&departmentid=professional&columnid=professional!misconceptions.
- NASA lists common misconceptions for all ages about the sun and the Earth at http://www-istp.gsfc.nasa.gov/istp/outreach/sunearthmiscons.html.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case studies *Jennie–K* and *Elsa–K* are examples of how to design age-appropriate science investigations that use activities and games to interest students in science.

The Annenberg Foundation offers training modules that support Earth and Space Sciences for K-4 teachers. There are numerous resources and video clips of actual classroom practices that can be useful training tools at http://www.learner.org/resources/series195.html.

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Model Curriculum
Grade Kindergarten
Life Science (LS)

Topic: Physical and Behavioral Traits of Living Things

This topic focuses on observing, exploring, describing and comparing living things in Ohio.

Content Statement

Living things are different from nonliving things.

Living things include anything that is alive or has ever been alive. Living things have specific characteristics and traits. Living things grow and reproduce. Living things are found almost everywhere in the world. There are somewhat different kinds in different places.

Note 1: The focus is on the traits and behaviors of living things not on attributes of nonliving things. See Kindergarten Physical Science for nonliving things.

Note 2: Listing the characteristics that distinguish living things from nonliving things is not appropriate at this grade level. Further details will appear in the model curriculum.

Content Elaboration

Kindergarten Concepts

The emphasis of this content statement is to build a grade-appropriate understanding of what it means to be living, not to distinguish living and nonliving.

There are different kinds of living things. The focus is on familiar organisms (e.g., grass, trees, flowers, cats, dogs, horses). Some grade-appropriate characteristics include that living things respond to stimuli, grow and require energy.

Living things respond to stimuli. The responses described must be easy to observe (e.g., fish in an aquarium respond to a stimulus – food). Living things grow (e.g., plant seeds or seedlings and watch them grow). Observing plants growing toward a light source can lead to experiments and explorations of what happens when the plant is placed in a different place in the classroom (e.g., on the floor, in a closet, on a desk) or rotated 90 degrees. Some observations also can be done virtually.

Animals need food; plants make their own food. Read grade-appropriate, non-fiction books to students or by students (e.g., picture books) that accurately describe the characteristics of living things found in Ohio. Technology also can be used to find photographs and stories or take photographs of living things in Ohio.

When studying living things, ethical treatment of animals and safety must be employed. Respect for and proper treatment of living things must be modeled. For example, shaking a container, rapping on insect bottles, unclean cages or aquariums, leaving living things in the hot sun or exposure to extreme temperatures (hot or cold) must be avoided. The National Science Teachers Association (NSTA) has a position paper to provide guidance in the ethical use and treatment of animals in the classroom at http://www.nsta.org/about/positions/animals.aspx.

Future Application of Concepts

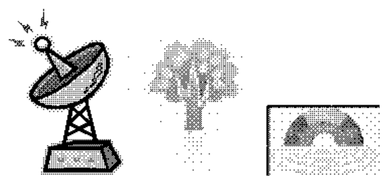
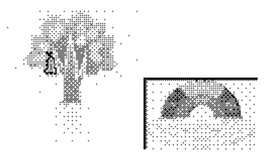
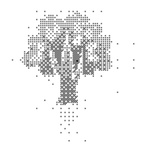
Grades 1-2: This content builds to understanding that living things use the environment to acquire what they need in order to survive.
Grades 3-5: Food webs and food chains are used to illustrate energy transfer within an ecosystem.
Grades 6-8: The characteristics of life are detailed via Modern Cell Theory and reproduction.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design an environment that will support a classroom pet. Provide for all of its needs including but not limited to food, water, air, shelter, cleanliness and safety. 	Ask: *Which type of flower attracts more birds, butterflies, bees or moths?* Investigate by growing a flower garden and keeping accurate records of which types of animals visit each chosen type of flower. 	Explain a way to determine if something is alive (e.g., *are plants alive?*) 	Provide an example of how plants and animals interact with one another for food, shelter and nesting. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Observe a variety of living things in the wild or the classroom and ask questions about what makes them living. *How do they get food? Where do they live? How do they take care of their young?* If using classroom pets, NSTA has a position paper to provide guidance in the ethical use and treatment of animals in the classroom.
- The Ohio Department of Natural Resources provides information about observing animals in the wild while promoting safety for children and wildlife.
- ODNR's Guide to Using Animals in the Classroom provides guidance, explains legally which organisms may be collected and offers limited advice on the use of animals in the classroom.
- Ohio's Outdoor Bill of Rights provides information about outdoor education experiences available for children with summaries of research that support helping children reconnect with nature. Ohio's parks have a variety of trails, nature centers and yearly activities to provide opportunities to study living things in the natural environment.

Common Misconceptions

- *Benchmarks for Science Literacy* contains a detailed discussion of energy. Scroll to section heading E for detailed information of grade-appropriate exposure to energy.
- AAAS' Benchmarks 2061 Online, Chapter 15, 5a, *Diversity of Life*, states that children use criteria such as movement, breath, reproduction and death to determine whether things are alive, which leads some to think that fire, clouds and the sun are alive. Some plants and animals are considered nonliving due to interpretation of the given criteria.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

- Perkins School for the Blind, Watertown, MA, offers webcast videos including the video chapter *Accessible Science – Life Science*, which encourages the use of terrariums with visually handicapped students instead of aquariums. Find it at http://support.perkins.org/site/PageServer?pagename=Webcasts_Acessible_Science_Life_Science.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Jeanie–K* is an example of how to teach young children about observations of the living environment.

Model Curriculum
Grade Kindergarten
Life Science (LS)

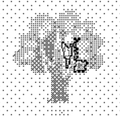
Topic: Physical and Behavioral Traits of Living Things

This topic focuses on observing, exploring, describing and comparing living things in Ohio.

Content Statement

Living things have physical traits and behaviors, which influence their survival.

Living things are made up of a variety of structures. Some of these structures and behaviors influence their survival.



Note: This concept is addressed in PreK, but is included here for districts that do not have a PreK program. Further information for districts is provided in the model curriculum section.

Content Elaboration

Kindergarten Concepts

At this grade level, providing exposure through personal observation and stories to a large variety of living things is required. The focus is not on naming the parts of living things, but associating through interaction and observation that living things are made of parts, and because of those parts, living things can do specific things. The scientific explanations of how those parts function will come later. Identify and discuss examples such as birds have wings for flying and beaks for eating. Dogs have eyes for seeing, teeth for chewing and legs for moving. Trees have leaves and trunks.

Concrete experiences are necessary to deepen knowledge of the traits and behaviors of living things. Technology can be used to compare data on the number of honeybees observed in the schoolyard with other schools. Additional inquiry investigations include conducting observations of pond water (e.g., using a hand lens, focusing on macroscopic organisms), raising a classroom pet, planting seeds and watching them grow, and noting differences between different types of plants or bird watching.

Note: To ensure the health of students, check for allergies prior to raising a classroom pet.

Future Application of Concepts

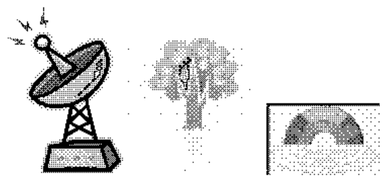
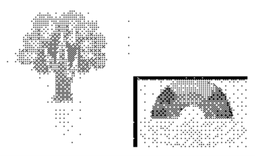
Grades 1-2: The physical environment is identified as the source for what organisms need to survive.
Grades 3-5: Plants and animals have certain physical or behavioral characteristics that improve their chances of surviving in particular environments.
Grades 6-8: Changes in environmental conditions can affect how beneficial a trait will be for survival and reproductive success of an individual or an entire species.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design an environment that will support a classroom pet. Provide for all of its needs including but not limited to food, water, air, shelter, cleanliness and safety. 	Plan an investigation to count the number of an insect pollinator that visits one type of plant (e.g., count the number of bees that visit bee balm flowers). **Caution:** To ensure safety, check for student allergies to pollen and insects. 	Compare a variety of living things (e.g., birds, mammals, insects, arachnids, grasses, trees) that are similar but not the same species and make a list of differences and similarities. 	Identify the function of specific parts of plants and animals (e.g., plant leaves are where food is made, plant roots take in water, animal teeth are for chewing, flowers are for reproduction, ears are for hearing). **Note:** Assessments of this content statement will not include human biology. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Study the characteristics of the environment in which plants and animals thrive and see how they interact with one another. The Great Sunflower Project collects data on the number of wild bees found nationally. Sunflowers are grown to attract bees. Then a report is sent to the site sponsors stating the number of bees observed. Observe the growth of sunflowers and study their characteristics while observing how bees interact with the flowers. Children can then ask questions about what happens with the variation in the number of bees.
- The Ohio Department of Natural Resources provides information about observing animals in the wild. Have children observe the physical characteristics of plants and animals and determine how those traits are involved in each organism's survival. *How do animals capture prey? How do birds get insects from the tree? Why do some birds have webbed feet and others do not? Those birds that do have webbed feet live in what type of environment? A Guide to Using Animals in the Classroom* by the Ohio Department of Natural Resources provides guidance, explains legally which organisms may be collected and offers limited advice on use of animals in the classroom.
- NSTA has a position paper to provide guidance in the ethical use and treatment of animals in the classroom. These guidelines can be used for classroom pets and for helping children establish respect and proper care for animals.

Common Misconceptions

- Young children may give plants human characteristics such as eating, drinking or breathing. They may believe that plants need things that are provided by people. *Beyond Penguins and Polar Bears* is an online magazine for K-5 teachers that provides information for misconceptions about plants.
- The Annenberg Media series *Essential Science for Teachers* can be used to provide greater insight to misconceptions children hold about living things and energy. Classroom videos and lessons are provided to help students avoid misconceptions.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

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Model Curriculum
Kindergarten
Physical Science (PS)

Topic: Properties of Everyday Objects and Materials

This topic focuses on the production of sound and on observing, exploring, describing and comparing the properties of objects and materials with which the student is familiar.

Content Statement

Objects and materials can be sorted and described by their properties.

Objects can be sorted and described by the properties of the materials from which they are made. Some of the properties can include color, size and texture.

Content Elaboration

Kindergarten Concepts

In Kindergarten, the concept that objects are made of specific materials (e.g., clay, cloth, paper, metal, glass) is reinforced. Objects have certain properties (e.g., color, shape, size, temperature, odor, texture, flexibility) that can be described, compared and sorted. Temperature observations must be limited to descriptors such as hot, warm and cold. Observations of weight must be limited to describing objects as heavy or light. Comparisons must be used to sort and describe objects (e.g., *is the wooden block heavier or lighter than the plastic block?*). Standard and nonstandard measuring tools can give additional information about the environment and can be used to make comparisons of objects and events. Magnifiers can be used to see detail that cannot be seen with the unaided eye. Familiar objects from home, the classroom or the natural environment must be explored and investigated.

Note: Using the sense of taste should be prohibited in the classroom. Discussions of taste can be limited to experiences outside the classroom. Comparisons of objects are a precursor to measurement.

Future Application of Concepts

Grades 1-2: Changes in objects are investigated, including temperature changes, solid-liquid phase changes and possible changes in amount of liquid water in open and/or closed containers.
Grades 3-5: Matter is defined and gases (air) are introduced. Measurements of weight and liquid volume are made. The mass* and kind of material remains the same when an object is reshaped or broken into pieces. The properties of solids, liquids and gases (air), and phase changes are explored.

*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Investigate objects and materials for identification, classification and understanding function.			
Evaluate the design of an object and attribute its construction to its function (e.g., the wheel and axel for a toy car allows it to move; the separate and bendable straw makes a broom able to sweep; narrow tubing for drinking straws enables liquid to flow). Discuss findings. 	Use simple tools to extend the system created for classification (e.g., classification based on length or weight, details observed with magnification or through a telescope).	Create a visual representation of a categorization of various objects and present findings orally.	Use observable (touch, see, hear, smell) information to categorize items by creating a system of organization (e.g., objects can be identified by color, shape, texture, smell).

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Sorting and Using Materials, an interactive simulation from BBC Schools, allows children to test and sort common objects for their abilities to bend and to determine whether they are waterproof. Directions are read to the child when the speaker icon is clicked.
- Grouping and Changing Materials, an interactive simulation from BBC Schools, has children sort objects according to the materials from which they are made. Directions are read to the child when the speaker icon is clicked. The subsequent quiz is not aligned with the content statement.

Common Misconceptions

- Measurement is only linear.
- Any quantity can be measured as accurately as you want.
- The five senses are infallible. Children are dependent on observable information. If the information cannot be observed with the senses, students do not believe it exists (Kind, 2004).

Diverse Learners

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Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

Select Video 5, *Elsa–K,* from this series of videos on demand produced by Annenberg. Starting at a time of about 8:50, children study magnetic properties of matter by sorting objects into two categories: things that can be picked up by magnets and things that cannot. While content shown in other segments of the video does not apply to this content statement, watching the entire sequence demonstrates how Elsa, a Kindergarten teacher, learns to deal with her bilingual classroom by integrating appropriate scientific experiences with lessons that also teach social, motor and communication skills. These instructional skills can be applied to any content statement.

Essential Science for Teachers: Physical Science is a series of videos on demand produced by Annenberg to help elementary teachers teach difficult concepts to children. Session 1, *Properties and Classification of Matter*, from a time of about 19:25 to 27:30, shows a classroom segment where children sort materials by their properties.

The beginning of this video on demand, produced by Annenberg, shows Jennie, a Kindergarten teacher, lead children to make observations about leaves and form a visual representation from their observations. While content shown in other segments of the video does not apply to this content statement, watching the entire sequence demonstrates how Jennie wants to design grade-level-appropriate science activities. The instructional strategies demonstrated can be applied to any content statement.

Model Curriculum
Kindergarten
Physical Science (PS)

Topic: Properties of Everyday Objects and Materials

This topic focuses on the production of sound and on observing, exploring, describing and comparing the properties of objects and materials with which the student is familiar.

Content Statement

Some objects and materials can be made to vibrate to produce sound.

Sound is produced by touching, blowing or tapping objects. The sounds that are produced vary depending on the properties of objects. Sound is produced when objects vibrate.

Content Elaboration

Kindergarten Concepts

Sound can be made in many ways. Objects like cymbals, the tabletop or drums can be tapped to produce sound. Objects like a rubber band or a guitar string can be plucked to produce sound. Objects like a bottle or a trumpet can be blown into to produce sound. A wide variety of sounds can be made with the same object (e.g., a plastic bottle could be tapped or blown into). The connection between sound energy and the vibration of an object must be made. Vibrations can be made visible when water splashes from a cymbal or triangle placed in water or rice vibrates on the top of a banging drum. The concepts of pitch (low vs. high notes) and loudness are introduced. The pitch of sound can be changed by changing how fast an object vibrates. Objects that vibrate slowly produce low pitches; objects that vibrate quickly produce high pitches. Sound must be experienced, investigated and explored through observations and experimentation. Standard, virtual and student-constructed instruments must be used to explore sound.

Note: Wave descriptions of sound and the propagation of sound energy are not appropriate at this grade.

Future Application of Concepts

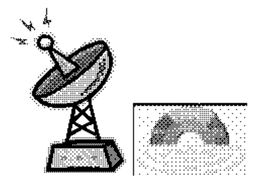
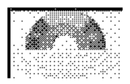
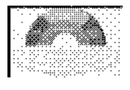
Grades 1-2: Exploring sound provides an experiential basis for the concepts of motion and energy. A variety of motions is explored. Forces are needed to change the motion of objects.
Grades 3-5: Energy is introduced as something that can make things move or cause change. The concept of a medium for sound is introduced and disturbances in liquid and solid media are observed.
Grades 6-8: The wave nature of sound is introduced.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Investigate sounds made with homemade instruments.			
Design and make an instrument that can make different sounds by tapping, plucking or blowing. Give suggestions to other students about how their instruments may make different types of sounds. 	Experiment to determine how many different ways sounds can be made from an object (e.g., horn, cymbals, rubber band, guitar, plastic bottle). 	Compare different ways to make loud and soft sounds by tapping, blowing or plucking objects.	Identify three ways to make sounds from objects.
Investigate how the stretch of plucked rubber bands affects the sound.			
	Use questions to investigate and experiment pitch. Ask: *How are pitch (higher/lower notes) and vibration changed as a rubber band is stretched further and further?* 	Use graphics (e.g., digital photographs, virtually composed graphics) to represent the observations from the experiment. Compare the notes made from rubber bands that are stretched different amounts. Compare the relative speed of vibration (faster/slower) to the pitch (higher/lower notes) of the sound produced. 	Recall that objects that vibrate quickly produce high notes and objects that vibrate slowly produce low notes.

Investigate how the properties of a drum affect the sound.			
	Experiment and investigate with vibrations and sound. Ask: *How does changing a property of a homemade drum (e.g., width, depth, stretch of material) affect the vibration and the sound of the drum?* **Note:** The vibrations can be made visible by placing rice on the head of the drum. 	Use graphics (e.g., digital photographs, virtually composed graphics) to represent the observations from the experiment. Compare the sounds made from drums with different properties. 	Recognize that sound is caused by vibrating objects. Recall that objects that vibrate quickly produce high notes and objects that vibrate slowly produce low notes.

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- *Sound and Hearing* is an interactive simulation from BBC Schools that allows children to explore differences in sound. The directions can be read to the children by clicking on the speaker icons.
- Allow children to make their own musical instruments and test the different sounds that they make.
- Children should be given the opportunity to feel the vibrations.

Common Misconceptions

- The MSTA Newsletter gives many common misconceptions about sound. Children often think that:
  - Sounds can be produced without using any material objects.
  - Hitting an object harder changes the pitch of the sound produced.
  - Human voice sounds are produced by a large number of vocal cords that all produce different sounds.
  - Loudness and pitch of sounds are the same things.
  - In wind instruments, the instrument itself vibrates (not the internal air column).
  - Music is strictly an art form; it has nothing to do with science.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

Case Studies in Science Education is a series of videos on demand produced by Annenberg that show teachers working on various reform issues in the classroom. In this segment, *Ingrid–Grade 1*, from a time of about 9:00, children explore sound through class demonstrations and activities. Children use rubber bands and geoboards to explore the relationship between pitch, speed and length. At the end of the activity, only about half of the children had observations directly pertaining to the objectives. To make sure all children were meeting the objectives, Ingrid compiled common observations that directly pertained to her objectives and shared them with the class. She had children choose one of three ideas to test. As children are doing their tests, Ingrid is circulating and asking children about their conclusions and asking them to show her the tests that support their conclusions. The children then build different instruments and make predictions about the sounds. They are challenged to build a set of drums to give different pitches. While content shown at the beginning of the video does not apply to this content statement, watching the entire sequence demonstrates how Ingrid learns to deal with incorrect ideas of her first-grade students. She ends up honoring all ideas and writing them down. Then she has students test each claim and evaluate each statement based on experimental evidence. These instructional skills can be applied to any content area.

The beginning of this video on demand, produced by Annenberg, shows Jennie, a Kindergarten teacher, lead children to make observations about leaves and form a visual representation from their observations. While content shown in other segments of the video does not apply to this content statement, watching the entire sequence demonstrates how Jennie wants to design grade-level-appropriate science activities. The instructional strategies demonstrated can be applied to any content statement.

Elsa, a Kindergarten teacher, is implementing discovery-oriented activities to make science more active in this video on demand produced by Annenberg. While the content is not applicable to this content statement, the instructional strategies demonstrated can be applied to any content area.

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Grade 1
Introduction to Content Statements

Grade Band Theme: Observations of the Environment
This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.

Science Inquiry and Application
During the years of PreK-4, all students must become proficient in the use of the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:

- *Observe and ask questions about the natural environment;*
- *Plan and conduct simple investigations;*
- *Employ simple equipment and tools to gather data and extend the senses;*
- *Use appropriate mathematics with data to construct reasonable explanations;*
- *Communicate about observations, investigations and explanations; and*
- *Review and ask questions about the observations and explanations of others.*

Strands
Strand Connections: *Energy is observed through movement, heating, cooling and the needs of living organisms.*

Earth and Space Science (ESS)	Physical Science (PS)	Life Science (LS)
Topic: Sun, Energy and Weather *This topic focuses on the sun as a source of energy and energy changes that occur to land, air and water.*	**Topic: Motion and Materials** *This topic focuses on the changes in properties that occur in objects and materials. Changes of position of an object are a result of pushing or pulling.*	**Topic:** *This topic focuses on the physical needs of living things in Ohio. Energy from the sun or food, nutrients, water, shelter and air are some of the physical needs of living things.*
Condensed Content Statements		
• The sun is the principal source of energy. • The physical properties of water change.	• Properties of objects and materials can change. • Objects can be moved in a variety of ways, such as straight, zigzag, circular and back and forth.	• Living things have basic needs, which are met by obtaining materials from the physical environment. • Living things survive only in environments that meet their needs.

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Model Curriculum
Grade 1
Earth and Space Science (ESS)

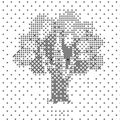
Topic: Sun, Energy and Weather

This topic focuses on the sun as a source of energy and energy changes that occur to land, air and water.

Content Statement

The sun is the principal source of energy.

Sunlight warms Earth's land, air and water. The amount of exposure to sunlight affects the amount of warming or cooling of air, water and land.



Content Elaboration

Prior Concepts Related to Sun and Weather

PreK-K: Weather changes every day, weather changes are short and long term, the sun is visible during the day and the position of the sun can change.

Grade 1 Concepts

Quantitative measurements must be used to observe and document the warming and cooling of air, water or soil. The length of time an object or material (including water) is exposed to sunlight and its resulting temperature must be observed, as should the amount of time for the object or material to cool down after it is taken out of the sunlight.

Appropriate tools and technology must be used to collect, compare and document data. Investigation and experimentation must be combined with explanation, questioning and discussion of the results and findings.

Future Application of Concepts

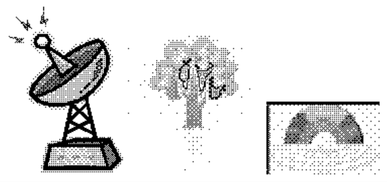
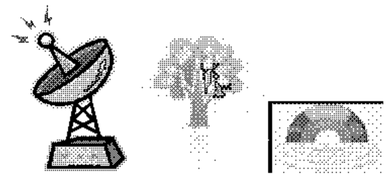
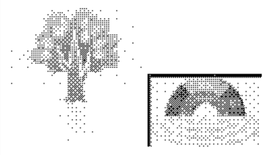
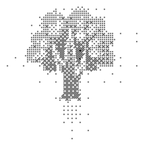
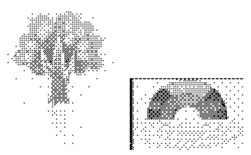
Grade 2: The relationship between energy and long- and short-term weather is introduced.
Grades 3-5: Renewable energy, forms of energy (e.g., heat, light, electrical energy), the solar system and patterns/cycles between the Earth and sun are explored.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Make a mini cold frame that can be used to protect plants from cold temperatures. Use recyclable materials, such as plastic bottles, milk jugs or cartons. Evaluate the placement of the cold frame to get the most autumn/winter sunlight. Compare the results within the class or from class to class. Collect data (temperature, water, outside weather, amount of daily sunlight) to use in the comparison. 	Build a model (kit) that can collect or use solar energy (simple, small devices, such as a solar oven, solar wind chimes or solar water heating devices). Ask: *What colors or materials work best? Where does the device work best? What can be done to make the device work better?* 	Measure temperature changes of soil, water and air in different settings and/or exposures to sunlight (e.g., select a grassy area in full sun, in partial sun or in shade and collect temperature readings). Make a graph, chart or table to record the data. Compare/contrast the results in writing or orally. 	Recognize that sunlight warms water, air and soil. 
	Experiment to compare the length of time it takes to heat samples of water/soil/air to a specific temperature using sunlight. Discuss findings with the class. 		Identify the sun as a primary source of energy. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- There are many different ways to measure heating and cooling from sunlight. At the early elementary level, it is important to allow children to explore the causes of temperature changes in materials as it relates to the sun. Background information about solar heating and solar energy can help develop research questions to encourage experimentation and investigation.
- Using water, sun and wind to explore energy is recommended for early elementary children. While the term and definition of energy is not appropriate for grade 1, exploring, experimentation and observations of energy (e.g., seeing and feeling air and water movement, feeling heat from sunlight) are encouraged.

Common Misconceptions

- *Beyond Penguins and Polar Bears* is an online magazine for K-5 teachers. It lists a number of misconceptions held by students regarding the sun and seasons, including that the sun is actually moving across the sky, rather than understanding it is the Earth that is moving. For more information, visit http://beyondpenguins.nsdl.org/issue/column.php?date=May2008&departmentid=professional&columnid=professional!misconceptions.
- For examples of misconceptions about the sun and energy, and resources to address misconceptions through investigation, visit http://amasci.com/miscon/opphys.html.
- NASA lists common misconceptions for all ages about the sun and the Earth at http://www-istp.gsfc.nasa.gov/istp/outreach/sunearthmiscons.html. Providing students with opportunities to experiment and explore the sun and solar energy can be tools to address the misconceptions that may be found at this grade level.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case studies *Patricia–Grade 1* and *Ingrid–Grade 1* are examples of how to develop student-led activities and investigations in science. Students' taking charge and being involved in their learning is essential in teaching science through inquiry.

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Model Curriculum
Grade 1
Earth and Space Science (ESS)

Topic: Sun, Energy and Weather

This topic focuses on the sun as a source of energy and energy changes that occur to land, air and water.

Content Statement

The physical properties of water can change.

These changes occur due to changing energy. Water can change from a liquid to a solid and from a solid to a liquid. Weather observations can be used to examine the property changes of water.

Note: Water as a vapor is not introduced until grade 2; only solid and liquid water should be discussed at this level. A broader coverage of states of matter is found in grade 4. This concept builds on the PS Kindergarten strand pertaining to properties (liquids and solids).

Content Elaboration

Prior Concepts Related to Water

PreK-K: Water can be observed in many different forms; precipitation (rain, sleet, hail or snow) is a component of weather that can be measured.

Grade 1 Concepts

Water can be observed in lakes, ponds, streams, wetlands, the ocean and through weather events. Freezing and melting of water are investigated through measurements and observations using technology, in the classroom or in a natural setting. Examining maps (virtual or 2-D) of Ohio, world maps or globes can illustrate the amount of Earth's surface that is covered in water and why it is important to learn about water. Water also can be observed in the air as clouds, steam or fog, but this comment should be limited to observation only at this grade level (see **Note**).

Investigations (inside or outside) and experimentation must be used to demonstrate the changing properties of water. Use appropriate tools to test and measure water's weight, texture, temperature or size (e.g., compare measurements of water before and after freezing, examine the texture of snow or ice crystals using a hand lens) to document the physical properties.

Future Application of Concepts

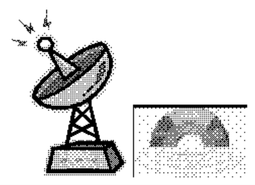
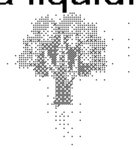
Grade 2: Water as a vapor is introduced (water is present in the atmosphere).
Grades 3-5: Water is identified as a non-living resource that can be used for energy, common states of matter include liquids, solids and gases, Earth's surface has been changed by processes involving water and where water is found on Earth.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Make a mini cold frame that can be used to protect plants from cold temperatures. Use recyclable materials, such as plastic bottles, milk jugs or cartons. Evaluate the placement of the cold frame to get the most autumn/winter sunlight. Compare the results within the class or from class to class. Collect data (temperature, water, outside weather, amount of daily sunlight) to use in the comparison. 	Investigate what happens to water as it freezes and thaws. Collect measurements, take temperature readings and record the length of time to freeze or thaw. Ask: *What would happen when liquid water gets into rocks or if water boils and then freezes?* **Note:** This investigation can be incorporated into the cold frame design.	Collect temperature readings during precipitation events. Make a graph, chart or table to compare the temperatures during rainfall, snow or sleet. Discuss the patterns that are observed. 	Identify the different areas where water can be observed (e.g., lakes, stream, ponds, oceans, rain, snow, hail, sleet, fog). Recognize that water can be a solid or a liquid. 
	Investigate the physical differences between snow, crushed ice and/or liquid water (weight, temperature, texture). Ask: *How much does one cup of snow/crushed ice/liquid water weigh? How does snow/crushed ice look through a hand lens?* Discuss how these findings can apply to weather observations (e.g., *how many inches of snow equal one inch of rain?*). 	Differentiate between ocean water and fresh water. 	Recall that heating and freezing water changes it from a solid to a liquid or a liquid to a solid.

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Some examples of research questions to investigate through inquiry in the classroom or outside include: *How does the amount of water effect how fast water freezes? Why does a lake freeze faster and more completely than the ocean? Does hot water freeze faster or slower than cold water?*
- The Ohio EPA has an education site that provides information about wetlands in Ohio. The relationship between water, wetlands and changing seasons is an excellent way to learn about changing properties of water through natural observation.
- The Primary GLOBE Program offers teacher-training programs and rich resource materials (including science-based storybooks) for K-4. Environmental stewardship and Earth systems science are emphasized.

Common Misconceptions

- A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Najwa and Pat–Grade 1* demonstrates engagement of special needs students in scientific inquiry. Strategies are provided to integrate students fully into the science investigations and activities.
- NSTA provides recommended resources to help identify existing misconceptions and help in using inquiry to allow students to uncover and address misconceptions. The resources include methods of using formative assessment effectively for misconceptions about water properties. Find it at http://learningcenter.nsta.org/search.aspx?action=browse&text=page%20keeley&price=0&product=0&subject=42&topic=452&gradelevel=0&sort=Relevancy.

Diverse Learners

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Classroom Portals

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The Annenberg Foundation offers training modules that support Earth and Space Sciences for K-4 teachers. There are numerous resources and video clips of actual classroom practices that can be useful training tools at http://www.learner.org/resources/series195.html.

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Model Curriculum
Grade 1
Life Science (LS)

Topic: Basic Needs of Living Things

This topic focuses on the physical needs of living things in Ohio. Energy from the sun or food, nutrients, water, shelter and air are some of the physical needs of living things.

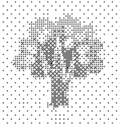
Content Statement

Living things have basic needs, which are met by obtaining materials from the physical environment.

Living things require energy, water and a particular range of temperatures in their environments.

Plants get energy from sunlight. Animals get energy from plants and other animals.

Living things acquire resources from the living and nonliving components of the environment.



Content Elaboration

Prior Concepts Related to Interactions within Habitats

PreK-K: Use macroscopic ways to identify living things. Living things have physical traits, which enable them to live in different environments.

Grade 1 Concepts

Earth has many different environmental conditions that support living things. The emphasis of this content statement is that living things meet their basic needs for survival by obtaining necessary materials from the environment. This includes, but is not limited to, temperature range, amount of water, amount of sunlight and available food sources. The environment includes both living (plants and animals) and nonliving (e.g., water, air, sunlight, nutrients) things.

Living things get the energy they require to respond, grow and reproduce from the environment. Observing energy being used in everyday situations can help promote understanding that living things get resources from the physical environment. A detailed discussion of energy is not appropriate at this grade level (see section heading E). Energy is not scientifically explained until grade 3.

When studying living things, ethical treatment of animals and safety must be employed. Respect for and proper treatment of living things must be modeled. For example, shaking a container, rapping on insect bottles, unclean cages or aquariums, leaving living things in the hot sun or exposure to extreme temperatures (hot or cold) must be avoided. The National Science Teachers Association (NSTA) has a position paper to provide guidance in the ethical use and treatment of animals in the classroom at http://www.nsta.org/about/positions/animals.aspx.

Investigations about the types of living things that live in specific environments can be done virtually or in nature.

Future Application of Concepts

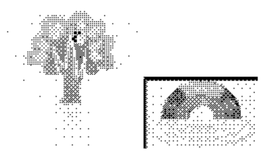
Grade 2: How living things impact the environment and how the environment impacts living things will be examined.
Grade 3-5: Life cycles of plants and animals will be explored.
Grades 6-8: Changes in environmental conditions can affect how beneficial a trait will be for survival and reproductive success of an individual or an entire species.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Using data from the Demonstrating Science Knowledge investigation, design a bird feeder and blend of birdseed that will attract the most birds of one kind or the greatest variety of birds. Share designs, results and recommendations with an authentic audience. 	Plan and implement a classroom investigation that answers the question: *Does the type of food influence what type of birds will come to a bird feeder?* **Note:** For a simple pinecone bird feeder, cover pinecones with vegetable shortening and coat with one type of food (e.g., black or striped sunflower seeds, millet, cracked corn, thistle). 	Based on observations of birds in the field, compare the food choices of birds in the study and create a chart to communicate findings. 	Identify the basic survival needs of plants and animals (classroom pets, plants used in classroom experiments). At this grade level, students will not be assessed on common or scientific names of living things. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- The Toledo Zoo offers distance learning Life Science opportunities for animal adaptations. Children can begin to explore how animal traits play a role in survival.
- The Annenberg Media series *Essential Science for Teachers: Life Science: Session 1: What is Life* provides background information about the basic needs of living things and provides classroom strategies for instruction.
- Observe a variety of living things in the wild or the classroom and ask questions about how they survive. *How do they get food? Where do they live? What do they use for shelter?* The Ohio Department of Natural Resources website also provides information about observing animals in the wild and promotes safety for children and wildlife. The Guide to Using Animals in the Classroom explains legally which organisms may be collected.
- Explore various plant life in the local environment. Document the conditions that support the plant. Ask: *Is the area moist? Is it dry? Does it get lots of sun or shade? What other types of plants are in the area?* The physical characteristics and habitat requirements for native trees in Ohio can be found on the Ohio State Extension website.

Common Misconceptions

- *Benchmarks for Science Literacy* contains a detailed discussion of energy. Scroll to section heading E for detailed information of grade-appropriate exposure to energy.
- Students may think that food must come from outside an organism. They may also think that fertilizers are actually plant food. They fail to understand that plants make sugars and starches through the process of photosynthesis and that light is essential for plant survival. *Beyond Penguins and Polar Bears* is an online magazine for K-5 teachers that provides information for misconceptions about plants.
- The Annenberg Media series *Essential Science for Teachers* can be used to provide greater insight to misconceptions children hold about living things and energy. Classroom videos and lessons are provided to help students avoid these misconceptions.
- The Annenberg Media series, *Essential Science for Teachers*, offers *Life Science: Sessions 1 and 2*, which provide greater insight to misconceptions children hold about living, dead and nonliving things and strategies to address those misconceptions.
- AAAS' Benchmarks 2061 Online, Chapter 15, 5e, *Flow of Matter and Energy*, highlights that children think plants get their food from the environment rather than making it internally from water and air. Students often have difficulty in identifying the source of energy for plants and animals.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Jeanie–K* is an example of how to teach young children about observations of the living environment.

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Model Curriculum
Grade 1
Life Science (LS)

Topic: Basic Needs of Living Things

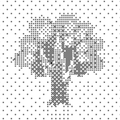
This topic focuses on the physical needs of living things in Ohio. Energy from the sun or food, nutrients, water, shelter and air are some of the physical needs of living things.

Content Statement

Living things survive only in environments that meet their needs.

Resources are necessary to meet the needs of an individual and populations of individuals. Living things interact with their physical environments as they meet those needs.

Effects of seasonal changes within the local environment directly impact the availability of resources.



Content Elaboration

Prior Concepts Related to Interactions within Habitats

PreK-K: Use macroscopic ways to identify living things. Living things have physical traits, which enable them to live in different environments.

Grade 1 Concepts

Plants and animals require resources from the environment. The focus at this grade level is on macroscopic interactions and needs of common living things (plants and animals).

Animals require basic habitat components, including food, water, cover and space. The amount and distribution of the basic components will influence the types of animals that can survive in an area. Food sources might include insects, plants, seeds or other animals. Water sources may be as small as drops of dew found on grass or as large as a lake or river. Animals need cover for many life functions, including nesting, escaping from predators, seeking shelter from the elements on a cold winter day and resting. Animals also need space in which to perform necessary activities such as feeding or raising young. Seasonal changes affect the resources available to living things (e.g., grasses are not as available in winter as they are in summer).

The needs of plants include room to grow, temperature range, light, water, air, nutrients and time (growing season). The amount and distribution of these will influence the types of plants that can survive in an area. Observations of seasonal changes in temperature, liquid water availability, wind and light must be applied to the effect of seasonal changes on local plants.

Future Application of Concepts

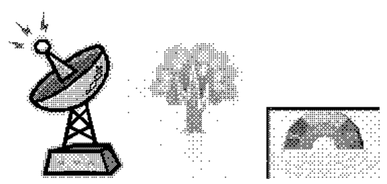
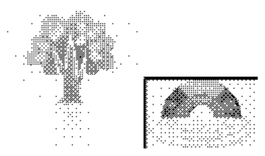
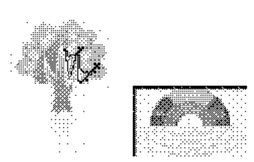
Grade 2: This concept expands to include interactions between organisms and the physical environment in which the organisms or the physical environment are changed.
Grade 3-5: The fact that organisms have life cycles that are part of their adaptations for survival in their natural environment builds upon this concept.
Grades 6-8: In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Using data from the Demonstrating Science Knowledge investigation, design a bird feeder and blend of birdseed that will attract the most birds of one kind or the greatest variety of birds. Share designs, results and recommendations with an authentic audience. 	Plan and implement a classroom investigation that answers the question: *Does the type of food influence what type of birds will come to a bird feeder?* **Note:** For a simple pinecone bird feeder, cover pinecones with vegetable shortening and coat with one type of food (e.g., black or striped sunflower seeds, millet, cracked corn, thistle). 	Explain, draw, journal and photograph what happens to local living and nonliving environments over the course of a school year. If resources are not available to draw or photograph, seasonal photographs taken in Ohio can be found on the Ohio Department of Natural Resources website. 	Match pictures of local plants and animals to the environment in which they can be found. Photographs of Ohio plants and animals can be found on the Ohio Department of Natural Resources website. 
	Plan and implement a classroom investigation to monitor a specific plant or animal over a long period (a semester or the school year). Observe and record the behavioral and physical changes that occur in that animal or plant. 		

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- The Great Backyard Bird Count is an opportunity to make observations, and collect and report data in a local environment to create a real-time snapshot of bird locations. Note the environmental conditions in the area when birds are spotted and when they migrate. Ask: *What do these environmental changes mean for the birds?*
- Cornell Lab of Ornithology sponsors a site to collect data for birds in the local environment by watching bird feeders to create a real-time snapshot of bird populations.
- Wildlife Watch is sponsored by the National Wildlife Federation. Students can identify and track plants and animals that are found locally and nationally. Information about the number of individuals spotted, pictures and personal stories can be recorded and shared on this site. Data can be used to determine what areas support what types of organisms and where organisms are thriving and barely surviving.
- *Near One Cattail: Turtles, Logs and Leaping Frogs* by Anthony D. Fredericks is a book resource recommended by the Ohio Resource Center and Americans for the Advancement of Science. The book can be used in conjunction with a host of activities for a nature study.

Common Misconceptions

- The Annenberg Media series *Essential Science for Teachers* can be used to provide greater insight to misconceptions children hold about living things and energy. Classroom videos and lessons are provided to help students avoid these misconceptions.
- *Benchmarks for Science Literacy* contains a detailed discussion of energy. Scroll to section heading E for detailed information of grade-appropriate exposure to energy.
- The Annenberg Media series, *Essential Science for Teachers*, offers *Life Science: Session 2*, which provides greater insight to misconceptions children hold about classifying living things and strategies to address those misconceptions.
- AAAS' Benchmarks 2061 Online, Chapter 15, *Interdependence of Life*, highlights that students understand simple food links between organisms but they think of organisms as independent of each other but dependent on people to supply them with food and shelter.

Diverse Learners

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Perkins School for the Blind, Watertown, MA, offers webcast videos including the video chapter *Accessible Science – Life Science*, which encourages the use of terrariums with visually handicapped students instead of aquariums. Find it at http://support.perkins.org/site/PageServer?pagename=Webcasts_Acessible_Science_Life_Science.

Classroom Portals

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A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Najwa and Pat–Grade 1* is an example of how to teach young children about the requirement of living things.

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Model Curriculum
Grade 1
Physical Science (PS)

Topic: Motion and Materials

This topic focuses on the changes in properties that occur in objects and materials. Changes of position of an object are a result of pushing or pulling.

Content Statement

Properties of objects and materials can change.

Objects and materials change when exposed to various conditions, such as heating or freezing. Not all materials change in the same way.

Note 1: Changes in temperature are a result of changes in energy.

Note 2: Water changing from liquid to solid and from solid to liquid is found in ESS grade 1.

Content Elaboration

Prior Concepts Related to Properties of Objects and Materials

PreK-K: Objects are things that can be seen or felt. Properties can be observed using tools or one's senses and can be used to sort objects. Comparisons of objects are made as a precursor to measurement.

Grade 1 Concepts:

Materials can be exposed to conditions that change some of their properties, but not all materials respond the same way. The properties of a material can change as it interacts with other materials. Heating and cooling changes some, but not all, properties of materials.

Some materials can be a liquid or solid at room temperature and may change from one form to the other with a change in the temperature. A liquid may turn into a solid when frozen. A solid may turn into a liquid when heated. The amount of the material in the solid or liquid remains the same. Investigations and experiments (may include virtual investigations) must be conducted to explore property changes of objects and materials.

Parts of objects have specific properties that allow them to work with other parts to carry out a particular function. Something may not work well or at all if a part of it is missing, broken, worn out, mismatched or misconnected. Toys that can be assembled from several parts can be investigated when one or more of the parts are missing.

Note: Emphasis is placed on observations. Concepts of thermal energy, atoms and heat transfer are inappropriate at this grade.

Future Application of Concepts

Grade 2: Water can change from liquid to vapor in the air and from vapor to liquid (ESS).
Grades 3-5: Matter is defined. Measurements of weight and liquid volume are made. Properties of solids, liquids and gases, and phase changes are explored. During any change, including phase changes, the total mass* remains constant. The sum of the mass of the parts of an object is equal to the mass of the entire object.

*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Investigate the multiple ways properties of objects and materials change.			
Using the findings (about shapes) from the Demonstrating Science Knowledge section, design and build a small boat out of recycled materials and can float in water for a specific period of time.  	Plan and implement an investigation to test various clay shapes (e.g., a clay ball, a clay block, flattened clay with edges) to determine how shape affects the ability of a material to float or sink in water. 	Compare different ways of changing an object or material (e.g., tearing, heating, cooling, mixing, taking apart, putting together). 	Recognize and classify various types of changes that objects or materials can go through to change observable properties (e.g., freezing, melting, tearing, wetting). 

Instructional Strategies and Resources

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- *Kitchen Magician* is a game from PBS Kids that emphasizes how materials can change during cooking.

Common Misconceptions

- Although two materials are required for the dissolving process, children tend to focus only on the solid and they regard the process as melting. (Driver , Squires, Rushworth & Wood-Robinson, 1994, p.80)
- Heat is a substance.
- Cold is the opposite of heat and is another substance.
- Melting/freezing and boiling/condensation are often understood only in terms of water.
- When things dissolve, they disappear.
- Melting and dissolving are confused.
- Cold can be transferred.

Diverse Learners

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Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

From a time of about 11:40, this video on demand produced by Annenberg shows how a teacher can lead children to make observations about changes in snow under different conditions. While content shown during other segments of the video does not apply to this content statement, watching the entire sequence demonstrates how Jennie learns to incorporate inquiry-based science activities into her lessons. These instructional strategies can be applied to any content area.

Starting at a time of about 17:50 on this video on demand produced by Annenberg, children explore changes of matter by mixing different colors of liquid drops. Allowing students to do their own experiments increases enthusiasm for science and encourages creativity. Later they mix colors using different colors of transparent cellophane. While content shown during other segments of the video does not apply to this content statement, watching the entire sequence demonstrates how Elsa learns to incorporate appropriate science experiences with lessons that teach social, motor and communication skills in her bilingual classroom. These instructional strategies can be applied to any content area.

In this beginning of this video on demand produced by Annenberg, Ingrid explores what students already know about phases of matter through a class discussion and journal writing. She then has students investigate the properties of phases and leads a class discussion to come to a consensus about what is important to know about solids, liquids and gases. While content shown during other segments of the video does not apply to this content statement, watching the entire sequence demonstrates how Ingrid, a beginning first-grade teacher, is working on incorporating student ideas into her lessons. Initially, she struggles with what to do with incorrect ideas. She ends up writing all ideas down and has students test the ideas and evaluate each idea based on evidence. While not all of the content is applicable to this content statement, the instructional strategies demonstrated can be applied to any content area.

Patricia, a first-grade teacher, explores the benefits and challenges of having children work in small groups, as opposed to a single classroom group, in this video on demand produced by Annenberg. She guides students to better social skills and learns to become more comfortable with less structure. While not all of the content is applicable to this content statement, the instructional strategies demonstrated can be applied to any content area.

Another video on demand produced by Annenberg features Najwa and Pat, first-grade teachers who are working to develop their students' science skills of prediction and observation. While not all of the content is applicable to this content statement, the instructional strategies demonstrated can be applied to any content area.

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Model Curriculum
Grade 1
Physical Science (PS)

Topic: Motion and Materials

This topic focuses on the changes in properties that occur in objects and materials. Changes of position of an object are a result of pushing or pulling.

Content Statement

Objects can be moved in a variety of ways, such as straight, zigzag, circular and back and forth.

The position of an object can be described by locating it relative to another object or to the object's surroundings.

An object is in motion when its position is changing.

The motion of an object can be affected by pushing or pulling. A push or pull is a force that can make an object move faster, slower or go in a different direction.

Note: Changes in motion are a result of changes in energy.

Content Elaboration

Prior Concepts Related to Motion

PreK-K: Vibrating objects can cause sound.

Grade 1 Concepts:

The position of an object is described by comparing its location relative to another object (e.g., in front, behind, above, below). Objects can be moved and their positions are changed.

Objects can move in a straight line (like a dropped coin falling to the ground) or a circle (like a pinwheel) or back and forth (like a swing) or even in a zigzag pattern. Objects near Earth fall to the ground unless something holds them up.

Object motion can be faster, slower or change direction by pushing or pulling the object. Experimentation, testing and investigations of different ways to change the motion of different objects (such as a ball, a pinwheel or a kite) must be used to demonstrate movement.

Note 1: Scientific definitions and calculations of speed are inappropriate at this grade.

Note 2: Force is a push or pull between two objects and energy is the property of an object that can cause change. A force acting on an object can sometimes result in a change in energy. The differences between force and energy will be developed over time and are not appropriate for this grade.

Future Application of Concepts

Grade 2: Forces are necessary to change the motion of objects.

Grades 3-5: The amount of change in movement of an object is based on the mass* of the object and the amount of force exerted.

*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Expectations for Learning: Cognitive Demands

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Visions into Practice: Classroom Examples

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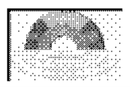
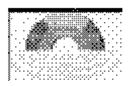
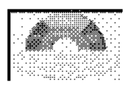
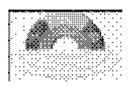
Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Investigate ways to make a ping-pong ball move in a zigzag pattern.			
Design, construct and test a device that will cause a ping-pong ball to move in a zigzag pattern. Test and evaluate the effectiveness of the different devices made by different groups in the class. Redesign the device for greater effectiveness.  		Compare the designs and their effectiveness from different devices made by different groups in the class. 	Recognize that to speed up, slow down or change the movement direction of an object, a push or pull is needed.
Investigate ways to change the motion of an object.			
	Implement a scientific investigation to determine: *How can a ball be made to speed up (slow down or change direction)?* With the class, list all the ways that were found. 	Orally present the results of the experiments to the class.  Make a written list of all the observations from the class. Compare the different methods used by different groups in the class. Represent the different motions of a toy in words, pictures and diagrams.	Recognize that to speed up, slow down or change the movement direction of an object, a push or pull is needed. Identify an object's position with respect to another object or the background.

Instructional Strategies and Resources

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- *Making Objects Move* provides a strategy that emphasizes an inquiry approach to teaching and learning about different motions of objects. It includes many questions for possible investigations that children can perform. The second part has an idea for a design project.
- *Force and Motion*, produced by Annenberg, is a series of videos designed for teachers to improve their knowledge of forces and motion and gives ideas for teaching the concepts to elementary learners. This particular segment demonstrates experiences with balls and inclined planes that can get first-grade children to observe movement and to make inferences about forces that start the balls moving.
- Have children choose a movement and race to the other side of classroom/gym.

Common Misconceptions

- The location of an object can be described by stating its distance from a given point, ignoring direction.
- The only natural motion is for an object to be at rest.
- If an object is at rest, no forces are acting on the object.

Diverse Learners

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Classroom Portals

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Ingrid, a beginning first-grade teacher, is working on incorporating children's ideas into her lessons in this video on demand produced by Annenberg. Initially, she struggles with what to do with incorrect ideas. She ends up writing all ideas down and has students test the ideas and evaluate each idea based on evidence. While not all of the content is applicable to this content statement, the instructional strategies demonstrated can be applied to any content area.

Force and Motion is a series of videos produced by Annenberg that is designed for teachers to improve their knowledge of forces and motion and gives ideas for teaching the concepts to elementary learners. This particular lesson shows how first-grade students can use balls in different ways to explore different types of motion.

Patricia, a first-grade teacher, explores the benefits and challenges of having children work in small groups, as opposed to a single classroom group, in this video on demand produced by Annenberg. She guides students to better social skills and learns to become more comfortable with less structure. While not all of the content is applicable to this content statement, the instructional strategies demonstrated can be applied to any content area.

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Grade 2
Introduction to Content Statements

Grade Band Theme: Observations of the Environment
This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.

Science Inquiry and Application
During the years of PreK-4, all students must become proficient in the use of the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:

- *Observe and ask questions about the natural environment;*
- *Plan and conduct simple investigations;*
- *Employ simple equipment and tools to gather data and extend the senses;*
- *Use appropriate mathematics with data to construct reasonable explanations;*
- *Communicate about observations, investigations and explanations; and*
- *Review and ask questions about the observations and explanations of others.*

Strands
Strand Connections: *Living and nonliving things may move. A moving object has energy. Air moving is wind and wind can make a windmill turn. Changes in energy and movement can cause change to organisms and the environments in which they live.*

Earth and Space Science (ESS)	Physical Science (PS)	Life Science (LS)
Topic: The Atmosphere *This topic focuses on air and water as they relate to weather and weather changes that can be observed and measured.*	**Topic: Changes in Motion** *This topic focuses on observing the relationship between forces and motion.*	**Topic: Interactions within Habitats** *This topic focuses on how ecosystems work by observations of simple interactions between the biotic/living and abiotic/nonliving parts of an ecosystem. Just as living things impact the environment in which they live, the environment impacts living things.*
Condensed Content Statements		
• The atmosphere is made up of air. • Water is present in the air • Long- and short-term weather changes occur due to changes in energy.	• Forces change the motion of an object.	• Living things cause changes on Earth. • Some kinds of individuals that once lived on Earth have completely disappeared, although they were something like others that are alive today.

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Model Curriculum
Grade 2
Earth and Space Science (ESS)

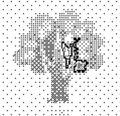
Topic: The Atmosphere

This topic focuses on air and water as they relate to weather and weather changes that can be observed and measured.

Content Statement

The atmosphere is made up of air.

Air has properties that can be observed and measured. The transfer of energy in the atmosphere causes air movement, which is felt as wind. Wind speed and direction can be measured.



Note: Air is introduced in ESS Kindergarten and can be linked to PS and LS.

Content Elaboration

Prior Concepts Related to Air and Atmosphere

PreK-1: Wind is moving air, air is a nonliving substance that surrounds Earth, wind can be measured and sunlight warms the air.

Grade 2 Concepts

In the earlier grades, wind is measured but not with a numerical value or directional data (e.g., wind may be moving faster/slower than yesterday and is coming from a different direction). In grade 2, wind can be measured with numeric value and direction (e.g., wind speed is 6 mph, wind direction is west to east).

Air takes up space (has volume) and has mass*. Heating and cooling of air (transfer of energy) results in movement of air (wind). The direction and speed of wind and the air temperature can be measured using a variety of instruments, such as windsocks, weather vanes, thermometers or simple anemometers. Weather events that are related to wind (e.g., tornadoes, hurricanes) are included in this content. Monitoring weather changes using technology (e.g., posting/sharing classroom data with other classes at the school or at other schools) can lead to review and questioning of data and evaluation of wind patterns that may be documented.

Experiments, models (including digital/virtual) and investigations must be conducted to demonstrate the properties of air, wind and wind-related weather events. Questions, comparisons and discussions related to actual data and the analysis of the data is an important way to deepen the content knowledge.

Future Application of Concepts

Grades 3-5: Renewable energy, air pollution and wind can weather and erode Earth's surface.
Grades 6-8: Thermal energy transfers in the atmosphere, air currents and global climate patterns.

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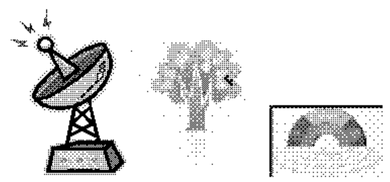
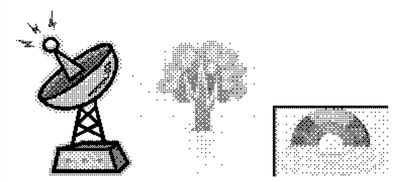
Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design and construct an instrument that can measure wind speed and wind direction. Properties of the chosen materials and design must be evaluated as part of the testing and decision making process. Demonstrate final product to the class. 	Plan and implement an experiment to illustrate that air has mass* and takes up space (has volume).  *While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.	Take measurements of wind speed and wind direction each day for two weeks. Record the measurements and plot results on a graph. Find and interpret patterns (e.g., when the wind comes from the south the speed is lower than when the wind comes from the north). 	Recognize that air takes up space and can be weighed. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Use everyday materials to allow students to experiment and make their own weather instruments. The process of testing and evaluating the instrument is even more important than the resulting product.
- Connecting students to current weather discoveries and events are ways to generate interest in the science behind the event. Accurate scientific articles and journals about weather, air, atmosphere and wind can help students relate what they are learning in the classroom to the world around them.

Common Misconceptions

- For examples of misconceptions that young children have about air and the atmosphere, and resources to address misconceptions through investigation, visit http://amasci.com/miscon/opphys.html.
- A common misconception regarding air and atmosphere is that air is nothing. It is important to provide activities for students that show properties of the atmosphere and air. For ways to allow students to demonstrate that air actually has mass* and takes up space (volume), visit http://weather.about.com/od/lessonplanselementary/ht/air_volume.html and http://weather.about.com/od/lessonplanselementary/ht/air_has_mass.htm.

*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Diverse Learners

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Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

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Model Curriculum
Grade 2
Earth and Space Science (ESS)

Topic: The Atmosphere

This topic focuses on air and water as they relate to weather and weather changes that can be observed and measured.

Content Statement

Water is present in the air.

Water is present in the air as clouds, steam, fog, rain, ice, snow, sleet or hail. When water in the air cools (change of energy), it forms small droplets of water that can be seen as clouds. Water can change from liquid to vapor in the air and from vapor to liquid. The water droplets can form into raindrops. Water droplets can change to solid by freezing into snow, sleet or hail. Clouds are moved by flowing air.

Note: This concept builds upon the changing properties of water from ESS grade 1.

Content Elaboration

Prior Concepts Regarding Relationship of Water and Air

PreK-1: Wind and water are observable parts of weather, sunlight warms water and air, and the physical properties of water can change (liquid to solid and solid to liquid).

Grade 2 Concepts

The physical properties of water (from grade 1) are expanded to include water vapor (water in the air). The different states of water are observed in weather events, nature and/or classroom investigations. The concepts of condensation and evaporation are explored through experimentation and observation. The different parts of the water cycle are explored and discussed. The emphasis at this grade level is investigating condensation and evaporation at depth, not memorizing the water cycle itself.

The focus is on investigation and understanding, not on the vocabulary. Cloud formation and types of clouds are introduced as they relate to weather, storm fronts and changing weather. Again, the emphasis is not in naming cloud types, but in relating the characteristics of the clouds with weather. Factors such as water contamination/pollution can be introduced within this content statement as it relates to pollutants that can enter waterways through precipitation, evaporation and condensation.

Experiments and investigations that demonstrate the conditions required for condensation or evaporation to occur lead to a deeper understanding of these concepts. Appropriate tools and technology (to observe, share results or to document data) is required. Relating the required conditions to actual observations (outside the classroom), collecting and documenting data, drawing conclusions from the data, and discussions about the findings must be included for this content statement.

Future Application of Concepts

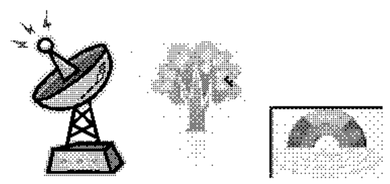
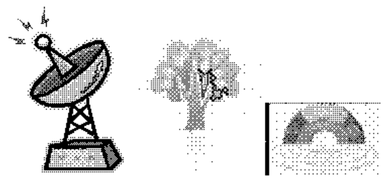
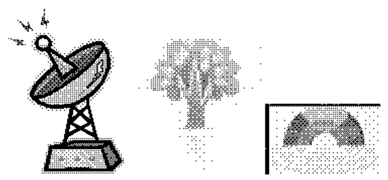
Grades 3-5: The states and conservation of matter, weathering and erosion of Earth's surface, seasonal changes and energy transfer are explored.
Grades 6-8: The hydrologic cycle, transfer of energy between the hydrosphere and lithosphere, and biogeochemical cycles are studied.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design and construct a community in an aquarium that is enclosed and has soil, plants and water. Test the effects of the sun on evaporation and condensation rates and the air and/or water temperature. Evaluate the findings and discuss with the class. 	Plan and implement an experiment to investigate what factors contribute to water evaporating into the atmosphere. Discuss the different results with the class to generate a list of all the possible methods that were tested. 	Compare the different appearances of clouds (shapes, sizes, shades of white/gray). Document the observations over a period of time to find if there is a relationship between the characteristics of the clouds and the weather (storms, precipitation types and/or amounts). 	Recognize that clouds, steam, fog, hail, snow, sleet and hail are examples of water in the atmosphere. 
	Plan and implement an experiment to investigate what happens when pollution is in a body of water that evaporates. Use a simple model that utilizes sediment, vinegar or vegetable oil as a contaminant. 		Recall that water can change from liquid to vapor and/or vapor to liquid. 
			Identify clouds as droplets of water and the droplets can combine and form into raindrops. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Providing specific examples that connect air temperature and changes in water prepares students for learning about the water cycle in later grades. Observing and experimenting with water and temperature (student-led exploration) strategies can help make this important connection. Though the water cycle itself should not be introduced at this grade level, the example illustrates how water gets into the atmosphere (evaporation) and then what happens when it is in the atmosphere (condensation).

Common Misconceptions

- It is difficult for young students to understand fully the process of condensation and how clouds form. The misconception that clouds are like cotton and/or have a solid "feel" to them can be addressed by investigations and experiments that are directly related to condensation and cloud formation. For a classroom-exploration example of making clouds in a bottle that can demonstrate cloud consistency, see http://eo.ucar.edu/kids/images/AtmoExp1.pdf.

Diverse Learners

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Classroom Portals

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The Annenberg Foundation offers training modules that support Earth and Space Sciences for K-4 teachers. There are numerous resources and video clips of actual classroom practices that can be useful training tools at http://www.learner.org/resources/series195.html.

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Model Curriculum
Grade 2
Earth and Space Science (ESS)

Topic: The Atmosphere

This topic focuses on air and water as they relate to weather and weather changes that can be observed and measured.

Content Statement

Long- and short-term weather changes occur due to changes in energy.

Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind.

Note: Discussion of energy at this grade level should be limited to observable changes.

Content Elaboration

Prior Concepts Related to Weather Changes

PreK-1: Weather changes during the day and from day to day. Weather changes can be long- or short-term. Weather changes can be measured and have patterns.

Grade 2 Concepts

Weather is a result of energy change. Heating and cooling of water, air and land (from sunlight) are directly related to wind, evaporation, condensation, freezing, thawing and precipitation. Weather patterns (long-term) and fronts (short-term) can be documented through consistent measuring of temperature, air pressure, wind speed and direction, and precipitation.

Weather data must be measured, collected and documented over a period of time and then connected to observable forms of energy (e.g., wind causes a sailboat to move, the sun can heat the sidewalk). Experiments and investigations (both inside and outside of the classroom) must be used to demonstrate the connection between weather and energy.

Note: Density and convection should not be introduced at this grade level.

Future Application of Concepts

Grades 3-5: Changes in energy and changing states of matter are explored in greater depth through applications other than weather. Renewable resources (energy sources) and changes in Earth's environment through time are examined.

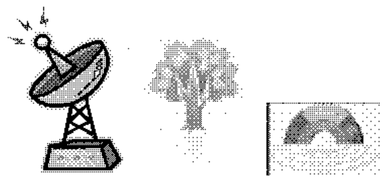
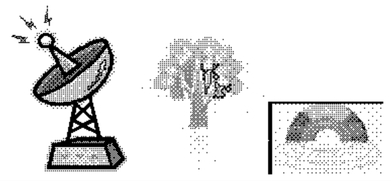
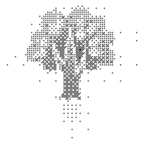
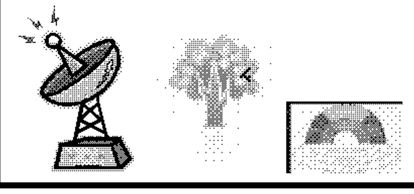
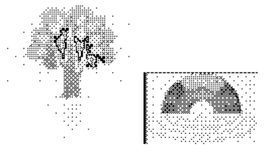
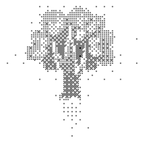
Grades 6-8: Changes of state are explained by molecules in motion, kinetic and potential energy. The hydrologic cycle and thermal energy transfers between the hydrosphere and atmosphere are studied.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design and construct an instrument that can measure wind speed and wind direction. Materials must be evaluated to determine the best material for the specific purpose. Discuss/share findings with the class or as a class. 	Plan and implement an investigation to collect and measure wind-chill data (or data that calculates the "feels like" temperature in the summer by relating humidity levels and temperature). Compare local results with a different location in the U.S. and discuss the similarities/differences of the data and the possible reasons for the similarities and differences. 	Based on student-collected data, outline the relationship between wind and cloud changes vs. changes in weather from one season to another season. Outline relationships in writing or through a class discussion, oral presentation or graphic representation. 	Recall that weather changes occur due to energy changes. 
	Plan and implement an investigation to determine the factors or characteristics that contribute to the changes in day-to-day weather (storms, fronts). Compare average annual temperatures between cites at the same latitude, but at different elevations or proximity to large lakes or the ocean. 	Research the long-term or short-term changes in weather that occur at specific weather fronts (e.g., ask: *What happens when warm, moist air collides with cold, dry air?*) Represent the findings graphically or present findings to the class. 	Recognize that a weather front is an area where different air masses collide. 

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- The National Center for Atmospheric Research provides support and educational materials for teachers and students to learn about the connection between the atmosphere and weather.
- Preparing to teach about the atmosphere requires keeping updated on new discoveries and innovative ideas to teach about air, wind and weather. *Science Now* is a free periodical science journal that details the latest atmospheric research for educators.
- Using scientifically accurate resources and data about the atmosphere and weather that is connected to Ohio can add relevancy and meaning to what is going on in the classroom. The Midwest Climate Center provides FAQs about weather and climate, on-going research projects and quality resources for elementary teachers.
- Newspapers can be used to provide actual real-time weather data to use in the classroom.

Common Misconceptions

- NASA lists common misconceptions for all ages about the sun and the Earth, including weather and seasons, at http://www-istp.gsfc.nasa.gov/istp/outreach/sunearthmiscons.html.
- For examples of misconceptions that young children have about energy, weather and the sun, and resources to address misconceptions through investigation, visit http://amasci.com/miscon/opphys.html.

Diverse Learners

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Model Curriculum
Grade 2
Life Science (LS)

Topic: Interactions within Habitats

This topic focuses on how ecosystems work by observations of simple interactions between the biotic/living and abiotic/nonliving parts of an ecosystem. Just as living things impact the environment in which they live, the environment impacts living things.

Content Statement

Living things cause changes on Earth.

Living things function and interact with their physical environments. Living things cause changes in the environments where they live; the changes can be very noticeable or slightly noticeable, fast or slow.

Note: At this grade level, discussion is limited to changes that can be easily observed.

Content Elaboration

Prior Concepts Related to Interactions within Habitats

PreK-1: Observe macroscopic characteristics of living things. Including basic survival needs of living things, how living things get resources from the environment and how available resources vary throughout the course of a year.

Grade 2 Concepts

The environment is a combination of the interactions between living and non-living components. Living things can cause changes in their environment, which can be observed. These interactions can cause changes in groups of living things and the physical environment. Conducting investigations (in nature or virtually) to document specific changes and the results of the changes must be used to demonstrate this concept (e.g., moles tunneling in a lawn, beavers or muskrats building dams, plants growing in cracks of rocks). Maps or charts (digital or 2-D) can be used to document the location of specific types of living things found in the local area.

The impact and actions of living things must be investigated and explored. The focus is not limited to human interaction with the environment. Observe earthworm compost bins, ant farms and weeds growing on vacant lots.

Future Application of Concepts

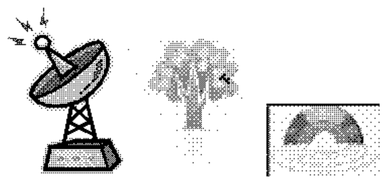
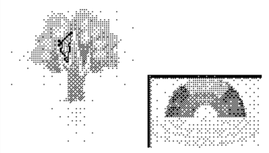
Grades 3-5: Changes that occur in an environment can sometimes be beneficial and sometimes harmful.
Grades 6-8: Matter is transferred continuously between one organism to another and between organisms and their physical environment.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design and build (with teacher help) a working worm composting bin or an ant farm (whichever is most appropriate for the classroom) that can be used to observe activity and actions of the worms or ants. **Note:** The project selected should be built based on student ideas not from a readymade kit. 	Plan and conduct an investigation that will compare identical soil samples, one with earthworms and one without earthworms, over an extended period of time. Include data about temperature, amount of moisture, appearance, materials added, materials removed and/or odor.  **Note:** For this grade level, the presence of bacteria and fungi are not included. Students may be able to see fungi fruiting bodies, but would not be able to see the fungal cells without using tools and content knowledge that are above this grade level.	Represent data obtained from classroom investigations or real-world examples in a chart, table or pictograph (e.g., make a table of data obtained from soil samples with earthworms as compared to soil samples without earthworms). 	Recognize scientifically accurate facts in stories about environmental change caused by living things. 

Instructional Strategies and Resources

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- Design build and maintain a worm-composting bin. Journal changes in the system and make connections on what is happening in the bin to what is happening in nature.
- Design and maintain an ant farm. Journal changes in the system and make connections on what is happening in the ant farm to what is happening in nature.
- Observe a plot of land that has been abandoned and make predictions about how the appearance of that property will change if there is no human intervention. If possible, document the changes throughout the year.
- Explore a beaver's habitat in nature or through media. Document observations of the beaver's habitat. Encourage children to ask questions about the impact of the dam on the ecosystem. Ask: *How many other organisms are impacted by the presence of the dam? How does the dam impact the river or stream?*

Common Misconceptions

- The Annenberg Media series *Essential Science for Teachers* can be used to provide greater insight to misconceptions children hold about living things and energy. Classroom videos and lessons are provided to help students avoid these misconceptions.
- AAAS' Benchmarks 2061 Online, Chapter 15, 5e, *Flow of Matter and Energy*, illustrates that students may think that dead organisms simply rot away. They do not realize that material is converted into other materials by decomposing agents.

Diverse Learners

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Topic: Interactions within Habitats

This topic focuses on how ecosystems work by observations of simple interactions between the biotic/living and abiotic/nonliving parts of an ecosystem. Just as living things affect the environment in which they live, the environment impacts living things.

Content Statement

Some kinds of individuals that once lived on Earth have completely disappeared, although they were something like others that are alive today.

Living things that once lived on Earth no longer exist; their basic needs were no longer met.

Content Elaboration

Prior Concepts Related to Interactions within Habitats

PreK-1: Living things have physical traits, which enable them to live in different environments.

Grade 2 Concepts

Fossils are physical traces of living things that are preserved in rock. By examining fossils, it can determined that some fossils look similar to plants and animals that are alive today, while others are very different from anything alive today.

Extinction refers to the disappearance of the last member of a living thing's kind. Sometimes extinction is described as the dying out of all members of the living thing's kind. Extinction generally occurs as a result of changed conditions to which the living thing's kind is not suited. Some kinds of living things that once lived on Earth have completely disappeared (e.g., the Sabertooth Cat, Smilodon). Some kinds of living things that once lived on Earth are something like others that are alive today (e.g., horses).

Explore and compare a vast array of organisms, both extinct (e.g., Rugosa Coral, Sphenopsids) and extant (e.g., Brain Coral, Equisetum). Research and exposure should focus on the organism and its environment for both extinct and extant organisms. Photographs, video, websites, books, local parks and museums can be used to visualize past environments and the organisms that lived in them.

Future Application of Concepts

Grade 3-5: Fossils will be addressed in more detail.
Grades 6-8: This concept will be expanded to providing a partial explanation of biodiversity.

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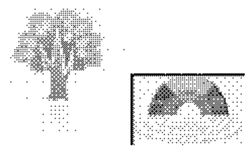
Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Test the durability of fossils made in the Demonstrating Science Knowledge section. Compare the fossils for strength, ease of breakage and resistance to dissolving in water. 	Make "fossils" of animal tracks using different kinds of soils (silt, sand, clay). Plaster of Paris can be used to make a cast or mold. Ask: *Which soil worked best to make the fossil and why?*  For a procedure that can be altered for use by different grades, see http://geophysics.esci.keele.ac.uk/earthlearningidea/PDF/66_Trail-making.pdf.	Compare the macroscopic features of organisms (e.g., an elephant) that are alive today with those of similar extinct organisms (e.g., a mammoth). 	Name an organism that was once abundant in the local area that now is extinct. 

Instructional Strategies and Resources

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- The Ohio Department of Natural Resources provides a list of Ohio's extinct species. Specific information about sphenopsid fossils is contained in the article *Coal*. These organisms can be compared to organisms that are living today. Have children note the differences between the species and compare the differences in each environment.
- Explore organisms that once lived in Ohio and no longer exist. *National Geographic* provides an article on the find of a giant cockroach fossil in Ohio. The Field Museum and *Science Daily* provide a rich source of information on the relationship between mammoths and elephants.
- Several sites provide instructions for making fossils. The following sites provide background information for construction but do not meet the requirement of the content statement: http://www.michigan.gov/documents/deq/p06create_304664_7.pdf; http://www.geology.siu.edu/outreach/making_fossils.htm; and http://www.nps.gov/miss/forteachers/upload/brjfossils.pdf.

Common Misconceptions

- The Field Museum provides a rich source of information on the relationship between mammoths and elephants.
- The Annenberg Media series *Essential Science for Teachers: Life Science: Session 2: Children's Ideas* provides greater insight to misconceptions children hold about classifying living things and strategies to address those misconceptions.
- AAAS' Benchmarks 2061 Online, Chapter 15, *The Research Base*, provides a comprehensive list of research findings that served as guidelines for the development of this book. Scroll down to *Classification of Life*.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The Annenberg video *Richard and Joann–Grade 2* provides examples of ways to integrate science and mathematics in second-grade classrooms. Be careful to check for local food safety rules and student allergies before using food in a classroom.

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Topic: Changes in Motion

This topic focuses on observing the relationship between forces and motion.

Content Statement

Forces change the motion of an object.

Motion can increase, change direction or stop depending on the force applied.

The change in motion of an object is related to the size of the force.

Some forces act without touching, such as using a magnet to move an object or objects falling to the ground.

Note: At this grade level, gravitational and magnetic forces should be introduced through observation and experimentation only. The definitions of these forces should not be the focus of the content statements.

Content Elaboration

Prior Concepts Related to Forces and Motion

PreK-1: Vibrating objects are observed producing sound. Motion is described as a change in an object's position. Forces are pushes and pulls that can change the motion of objects.

Grade 2 Concepts:

Forces are needed to change the movement (speed up, slow down, change direction or stop) of an object. Some forces may act when an object is in contact with another object (e.g., pushing or pulling). Other forces may act when objects are not in contact with each other (e.g., magnetic or gravitational).

Earth's gravity pulls any object toward it, without touching the object. Static electricity also can pull or push objects without touching the object. Magnets can pull some objects to them (attraction) or push objects away from them (repulsion). Gravity, static electricity and magnets must be explored through experimentation, testing and investigation at this grade level.

For a particular object, larger forces can cause larger changes in motion. A strong kick to a rock is able to cause more change in motion than a weak kick to the same rock. Real-world experiences and investigations must be used for this concept.

Note 1: Introducing fields, protons, electrons or mathematical manipulations of positive and negative to explain observed phenomena are not appropriate at this grade level.

Note 2: There often is confusion between the concepts of force and energy. Force can be thought of as a push or pull between two objects and energy as the property of an object that can cause change. A force acting on an object can sometimes result in a change in energy. The differences between force and energy will be developed over time and is not appropriate at this grade level.

Note 3: Charges and poles are often confused. It is important to emphasize they are different.

Future Application of Concepts

Grades 3-5: The amount of change in movement of an object depends on the mass* of the object and the amount of force exerted.

Grades 6-8: Speed is defined and calculated. The field concept for forces at a distance is introduced.

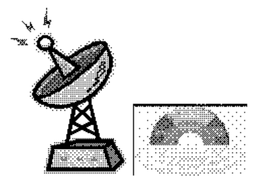
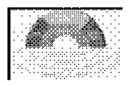
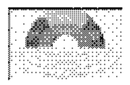
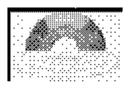
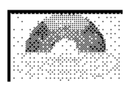
*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Investigate how noncontact forces can affect motion.			
Design and construct a device to move a matchbox car from one position to another without touching it. Test the device and evaluate the design. 	Plan and implement a scientific experiment to explore the effects some objects have on others even when the two objects might not touch (e.g., magnets). 	Pictorially represent the design. Compare the designs and their effectiveness from the different groups in the class. 	Identify a noncontact force that can affect the motion of an object.
Investigate ways to change the motion of objects.			
	Plan and implement a scientific experiment to explore how to change how something is moving (e.g., push, pull, speeding up, slowing down, changing direction, stopping). 	Represent the observations from the experiment orally and in writing. Explain the relationship between forces and motion.	Give two examples of how a force can be applied to an object.
	Predict the changes in motion that a moving object or an object at rest experiences when acted on by a force (e.g., push, pull, gravity). 	Compare what is needed to get stationary objects moving and what is needed to get moving objects to stop.	Identify contact/noncontact forces that affect motion of an object (e.g., gravity, magnetic force, contact). Recognize that greater changes in the motion of an object require larger forces.

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- *Making Objects Move* from NetLinks provides a strategy that emphasizes an inquiry approach to teaching and learning about different motions of objects.
- *Science in Focus: Forces and Energy* produced by Annenberg, is part of a series of videos on demand to help teachers improve their content knowledge about forces and energy. This particular segment focuses on forces and how they are related to, yet different from, work and energy. While children do not study work and energy until later, knowledge of these concepts can help teachers avoid perpetuating misconceptions.
- *Magnets and Springs* is an interactive simulation from BBC Schools that demonstrates two important concepts: change in motion depends on the amount of force, and some objects are attracted by magnets and others are not. The size of the magnet, the rotation of the magnet and the types of objects exposed to the magnet and the force that puts the magnet in motion can all be changed.
- *Pushes and Pulls* is an interactive simulation from BBC Schools in which children can investigate the effects of pushes and pulls on motion. The subsequent quiz is not aligned to the content statement.
- Observe attractions and repulsions involved with electrical (e.g., static electricity on a balloon or sweater) and magnetic forces (e.g., compass or bar magnet).

Common Misconceptions

- The only natural motion is for an object to be at rest.
- If an object is at rest, no forces are acting on the object.
- Only animate objects can exert a force. Thus, if an object is at rest on a table, no forces are acting on it.
- Force is a property of an object.
- An object has force and when it runs out of force, it stops moving.
- A force is needed to keep an object moving with a constant speed.
- Gravity only acts on things when they are falling.
- Only animate things (people, animals) exert forces; passive ones (tables, floors) do not exert forces.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

Starting at a time of about 8:50, children study magnetic forces on this video on demand produced by Annenberg. First, children gain experiential knowledge by sorting objects into things that can be picked up by magnets and those that cannot. Then, they explore whether the force of magnets can go through paper, water, wood and cloth. While content shown during other segments of the video does not apply to this content statement, watching the entire sequence demonstrates how Elsa learns to incorporate appropriate science experiences with lessons that teach social, motor and communication skills in her bilingual classroom. These instructional strategies can be applied to any content area.

Richard and Jo-Ann are second-grade teachers who are integrating math and science in this video on demand produced by Annenberg. Although not all of the content is directly aligned to this content statement, the strategies could be applied to any content. Especially interesting segments start at times of about 13:50 and 23:50 where children are asked to invent formulas for paste and cola. These segments are examples of how inquiry and design can be infused in an elementary classroom.

Linda is featured on this video on demand produced by Annenberg. She is a resource teacher who models inquiry-based science lessons for Grades 2-4 teachers in her large urban district. Although not all of the content is directly aligned to this content statement, the strategies could be applied to any content.

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Grade 3
Introduction to Content Statements

Grade Band Theme: Observations of the Environment

This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.

Science Inquiry and Application

During the years of PreK-4, all students must become proficient in the use of the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:

- *Observe and ask questions about the natural environment;*
- *Plan and conduct simple investigations;*
- *Employ simple equipment and tools to gather data and extend the senses;*
- *Use appropriate mathematics with data to construct reasonable explanations;*
- *Communicate about observations, investigations and explanations; and*
- *Review and ask questions about the observations and explanations of others.*

Strands

Strand Connections: *Matter is what makes up all substances on Earth. Matter has specific properties and exists in different states. Earth's resources are made of matter. Matter can be used by living things and can be used for the energy they contain. There are many different forms of energy. Each living component of an ecosystem is composed of matter and uses energy.*

Earth and Space Science (ESS)	Physical Science (PS)	Life Science (LS)
Topic: Earth's Resources *This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.*	**Topic: Matter and Forms of Energy** *This topic focuses on the relationship between matter and energy. Matter has specific properties and is found in all substances on Earth. Heat is a familiar form of energy that can change the states of matter.*	**Topic: Behavior, Growth and Changes** *This topic explores life cycles of organisms and the relationship between the natural environment and an organism's (physical and behavioral) traits, which affect its ability to survive and reproduce.*
Condensed Content Statements		
• Earth's nonliving resources have specific properties. • Earth's resources can be used for energy. • Some of Earth's resources are limited.	• All objects and substances in the natural world are composed of matter. • Matter exists in different states, each of which has different properties. • Heat, electrical energy, light, sound and magnetic energy are forms of energy.	• Offspring resemble their parents and each other. • Individuals of the same kind differ in their traits and sometimes the differences give individuals an advantage in surviving and reproducing. • Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.

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Model Curriculum
Grade 3
Earth and Space Science (ESS)

Topic: Earth's Resources

This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.

Content Statement

Earth's nonliving resources have specific properties.

Soil is composed of pieces of rock, organic material, water and air and has characteristics that can be measured and observed. Rocks have unique characteristics that allow them to be sorted and classified. Rocks form in different ways. Air and water are nonliving resources.

Note 1: Rock classification is not the focus for this grade level; this is found in grade 6. At this grade, the actual characteristics of rocks can be used to sort or compare, rather than formal classification.

Note 2: Properties of air and water have been addressed in PreK.

Content Elaboration

Prior Concepts Related to Properties of Nonliving Resources

PreK-2: Objects and materials can be sorted and described by their properties. Living things are different than nonliving things. Properties of objects and materials can change. Water and air have specific properties that can be observed and measured.

Grade 3 Concepts

The properties of air and water are introduced in the early elementary grades, so the focus at the third-grade level is on soil and rocks. Air and water are present within rocks and soil. Air and water also play an important role in the formation of rocks and soil. All are considered nonliving resources.

The characteristics of rocks and soil must be studied through sampling, observation and testing. This testing includes the ability of water to pass through samples of rock or soil and the determination of color, texture, composition and moisture level of soil. Measurable and observable characteristics of rocks include size and shape of the particles or grains (if present) within the rock, texture and color. Age-appropriate tools must be used to test and measure the properties. The characteristics of the rock can help determine the environment in which it formed. Technology can be used to analyze and compare test results, connect to other classrooms to compare data or share samples, and document the findings.

Note: It is important to use the term "soil," not "dirt." Dirt and soil are not synonymous.

Future Application of Concepts

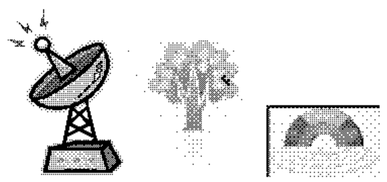
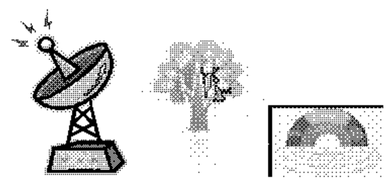
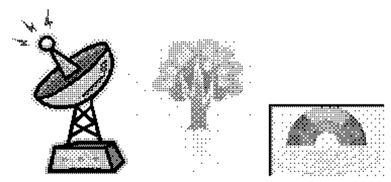
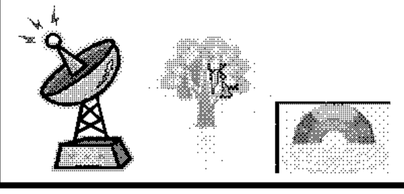
Grades 4-5: The characteristics of both soil and rock are related to the weathering and erosion of soil and rock, which result in changes on Earth's surface. The general characteristics of Earth are studied.
Grades 6-8: Further exploration of soil and rock classification is found with the expansion of instruction to minerals and mineral properties.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design and construct a pond, water garden or a wetland environment in a terrarium. Evaluate different soil types to ensure that the chosen soil is able to hold water and support plant life. Present the explanation of the process and the findings to the class.  **Note:** Must use the soil properties investigated to make these determinations.	Plan and implement an investigation to test specific properties of different types of soil, such as ability to absorb (hold) water, matching/designating soil color, the ability for water to pass through the soil, the filtering properties of soil.  **Note:** A similar investigation can be conducted for the characteristics of rocks.	Make a chart, identification key or a local soil map that can be used to interpret soil composition (sand, silt, clay organic material) and/or compare soil types (based on soil properties).  **Note:** A similar chart or map can be made for the characteristics of rocks.	Identify rock, soil, air and water as examples of non-living resources. Recognize that soil can have different texture, composition or color depending on the environment in which it formed. 
	Plan and build a simple sediment tube that can demonstrate how sand, silt, clay and organic material settle in water. Based on the findings, ask: *Which soil type would create muddy water in a stream? Which soil type would wash away faster/farther? What properties of soil contribute to these observations?* 	Make a dichotomous key to organize different types of rocks by grain size, texture, color or patterns. Graphically represent and clarify the sorted results.	Recall that rocks can be sorted based on characteristics such as grain-size (texture), color and patterns. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Conducting student-led experiments, research and investigations to test soil properties is an important way to allow students to explore and learn about all aspects of soil. The GLOBE Program provides examples, data and resources to test specific types of soil and soil properties for elementary students. There also are opportunities to connect to other classrooms and compare soil data.
- The Ohio Department of Natural Resources' Soil and Water Conservation Division provides resources and support to teach about soil and properties of soil to elementary students. This page provides examples of soil profiling, how to conduct soils tests and maps of local soils (including a *Web Soil Survey* feature that allows students to locate the soil types in their own backyards or at their schools.
- The Soil Science Society of America provides information about soils, testing the properties of soil and what soil scientists do. It also provides links to educational resources for soils. There are numerous age-appropriate resources that can support the teaching of soils in the third-grade classroom.
- NASA developed a program called *Dr. Soil* that includes numerous references, resources and lab activities to help support the teaching of soil to young students.
- Encouraging student rock collections to create classroom sample sets can connect nature to the classroom. ODNR provides helpful resources and geologic maps that can be used to study landforms and surface geology of Ohio. The surface geology map can be used to determine the types of rocks that may be found in the local areas (near the school) and to assist in field collections or discussions. GeoFacts is another site within ODNR that provides geologic facts related to Ohio and ODNR's Hands on Earth Science program offers educational support in multiple areas of Earth Science, including rocks, water and soil.

Common Misconceptions

- Funded by the National Science Foundation, *Beyond Penguins and Polar Bears* is an online magazine for K-5 teachers. It provides some common misconceptions about sorting rocks at early elementary levels, which can begin at the preschool level when children may think that size or color should be used to identify types of rocks. For common misconceptions about rocks and minerals, visit http://beyondpenguins.nsdl.org/issue/column.php?date=September2008&departmentid=professional&columnid=professional!misconceptions.
- Students often think soil is alive. While living things live in soil and organic soil is composed of once-living things, they need to understand that soil itself is not alive. For a toolkit on soils, visit http://www.wastatelaser.org/_support/toolkits/stc/soils/misconcepts.asp.
- Students may think soil type is determined by color. Soil type is actually determined based on particle size. Color is dependent upon the rock type from which the soil is formed over time.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Erien, Year One–Grade 5* is an example of how to conduct soil profiling in an elementary class setting. Of particular interest are the questioning techniques that Erien uses with her students to generate interest.

The Annenberg Foundation offers training modules that support Earth and Space Sciences for K-4 teachers. There are numerous resources and video clips of actual classroom practices that can be useful training tools at http://www.learner.org/resources/series195.html.

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Model Curriculum
Grade 3
Earth and Space Science (ESS)

Topic: Earth's Resources

This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.

Content Statement

Earth's resources can be used for energy.

Many of Earth's resources can be used for the energy they contain. Renewable energy is an energy resource, such as wind, water or solar energy, that is replenished within a short amount of time by natural processes. Nonrenewable energy is an energy resource, such as coal or oil, that is a finite energy source that cannot be replenished in a short amount of time.

Content Elaboration

Prior Concepts Related to Energy from Earth's Resources

PreK-2: Wind is moving air, water and wind have measurable properties, and sunlight warms the air and water

Grade 3 Concepts

Distinguishing between renewable and nonrenewable resources through observation and investigation is the emphasis for this content statement. This can be connected to learning about the different forms of energy (PS grade 3). Electrical circuit or solar panel models can be used to demonstrate different forms of energy and the source of the energy. The conservation of energy is explored within the content statement *Some of Earth's resources are limited.*

Specific energy sources in Ohio are introduced, such as fossil fuels found in Ohio, new energy technologies, and the development of renewable energy sources within Ohio. Ohio must be compared to other states regarding energy sources.

Future Application of Concepts

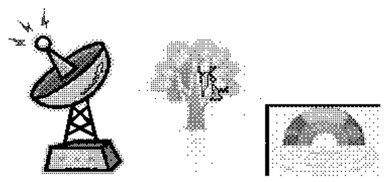
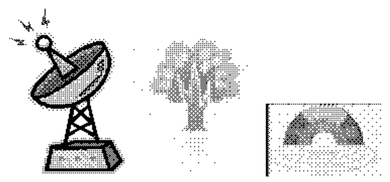
Grades 4-5: Energy is explored through electrical energy, magnetic energy, heat, light and sound.
Grades 6-8: The formation of coal, oil and gas, kinetic and potential energy, thermal energy, energy conservation, energy transfer (includes renewable energy systems) and additional examination of nonrenewable resources are studied.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Research, design and/or construct a model of a simple energy collection system for a specific location (use locations in Ohio or areas near water/prairies/rivers/mountains). Provide a selection of everyday materials for the model (rather than a preplanned kit), such as PVC piping and Mylar to make a windmill or water wheel to allow student-led investigation and design. 	Develop a plan to determine the most effective method of collecting renewable energy (e.g., shapes/number/materials used in wind or water turbines, locations that allow solar panels to collect the most energy from the sun). 	Research the efficiency and cost of different types of energy resources (renewable and/or nonrenewable). Compare and contrast the findings. Present or discuss findings with the class. 	Recognize the differences between renewable and nonrenewable energy. Be able to provide examples of each. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- To understand the relationship between energy and wind, the Texas Energy Conservation Office developed fact sheets and other resources for elementary students and teachers. There also are ideas for activities and projects, all related to renewable energy.
- The National Renewable Energy Laboratory provides links to elementary wind programs (like KidWind and Wind for Schools) and resources and support for teaching about wind and wind turbines. There is information about national challenges for building wind turbine models at different grade levels and links to learn about solar energy and the relationship of solar and wind energy.
- The National Energy Education Development Project provides online information about energy sources at the primary grades, offers free downloads of primary books, and supports the teaching of a variety of energy resources, inquiry-based labs and experiments.
- Hydrologic power basics (at the teacher level) can be found at the USGS website. This basic information can be adapted to an observational level for students in grade 3. Building simple water turbines can be a good way to explore this renewable energy resource.
- Combine/integrate energy resources with PS grade 3 to learn about different forms of energy.

Common Misconceptions

- Misconceptions about fossil fuels and energy resources are common. Use effective questioning to help understand preconceptions that elementary students may have about energy resources and address the misconceptions.
- Students may have difficulty differentiating between renewable and nonrenewable resources. Providing investigations and local (Ohio) examples can help students make the connections needed for this understanding. For a teacher fact sheet with important examples to support this content statement and to ensure that misconceptions are addressed, see http://www.epa.gov/osw/education/quest/pdfs/unit1/chap1/u1_natresources.pdf.

Diverse Learners

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The Annenberg Foundation offers training modules that support Earth and Space Sciences for K-4 teachers. There are numerous resources and video clips of actual classroom practices that can be useful training tools at http://www.learner.org/resources/series195.html.

Topic: Earth's Resources

This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.

Content Statement

Some of Earth's resources are limited.

Some of Earth's resources become limited due to overuse and/or contamination. Reducing resource use, decreasing waste and/or pollution, recycling and reusing can help conserve these resources.

Content Elaboration

Prior Concepts Related to Limit of Earth's Resources

PreK-2: Properties of objects and materials can change. The amount of exposure to sunlight affects the warming of air, water and land. Living things acquire resources from nonliving components. Resources are necessary for living things.

Grade 3 Concepts

Within third grade, the focus is on the different types of Earth's resources, how they are used and how they can be conserved. Scientific data should be used to evaluate and compare different methods of conservation (e.g., effectiveness of different kinds of recycling such as paper vs. metal). The concentration must be the science behind the conservation of resources and why certain resources are limited. Reducing or limiting the use and/or waste of resources should be emphasized (rather than concentrating only on recycling of resources).

Future Application of Concepts

Grades 4-5: Conservation of matter, environmental changes through Earth's history and erosion (loss of resources/contamination) are introduced.

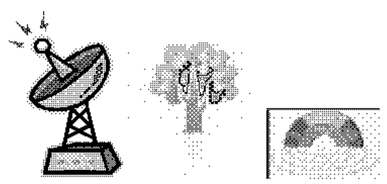
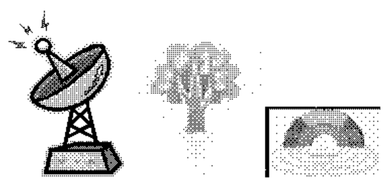
Grades 6-8: Common and practical uses of soil, rock and minerals (geologic resources), biogeochemical cycles, global climate patterns and interactions between the spheres of Earth (Earth Systems) are found.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design and carry out a plan to reduce the use of specific resources at the school, school district or local community. Data collection can include water use, paper use, soil erosion, composting (food waste), hazardous waste and examination of the types of programs available in the local area. Once data is analyzed and plans are chosen, present findings to school and/or community officials. 	Plan and implement an investigation to collect and analyze data pertaining to the school's recycling rate to determine what types of materials have a high recycling rate and which have low rates (and reasons why). Graph and present the findings to school administrators or community officials. 	Research different types of recycling (paper, plastics, metals, glass) and make a comparison table to document methods, effectiveness, recycling rates, benefits and/or problems. 	Recognize that some of Earth's resources are limited and need to be conserved. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- The National Institute of Environmental Health Sciences offers support for teaching about recycling, reducing waste and reusing materials for elementary-aged students. Sign up for a newsletter to keep abreast of current events related to reducing, reusing and recycling materials.
- The EPA provides educational resources for primary students pertaining to Earth's resources, including background information, project ideas, starting up school recycling programs, how to reduce material use, challenges/contests for student participation and recycling clubs for K-5 students.
- The Ohio Department of Natural Resources provides a recycling guide for Ohio with an explanation of what and how things can be recycled in Ohio.
- The Ohio EPA provides lists of educational projects and educational opportunities that address Earth's resources. The lists can be used as idea starters and for inquiry-based student projects and provide contact information for teacher training.
- NSTA provides learning modules called *SciPacks* that are designed to increase teacher content knowledge through inquiry-based modules. This module addresses Earth's Resources.
- The National Energy Education Development Project provides online information about energy sources at the primary grades, offers free downloads of primary books, and supports the teaching of a variety of energy resources, inquiry-based labs and experiments.
- Take a field trip to a local landfill, recycling center, factory/industry that makes materials such as glass or metal or go to a water treatment facility to learn about the cycling of materials from production to disposal. SWACO offers fieldtrips, as do many landfill facilities.

Common Misconceptions

- A common misconception is that as long as an item is recycled there is no need to limit the use of that item. It is important that students know that it is always better to reduce or limit the use of a resource than to use and recycle. Recycling requires energy resources and also can create other unintended issues (due to the recycling process). By investigating the efficiency of recycling, students can begin to understand that many resources are limited and cannot be effectively recycled after use.
- Misconceptions about fossil fuels and energy resources are common. Use effective questioning to help understand preconceptions that elementary students may have about energy resources and address the misconceptions.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

A series of case studies of K-8 science classrooms by the Smithsonian and Harvard University can be found at http://www.learner.org/resources/series21.html. Teachers need to sign up to use this free site. The case study *Erien, Year One–Grade 5* is an example of how to conduct soil profiling in an elementary class setting. Of particular interest are the questioning techniques that Erien uses with her students to generate interest.

The Annenberg Foundation offers training modules that support Earth and Space Sciences for K-4 teachers. There are numerous resources and video clips of actual classroom practices that can be useful training tools at http://www.learner.org/resources/series195.html.

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Model Curriculum
Grade 3
Life Science (LS)

Topic: Behavior, Growth and Changes

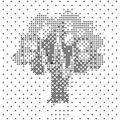
This topic explores life cycles of organisms and the relationship between the natural environment and an organism's (physical and behavioral) traits, which affect its ability to survive and reproduce.

Content Statement

Offspring resemble their parents and each other.

Individual organisms inherit many traits from their parents indicating a reliable way to transfer information from one generation to the next.

Some behavioral traits are learned through interactions with the environment and are not inherited.



Content Elaboration

Prior Concepts Related to Behavior, Growth and Changes

PreK-2: Similarities and differences exist among individuals of the same kinds of plants and animals.

Grade 3 Concepts

Organisms are similar to their parents in appearance and behavior but still show some variation. Although the immature stages of some living things may not resemble the parents, once the offspring matures, it will resemble the parent. At this grade level, the focus is on establishing, through observation, that organisms have a reliable mechanism for ensuring that offspring resemble their parents. It is not appropriate or necessary to introduce the genetic mechanisms involved in heredity, however, care should be taken to avoid introducing the misconception that the individual organism has a way to select the traits that are passed on to the next generation. As part of the study of the life cycle of organisms, the physical appearance of the adults will be compared to the offspring (e.g., compare butterflies to determine if offspring look exactly like the parents).

A considerable amount of animal behavior is directly related to getting materials necessary for survival (food, shelter) from the environment and that influences what an animal learns. The focus at this grade level is on examples provided through observation or stories of animals engaging in instinctual and learned behaviors. Some organisms have behavioral traits that are learned from the parent (e.g., hunting). Other behavior traits that are in response to environmental stimuli (e.g., a plant stem bending toward the light). At this grade level, the definition of either instinctual or learned behavior is not learned. The focus is on making observations of different types of plant and animal behavior.

Technology (e.g., a webcam) can be used to observe animals in their natural or human-made environments.

Future Application of Concepts

Grades 6-8: These observations will build to a description and understanding of the biological mechanisms involved in ensuring that offspring resemble their parents. Cell Theory will be introduced which will explore how cells come from pre-existing cells and new cells will have the genetic information of the old cells. The details of reproduction will be outlined.

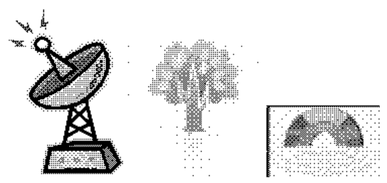
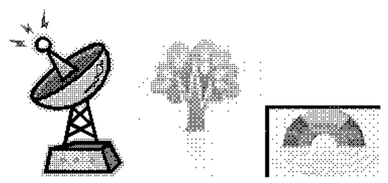
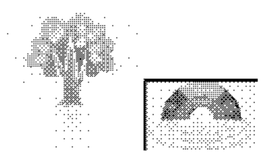
Note: Human genetic study is not recommended since not all students may have information available from their biological parents.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Design an enriched environment that will support a classroom pet. Provide for all of its needs. The Smithsonian National Zoological Park states, "Environmental enrichment is the process of providing stimulating environments for Zoo animals in order for them to demonstrate their species-typical behavior, to allow them to exercise control or choice over their environment and to enhance their well-being." Find more about animal environment enrichment at http://nationalzoo.si.edu/SCBI/AnimalEnrichment/default.cfm. 	Conduct a real-time observational study of a familial grouping of organisms. Use webcams to view animals in their natural habitat or simulated environments to observe and record physical characteristics of the animals as well as behavioral traits that are taught from parent to offspring. Falcon cams are used by the Ohio Department of Natural Resources and can be used for this study at http://ohiodnr.com/wildlife/dow/falcons/Default.aspx. 	Based on data from Demonstrating Science Knowledge, develop a chart that compares features such as stages of development, food sources, where it is found in the environment, and physical appearance to emphasize the similarity and differences between offspring and parents. 	Give examples of variations among individuals of a local population of dandelions (e.g., height, color, weight). 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Use webcams to view animals in their natural habitat or simulated environments to observe and record physical characteristics of the animals as well as behavioral traits that are taught from parent to offspring. Falcon cams are used by the Ohio Department of Natural Resources and can be used for this study. The North American Bear Center and the International Wolf Center also have webcams that can be used to study animals in their habitat.
- The Annenberg Media series *Essential Science for Teachers: Life Science: Session 3 and 4* provides information about how children can learn about the life cycles of animals and offers classroom footage to illustrate implementation.

Common Misconceptions

- The Annenberg Media series Essential Science for Teachers can be used to provide greater detail on life cycles within the elementary curriculum and misconceptions students may have about various traits.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

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Sessions 3 and 4 of the Annenberg Media series *Essential Science for Teachers: Life Science* provide information about how children can learn about the life cycles of animals and offer classroom footage to illustrate implementation at http://www.learner.org/resources/series179.html.

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Model Curriculum
Grade 3
Life Science (LS)

Topic: Behavior, Growth and Changes

This topic explores life cycles of organisms and the relationship between the natural environment and an organism's (physical and behavioral) traits, which affect its ability to survive and reproduce.

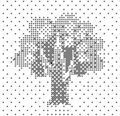
Content Statement

Individuals of the same kind differ in their traits and sometimes the differences give individuals an advantage in surviving and reproducing.

Plants and animals have physical features that are associated with the environments where they live.

Plants and animals have certain physical or behavioral characteristics that improve their chances of surviving in particular environments.

Individuals of the same kind have different characteristics that they have inherited. Sometimes these different characteristics give individuals an advantage in surviving and reproducing.



Note: The focus is on the individual, not the population. Adaption is not the focus at this grade level.

Content Elaboration

Prior Concepts Related to Behavior, Growth and Changes

PreK-2: Similarities and differences exist among individuals of the same kinds of plants and animals. Living things have physical traits and behaviors that influence their survival.

Grade 3 Concepts

Organisms have different structures and behaviors that serve different functions. Some plants have leaves, stems and roots; each part serves a different function for the plant. Some animals have wings, feathers, beaks; each part serves a different function for the animals. The observation of body parts should be limited to gross morphology and not microscopic or chemical features. Comparison across species is not appropriate at this grade level; only observation of variation within the same species is expected. This content statement can be combined with the observation of the life cycles of organisms and/or the observation of the similarity between offspring and parents.

There may be variations in the traits that are passed down that increase the ability of organisms to thrive and reproduce. Some variations in traits that are passed down may reduce the ability of organisms to survive and reproduce. Some variations in traits that are passed down may have no appreciable effect on the ability of organisms to survive and reproduce. Variations in physical features among animals and plants can help them survive in different environmental conditions. Variations in color, size, weight, etc., can be observed as the organism develops.

Plants and animals that survive and reproduce pass successful features on to future generations. Some grade-appropriate organisms to study are plants (e.g., radishes, beans) and insects (e.g., butterflies, moths, beetles, brine shrimp). Comparisons can be made in nature or virtually. Venn diagrams can be used to illustrate the similarities and differences between individuals of the same type.

Future Application of Concepts

Grades 4-5: Changes in the environment may benefit some organisms and be a detriment to other organisms.

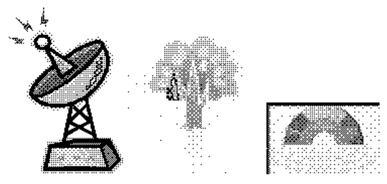
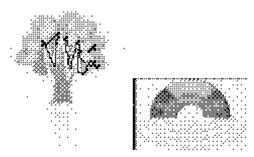
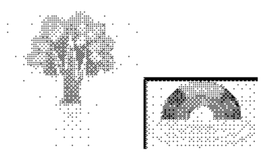
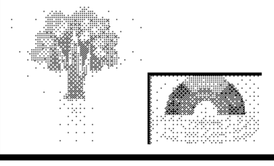
Grades 6-8: The reproduction of organisms will explain how traits are transferred from one generation to the next.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
In the process of planning an investigation to study the life cycle of a butterfly, evaluate the design of three emergence cages. Evaluate each cage using scientific knowledge about the needs of butterflies. Using the information from the study, design and build an "improved" butterfly emergence cage. Learn more at http://monarchwatch.org/rear/cages.htm. 	Plan and conduct an experiment to find out the optimal conditions for seed germination. Include in the conclusions scientific information about why not all seeds germinated. 	Write a report explaining how the behavioral or physical characteristic is an advantage of a specific animal or plant for surviving in its environment (e.g., *what adaptations does a pine tree have for living in colder environments?)* 	Name some physical features of plants and animals that are associated with the environment in which they live (e.g., coloration, location of eyes, type of feet). 
		Conduct a comparative study of a population of plants in the school yard, measure and compare some of the following: root size (width and depth) leaf size (length and width) flower color, number of petals, time of year when plant blooms, number of seeds produced or when seeds are produced. 	

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- *Smithsonian Biodiversity Science in the Classroom: Teach, Learn, Explore, Observe and Inquire* illustrates how to set up a meter square investigation so that children can conduct an investigation by documenting seasonal changes in their local area.
- Monarchwatch.org provides guidance on how to hatch and raise butterflies for classroom observations of the life cycle. Additional information about emergence cages also can be found on this site.
- The program One Species at a Time allows an audio tour of the wonders of nature by examining a variety of life forms through stories and ways to hone backyard observation skills. This program is developed by the Encyclopedia of Life and Atlantic Public Media.

Common Misconceptions

- The Annenberg Media series *Essential Science for Teachers* can be used to provide greater detail on life cycles within the elementary curriculum and misconceptions students may have about various traits.

Diverse Learners

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Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

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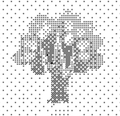
Topic: Behavior, Growth and Changes

This topic explores life cycles of organisms and the relationship between the natural environment and an organism's (physical and behavioral) traits, which affect its ability to survive and reproduce.

Content Statement

Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.

Over the whole earth, organisms are growing, reproducing, dying and decaying. The details of the life cycle are different for different organisms, which affects their ability to survive and reproduce in their natural environments.



Note: The names of the stages within the life cycles are not the focus.

Note: New organisms are produced by the old ones.

Content Elaboration

Prior Concepts Related to Behavior, Growth and Changes

PreK-2: Plants and animals have variations in their physical traits that enable them to survive in a particular environment. Some organisms exhibit seasonal behaviors that enable them to survive environmental conditions and changes.

Grade 3 Concepts

Plants and animals have life cycles that are adapted to survive in distinct environments (e.g., bean plants can be grown inside during winter, but cannot grow outside in the winter). Most life cycles start with birth, then progress to growth, development, adulthood, reproduction and death. The process can be interrupted at any stage. The details of the life cycle are different for different organisms.

Observation of the complete life cycle of an organism can be made in the classroom (e.g., butterflies, mealworms, plants) or virtually. Hand lens, magnifying lenses, metric rulers and scales are some of the tools that can be used to question, explore and investigate the physical appearance of living things.

When studying living things, ethical treatment of animals and safety must be employed. Respect for and proper treatment of living things must be modeled. For example, shaking a container, rapping on insect bottles, unclean cages or aquariums, leaving living things in the hot sun or exposure to extreme temperatures (hot or cold) must be avoided. The National Science Teachers Association (NSTA) has a position paper to provide guidance in the ethical use and treatment of animals in the classroom at http://www.nsta.org/about/positions/animals.aspx.

Future Application of Concepts

Grades 4-5: Organisms perform a variety of roles in an ecosystem.

Grades 6-8: The structure and organization of organisms and the necessity of reproduction for the continuation of the species will be detailed.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

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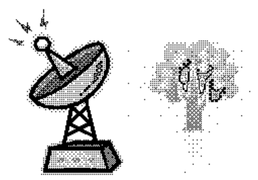
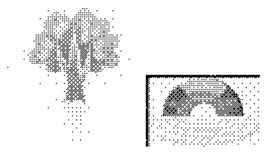
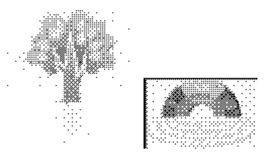
Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
In the process of planning an investigation to study the life cycle of a butterfly, evaluate the design of three emergence cages. Evaluate each cage using scientific knowledge about the needs of butterflies. Using the information from the study, design and build an "improved" butterfly emergence cage. Learn more at http://monarchwatch.org/rear/cages.htm. 	Plan and conduct an experiment to find out the optimal conditions for seed germination. Include in the conclusions scientific information about why not all seeds germinated. 	Explain why some animals have offspring in the spring and some plants produce seeds in the fall. 	Given labeled photographs of stages of animal or plant life cycles, place them in sequence from egg to adult. 

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- Explore how organisms reproduce, grow and find shelter in habitats around the world. The National Geographic website for kids houses information about the life cycles of animals from around the world. The National Wildlife Federation features Ranger Rick, with links to a variety of different types of wildlife. Plants and animals are featured in their natural habitats and their life cycles can be explored though stories and pictures.
- The life cycle of organisms can be observed in the classroom or virtually via The Children's Butterfly Site, the PEACHES Lady Bug Saves the Roses website or other grade-appropriate sources of information on the life cycle of organisms. These sites include local, national and international projects and interactive games that explore various organisms.
- Sessions 3 and 4 of the Annenberg Media series *Essential Science for Teachers: Life Science* provide information about how children can learn about the life cycles of animals and offer classroom footage to illustrate implementation at http://www.learner.org/resources/series179.html.

Common Misconceptions

- The Annenberg Media series *Essential Science for Teachers* can be used to provide greater detail on life cycles within the elementary curriculum and misconceptions students may have about various traits.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

Session 5 of the Annenberg Media series *Essential Science for Teachers: Life Science* provides information about how children can learn about the variations of living things and offers classroom footage to illustrate implementation at http://www.learner.org/resources/series179.html.

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Model Curriculum
Grade 3
Physical Science (PS)

Topic: Matter and Forms of Energy

This topic focuses on the relationship between matter and energy. Matter has specific properties and is found in all substances on Earth. Heat is a familiar form of energy that can change the states of matter.

Content Statement

All objects and substances in the natural world are composed of matter.

Matter takes up space and has mass*.

*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Content Elaboration

Prior Concepts Related to Matter

PreK-2: Objects are things that can be seen or felt. Properties of objects may be described, measured and sorted. The physical properties of water change as observed in weather. Air has mass* and takes up space (ESS).

Grade 3 Concepts:

Objects are composed of matter and matter has observable properties. Matter is anything that has mass and takes up space. All solids, liquids and gases are made of matter.

Volume is a measure of the amount of space an object takes up. Volumes of liquids can be measured in metric units with a beaker or graduated cylinder. Weight is a measure of gravity (how strongly Earth's gravity pulls the object toward Earth). Weight is measured using a scale. For any given location, the more matter there is in an object, the greater the weight. Opportunities to investigate and experiment with different methods of measuring weight and liquid volume must be provided.

Objects are made of smaller parts, some too small to be seen even with magnification. Matter continues to exist, even when broken into pieces too tiny to be visible.

Notes: Atomic and subatomic nature of matter is not appropriate at this grade. Math standards at this grade limit volume measurements to liquids measured to the nearest whole number. This document follows the recommendations of the NAEP 2009 Science Framework (see page 27) for dealing with the concepts of mass and weight.

Future Application of Concepts

Grades 4-5: The mass and total amount of matter remains the same when it undergoes a change, including phase changes. The sum of the mass of the parts of an object is equal to the weight (mass) of the entire object.

Grades 6-8: The atomic model is introduced. Properties are explained by the arrangement of particles.

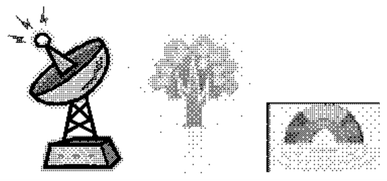
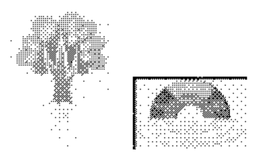
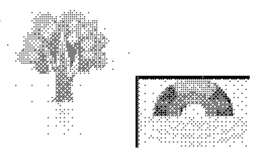
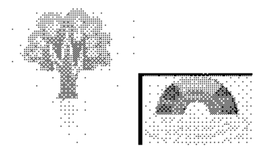
*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Draw conclusions to characterize types of matter based on observations made from experimental evidence.			
Investigate the parts of a (classroom-made) lava lamp exhibit when various conditions (e.g., temperature, size of bottle) are changed and record the results. Compare how the findings can apply to a real-world scenario (e.g., responding to an oil spill in different climates or parts of the world). **Note:** This is ***not*** a kit. For directions on constructing the lava lamp, visit http://www.sciencebob.com/experiments/lavalamp.php 	Given three different items, measure as many properties for each item as possible. Record the measurements for each item on a separate index card. Switch samples with another group and identify which set of measurements belong with which item. 	Distinguish between weight and volume. Represent the differences in words and visual models.  Investigate an ice balloon and the various conditions that affect the rate at which the ice melts, using the Ice Balloon Investigation. 	Name observable differences between the three states of matter.  Recognize that matter continues to exist when broken into pieces too tiny to be visible.

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- *Essential Science for Teachers: Physical Science: Session 1: Matter*, a video on demand produced by Annenberg, explores the concept of matter with elementary children and teachers. The segment includes defining matter and exploring properties and states of matter. It incorporates interviews with children and classroom segments to identify common misconceptions and gives teaching strategies to address these misconceptions. While the segment on plasma is interesting, it is content beyond this grade level.

Common Misconceptions

- From a time of 3:15 to 16:40, this video on demand produced by Annenberg shows individual interviews with children that highlight common misconceptions about what is matter (e.g., air is not matter) and ways that this can be addressed in the classroom.
- Kind (2004) cites that students think matter has no permanent aspect. When matter disappears from sight (e.g., when sugar dissolves in water), it ceases to exist.
- Students often think of solids at matter, but not liquids and gases (AAAS, 1993).
- Kind (2004, p.8) cites that children do not reason consistently. They may use sensory reasoning on some occasions and logical reasoning on others. Sensory experience dominates in cases where matter is not visible.
- Students often think that:
  - Measurement is only linear.
  - Any quantity can be measured as accurately as you want.
  - Some objects cannot be measured because of their size or inaccessibility.
  - The five senses are infallible.
  - Gases are not matter because most are invisible.
  - Gases do not have mass.
  - Air and oxygen are the same gas.
  - Helium and hot air are the same gas.
  - Materials can only exhibit properties of one state of matter.
  - Melting/freezing and boiling/condensation are often understood only in terms of water.
  - Steam is visible water gas molecules.
  - Materials can only exhibit properties of one state of matter.
  - Melting and dissolving are confused.
  - Dew formed on the outside of glass comes from the inside of the glass.
  - Gases are not matter because most are invisible.
  - Weight and volume, which both describe an amount of matter, are the same property.
  - Steam is water vapor over boiling water.

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

Starting at a time of 9:55 on this video on demand produced by Annenberg, children test a mixture of unknown powders to identify what is in the mixture. Children use data and procedures from previous investigations to solve the problem. Jean, an inclusion teacher, talks about classroom management and organization for messy lab activities and the benefits of cooperative learning. The video shows how the teacher helped students who were having difficulties. Notice that the students are asked continually to support their claims with evidence.

Jean, an inclusion teacher, helps third-grade students who are having difficulties during classroom inquiry activities in this video on demand, produced by Annenberg. She has been trying to develop multi-sensory approaches to learning science to help a diversity of students, including ESL, inclusion students and other special needs students. Jean talks about classroom management and organization for messy lab activities and the benefits of cooperative learning. The video shows how an inclusion teacher can be used in this lesson.

Select Video 10, *Linda–Grades 2-4*, to see a resource teacher who models inquiry-based science lessons in her large urban district. Although not all of the content is directly aligned to this content statement, the strategies could be applied to any content.

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Model Curriculum
Grade 3
Physical Science (PS)

Topic: Matter and Forms of Energy

This topic focuses on the relationship between matter and energy. Matter has specific properties and is found in all substances on Earth. Heat is a familiar form of energy that can change the states of matter.

Content Statement

Matter exists in different states, each of which has different properties.

The most common states of matter are solids, liquids and gases.

Shape and compressibility are properties that can distinguish between the states of matter.

One way to change matter from one state to another is by heating or cooling.

Content Elaboration

Prior Concepts Related to Matter

PreK-2: Materials can be sorted by properties. The physical properties of water change as observed in weather (ESS).

Grade 3 Concepts:

Gases, liquids and solids are different states of matter that have different properties. Liquids and solids do not compress into a smaller volume as easily as do gases. Liquids and gases flow easily, but solids do not flow easily. Solids retain their shape and volume (unless a force is applied). Liquids assume the shape of the part of the container that it occupies (retaining its volume). Gases assume the shape and volume of its container.

Heating may cause a solid to melt to form a liquid, or cause a liquid to boil or evaporate to form a gas. Cooling may change a gas into a liquid or cause a liquid to freeze and form a solid.

Conducting experiments or investigations that demonstrate phase changes, such as the melting or freezing of substances other than water (e.g., vinegar, vegetable oil, sugar, butter), must be used to reinforce the concept that materials other than water also go through phase changes.

Note 1: Purdue University provides a table that can help in differentiating the properties of solids, gases and liquids. Teaching about the atomic structure as related to the phases is not appropriate for this grade level.

Note 2: Only solids, liquids and gases are appropriate at this grade, even though other phases have been identified. The differences between boiling and evaporation are not dealt with at this grade.

Future Application of Concepts

Grades 4-5: The amount of mass* and matter remains the same during phase changes.
Grades 6-8: Atomic theory is introduced. Properties of solids, liquids and gases are related to the spacing and motion of particles. Thermal energy and temperature are related to the motion of particles.

*While mass is the scientifically correct term to use in this context, the NAEP 2009 Science Framework (page 27) recommends using the more familiar term "weight" in the elementary grades with the distinction between mass and weight being introduced at the middle school level. In Ohio, students will not be assessed on the differences between mass and weight until Grade 6.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Draw conclusions to characterize types of matter based on observations made from experimental evidence.			
Investigate the parts of a (classroom-made) lava lamp exhibit when various conditions are changed and record the results. Consider how the findings can apply to a real-world scenario (e.g., responding to an oil spill in different climates or parts of the world). **Note:** For directions on constructing the lava lamp, visit http://www.sciencebob.com/experiments/lavalamp.php	Predict the fastest way for ice to form. Design an investigation to determine what parameters ensure the fastest formation (e.g., change temperature of the starting water using cold, room-temperature and very hot water, condition the starting water with salt or sugar, change the starting water by adding food coloring).	Explain why which data sets (e.g., descriptions of various physical properties) match given substances focusing on specific states of matter.	Recognize three different states of matter.

Instructional Strategies and Resources

This section provides additional support and information for educators. These are strategies for actively engaging students with the topic and for providing hands-on, minds-on observation and exploration of the topic, including authentic data resources for scientific inquiry, experimentation and problem-based tasks that incorporate technology and technological and engineering design. Resources selected are printed or Web-based materials that directly relate to the particular Content Statement. It is not intended to be a prescriptive list of lessons.

- *Essential Science for Teachers: Physical Science: Session 1: Matter*, a video on demand produced by Annenberg, explores the concept of matter with elementary children and teachers. The segment includes defining matter and exploring properties and states of matter. It incorporates interviews of children and classroom segments to identify common misconceptions and gives teaching strategies to address these misconceptions. While the segment on plasma is interesting, it is content beyond this grade level.
- *Solids and Liquids*, an interactive simulation from BBC Schools, has children determine the melting point of different substances to observe the properties of liquids and solids.
- *Changing State* is an interactive simulation from BBC Schools that allows students to heat and cool water and to observe phase changes. The optional section dealing with heating the gas further is not aligned to this content statement.
- *Gases Around Us* is an interactive simulation from BBC Schools that demonstrates that gases expand to fill a container.

Common Misconceptions

- *Essential Science for Teachers: Physical Science: Session 1: Matter*, a video on demand produced by Annenberg, explores the concept of matter with elementary children and teachers. The segment from a time of 7:00 to 16:40 shows individual student interviews that highlight common misconceptions about states of matter (e.g., air is not matter) and ways that they can be addressed in the classroom.
- Children often think that:
  - Measurement is only linear.
  - Any quantity can be measured as accurately as you want.
  - Some objects cannot be measured because of their size or inaccessibility.
  - The five senses are infallible.
  - Gases are not matter because most are invisible.
  - Gases do not have mass.
  - Air and oxygen are the same gas.
  - Helium and hot air are the same gas.
  - Materials can only exhibit properties of one state of matter.
  - Melting/freezing and boiling/condensation are often understood only in terms of water.
  - Steam is visible water gas molecules.
  - Materials can only exhibit properties of one state of matter.
  - Melting and dissolving are confused.
  - Dew formed on the outside of glass comes from the inside of the glass.
  - Gases are not matter because most are invisible.
  - Weight and volume, which both describe an amount of matter, are the same property.
  - Steam is the visible cloud of water vapor over boiling water.
- One study showed that some children, ages 5-13, tend to associate solids with rigid materials (Stavy & Stachel, 1984). They regard powders as liquids and any non-rigid materials, such as a sponge or a cloth, as being somewhere in between a solid and liquid (Driver, Squires, Rushworth & Wood-Robinson, 1994).
- Children can classify liquids more easily than they can solids, perhaps because liquids are less varied in their physical characteristics (Kind, 2004).

- Students' explanation of powders as liquids is often "because they can be poured." Reasons for non-rigid objects being neither solid nor liquid are because they "are soft," "crumble," or "can be torn." Children characterized the state of matter of a material according to its macroscopic appearance and behavior with the result that solids are associated with hardness, strength and an inability to bend (Driver et al., 1994).
- Students' understanding of boiling comes before their understanding of evaporation (Keeley, 2005). Driver (1994) states that from a sample of students ages 6-8, 70 percent understood that when water boils, vapor comes from it and that the vapor is made of water; the same students did not recognize that when a wet surface dries, the water turns to water vapor.
- Because students confuse heat and temperature as being the same, they believe that the longer something is heated, the hotter it gets and the boiling point increases the longer it is allowed to boil (Driver et al., 1994).

Diverse Learners

Strategies for meeting the needs of all learners including gifted students, English Language Learners (ELL) and students with disabilities can be found at this site. Resources based on the Universal Design for Learning principles are available at www.cast.org.

Classroom Portals

These are windows into the classroom through webcasts, podcasts or video clips to exemplify and model classroom methods of teaching science using inquiry.

Beginning at a time of about 0:50, this video on demand produced by Annenberg explores the properties of gases, liquids and solids. Students observe phase changes of water from ice to steam, discuss what they know so far, test the properties of *Oobleck* to classify its state. Notice the questioning strategy: *What do you think about that?* and *Give me reasons for your thinking.*

Ingrid, a first-grade teacher, has children explore the properties of solids, liquids and gases through playful explorations. Before the activities, she conducts a class discussion and journal writing to determine what the children already know. After the activities, she surveys children's thoughts about their experiences in a class discussion to come to a consensus about the important properties of solids, liquids and gases.

Essential Science for Teachers: Physical Science Session 1: Matter is another video on demand produced by Annenberg. It explores the concept of matter with elementary children and teachers. The segment from a time of 32:40 to 54:40 shows individual interviews with children about states of matter. Classroom activities show that categories between the states of matter are not always clear-cut. Demonstrations show the differences between liquids and gases.

Jean, a veteran teacher who feels ill prepared to teach science, is featured on this video on demand produced by Annenberg. The beginning of the video shows her leading a classroom lesson in which students explore different states of matter. Notice her questioning strategy: *What do you think about that?* and *Give me reasons for your thinking.* The remainder of the video does not align to this standard but shows how she develops multi-sensory approaches to learning science to help a diversity of students, including ESL, inclusion students and other special needs students. Jean talks about classroom management and organization for messy lab activities and the benefits of cooperative learning. The video also shows how an inclusion teacher can be used in this lesson.

Select Video 10, *Linda–Grades 2-4*, to see a resource teacher who models inquiry-based science lessons for teachers in her large urban district. Although not all of the content is directly aligned to this content statement, the strategies could be applied to any content.

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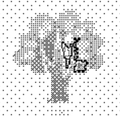
Topic: Matter and Forms of Energy

This topic focuses on the relationship between matter and energy. Matter has specific properties and is found in all substances on Earth. Heat is a familiar form of energy that can change the states of matter.

Content Statement

Heat, electrical energy, light, sound and magnetic energy are forms of energy.

There are many different forms of energy. Energy is the ability to cause motion or create change.



Note: The different forms of energy that are outlined at this grade level should be limited to familiar forms of energy that a student is able to observe.

Content Elaboration

Prior Concepts Related to Sound, Energy and Motion

PreK-2: Vibrations are associated with sound. An object is in motion when its position is changing. Forces change the motion of an object. Sunlight is the principal source of energy on Earth and warms Earth's land, air and water (ESS). Weather changes occur due to changes in energy (ESS). Living things require energy (LS). Plants get energy from sunlight (LS).

Grade 3 Concepts:

Examples of energy causing motion or creating change include a falling rock causing a crater to form on the ground, heating water causing water to change into a gas, light energy from the sun contributing to plant growth, electricity causing the blades of a fan to move, electrically charged objects causing movement in uncharged objects or other electrically charged objects, sound from a drum causing rice sitting on the drum to vibrate, and magnets causing other magnets and some metal objects to move.

Investigations (3-D or virtual) must be used to demonstrate the relationship between different forms of energy and motion.

Note 1: It is not appropriate at this grade level to explore the different types of energy in depth or use wave terminology when discussing energy. These will be developed at later grades.

Note 2: There often is confusion between the concepts of force and energy. Force can be thought of as a push or pull between two objects and energy as the property of an object that can cause change. If forces actually push or pull something over a distance, then there is an exchange of energy between the objects. The differences between force and energy will be developed over time and are not appropriate for this grade level.

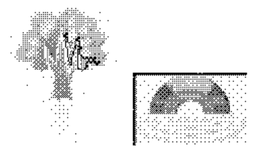
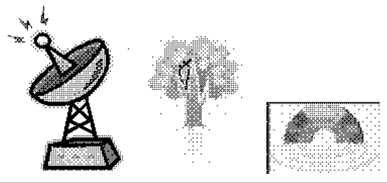
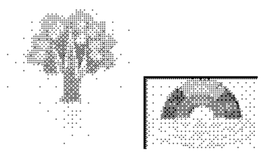
	Note 3: The word "heat" is used loosely in everyday language, yet it has a very specific scientific meaning. Usually what is called heat is actually "thermal or radiant energy." An object has thermal energy due to the random movement of the particles that make up the object. Radiant energy is that which is given off by objects through space (e.g., warmth from a fire, solar energy from the sun). "Heating" is used to describe the transfer of thermal or radiant energy to another object or place. Differentiating between these concepts is inappropriate at this grade. This document uses the same conventions as noted in the NAEP 2009 Science Framework (see page 29) where "heat" is used in lower grades. However, the word "heat" has been used with care so it refers to a *transfer* of thermal or radiant energy. The concept of thermal energy, as it relates to particle motion, is introduced in grade 6. **Future Application of Concepts** **Grades 4-5:** Processes of energy transfer and transformation are introduced. Heat, electrical energy, light and sound are explored in more detail. **Grades 6-8:** Energy is classified as kinetic or potential. The concepts of conservation of energy and thermal energy as it relates to particle motion are introduced.

Expectations for Learning: Cognitive Demands

This section provides definitions for Ohio's science cognitive demands, which are intrinsically related to current understandings and research about how people learn. They provide a structure for teachers and assessment developers to reflect on plans for teaching science, to monitor observable evidence of student learning, and to develop summative assessment of student learning of science.

Visions into Practice: Classroom Examples

This section provides examples of tasks that students may perform; this includes guidance for developing classroom performance tasks. It is not an all-inclusive checklist of what should be done, but is a springboard for generating innovative ideas.

Designing Technological/ Engineering Solutions using Science Concepts	Demonstrating Science Knowledge	Interpreting and Communicating Science Concepts	Recalling Accurate Science
Investigate ways a pot of warm water can cause motion or create change.			
	Explore ways that a pot of warm water can cause change (e.g., warm water can cause butter to melt, pouring water on a sand structure can cause the structure to change shape). 	Explain how warm water can cause motion or create change. 	Recognize that energy can cause motion or create change. 
Design, construct and test a small boat or aircraft that can move in different directions (or against the flow of air/water) in nature. Document the forms of energy and resulting motion as the boat or aircraft is being demonstrated to an authentic audience. 		Explain how a magnet can cause motion or create change. Examples of possible answers include: a magnet can cause other magnets and some metallic items to move toward it, a magnet can cause other magnets to move away from it. 	Identify objects with energy in the environment (e.g., moving water, windmill, water wheel, sunlight) and determine what types of energy they have. 

Instructional Strategies and Resources

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- *Science in Focus: Energy* is a series of videos on demand produced by Annenberg to help teachers understand children's preconceptions about energy and what is important to understand about energy. Some of the content, like forces and work, are not directly related to this content statement. However, teachers need a good understanding of the differences and relationships between these important concepts.
- Write and illustrate a children's book about energy. Use observable forms of magnetic energy, electrical energy, light, sound and heat. Include descriptions and illustrations. Share the finished product with students at a different grade level.
- Combine and integrate the ESS grade 3 Energy Resources section. Building a solar oven can be used to illustrate that light energy can cause changes in temperature.

Common Misconceptions

- Do not use resources that claim "free energy" or "perpetual motion machines" since these perpetuate myths that violate the law of conservation of energy. These are especially common when dealing with magnetic energy.
- Students do not realize that light, heat and sound are forms of energy and can cause things to happen.
- Energy is a thing, an object or something that is tangible.
- Energy is confined to some particular origin, such as what we get from food or what the electric company sells.
- Energy is a thing. This is a fuzzy notion, probably because of the way we talk about the amount of energy; it is difficult to imagine an amount of an abstraction.
- The terms "energy" and "force" are interchangeable.
- Heat is a substance.
- Heat is not energy.
- *Science in Focus: Energy* is a series of videos on demand produced by Annenberg dealing with energy. This segment deals with heat. The video series is designed to make teachers aware of common student misconceptions. While not all the concepts addressed are appropriate to be taught at this grade level, being aware of them can help avoid perpetuating common misconceptions.

Diverse Learners

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How to Read the 2010 Academic Content Standards: PK-8 Social Studies

The standards are organized using the following components: **Strands**, **Themes**, **Topics** and **Content Statements.**

Strands
The four disciplines within the social studies: History, Geography, Government and Economics

Themes
The focus for a particular grade level or the descriptive narrative of a high school course syllabus
Example: *Grade Two, People Working Together*

Topics
The different aspects of content within a strand
Example in Geography: *Human Systems*

Content Statements
The essential knowledge to be learned at each grade level or within each course
Example from Grade Eight: *20.The U.S. Constitution established a federal system of government, a representative democracy and a framework with separation of powers and checks and balances.*

21st-Century Skills
The 2010 standards are designed to include the essential concepts and skills to allow for instruction that fosters deeper understanding. The social studies standards directly address the 21st-century skills of civic literacy, financial and economic literacy and global awareness. Links to other 21st-century skills such as problem solving, communication, media literacy and leadership are more fully developed in the model curriculum. The model curriculum provides instructional support including content elaborations, expectations for learning, instructional strategies, instructional resources, connections and essential questions.

2010 Academic Content Standards:
Pre-Kindergarten Through Grade Eight Social Studies

Ohio Department of Education

Grade	Theme
Pre-K	**The Classroom Community** For many young children, the preschool classroom is the first experience they have in a group setting. Within the classroom community, children may explore social studies content in meaningful ways. They learn about themselves and others, how people live, work, get along, solve problems and contribute to the collaborative cultures of the classroom, the school and the community.
K	**A Child's Place in Time and Space** The kindergarten year is the time for children to begin to form concepts about the world beyond their own classroom and communities. Culture, heritage and democratic principles are explored, building upon the foundation of the classroom experience. Children deepen their learning about themselves and begin to form an understanding of roles, responsibility for actions and decision making in the context of the group setting.
1	**Families Now and Long Ago, Near and Far** The first-grade year builds on the concepts developed in kindergarten by focusing on the individual as a member of a family. Students begin to understand how families lived long ago and how they live in other cultures. They develop concepts about how the world is organized spatially through beginning map skills. They build the foundation for understanding principles of government and their roles as citizens.
2	**People Working Together** Work serves as an organizing theme for the second grade. Students learn about jobs today and long ago. They use biographies, primary sources and artifacts as clues to the past. They deepen their knowledge of diverse cultures and their roles as citizens.
3	**Communities: Past and Present, Near and Far** The local community serves as the focal point for third grade as students begin to understand how their communities have changed over time and to make comparisons with communities in other places. The study of local history comes alive through the use of artifacts and documents. They also learn how communities are governed and how the local economy is organized.
4	**Ohio in the United States** The fourth-grade year focuses on the early development of Ohio and the United States. Students learn about the history, geography, government and economy of their state and nation. Foundations of U.S. history are laid as students study prehistoric Ohio cultures, early American life, the U.S. Constitution, and the development and growth of Ohio and the United States. Students begin to understand how ideas and events from the past have shaped Ohio and the United States today.
5	**Regions and People of the Western Hemisphere** In grade five, students study the Western Hemisphere (North and South America), its geographic features, early history, cultural development and economic change. Students learn about the early inhabitants of the Americas and the impact of European exploration and colonization. The geographic focus includes the study of contemporary regional characteristics, the movement of people, products and ideas, and cultural diversity. Students develop their understanding of the relationship between markets and available resources.
6	**Regions and People of the Eastern Hemisphere** In grade six, students study the Eastern Hemisphere (Africa, Asia, Australia and Europe), its geographic features, early history, cultural development and economic change. Students learn about the development of river civilizations in Africa and Asia, including their governments, cultures and economic systems. The geographic focus includes the study of contemporary regional characteristics, the movement of people, products and ideas, and cultural diversity. Students develop their understanding of the role of consumers and the interaction of markets, resources and competition.
7	**World Studies from 750 B.C. to 1600 A.D.: Ancient Greece to the First Global Age** The seventh grade year is an integrated study of world history, beginning with ancient Greece and continuing through global exploration. All four social studies strands are used to illustrate how historic events are shaped by geographic, social, cultural, economic and political factors. Students develop their understanding of how ideas and events from the past have shaped the world today.
8	**U.S. Studies from 1492 to 1877: Exploration through Reconstruction** The historical focus continues in the eighth grade with the study of European exploration and the early years of the United States. This study incorporates all four social studies strands into a chronologic view of the development of the United States. Students examine how historic events are shaped by geographic, social, cultural, economic and political factors.

Strand	Topic	Topic Description
History	***Historical Thinking and Skills***	Historical thinking begins with a clear sense of time – past, present and future – and becomes more precise as students progress. Historical thinking includes skills such as locating, researching, analyzing and interpreting primary and secondary sources so that students can begin to understand the relationships among events and draw conclusions.
	Heritage	Ideas and events from the past have shaped the world as it is today. The actions of individuals and groups have made a difference in the lives of others.
	Early Civilizations	The eight features of civilizations include cities, well-organized central governments, complex religions, job specialization, social classes, arts and architecture, public works and writing. Early peoples developed unique civilizations. Several civilizations established empires with legacies influencing later peoples.
	Feudalism and Transitions	Feudalism developed as a political system based on small local units controlled by lords bound by an oath of loyalty to a monarch. The decline of feudalism in Europe resulted from interactions between the Muslim world and European states. These interactions influenced the rise of new ideas and institutions.
	First Global Age	The transoceanic linking of all the major regions of the world led to economic, political, cultural and religious transformations.
	Colonization to Independence	European countries established colonies in North America as a means of increasing wealth and power. As the English colonies developed their own governments and economies, they resisted domination by the monarchy, rebelled and fought for independence.
	A New Nation	The United States shifted in governing philosophy from a loosely organized system characterized by strong state powers to a federal system.
	Expansion	The addition of new territories and economic and industrial development contributed to the growth of sectionalism in the United States.
	Civil War and Reconstruction	Sectional differences divided the North and South prior to the American Civil War. Both the American Civil War and resulting period of Reconstruction had significant consequences for the nation.

Strand	Topic	Topic Description
Geography	***Spatial Thinking and Skills***	Spatial thinking examines the relationships among people, places and environments by mapping and graphing geographic data. Geographic data are compiled, organized, stored and made visible using traditional and geospatial technologies. Students need to be able to access, read, interpret and create maps and other geographic representations as tools of analysis.
	Places and Regions	A place is a location having distinctive characteristics which give it meaning and character and distinguish it from other locations. A region is an area with one or more common characteristics, which give it a measure of homogeneity and make it different from surrounding areas. Regions and places are human constructs.
	Human Systems	Human systems represent the settlement and structures created by people on Earth's surface. The growth, distribution and movements of people are driving forces behind human and physical events. Geographers study patterns in cultures and the changes that result from human processes, migrations and the diffusion of new cultural traits.
Government	***Civic Participation and Skills***	Civic participation embraces the ideal that an individual actively engages in his or her community, state or nation for the common good. Students need to practice effective communication skills including negotiation, compromise and collaboration. Skills in accessing and analyzing information are essential for citizens in a democracy.
	Rules and Laws	Rules play an important role in guiding behavior and establishing order in families, classrooms and organizations. Laws are enacted by governments to perform similar functions.
	Roles and Systems of Government	The purpose of government in the United States is to establish order, protect the rights of individuals and promote the common good. Governments may be organized in different ways and have limited or unlimited powers.
Economics	***Economic Decision Making and Skills***	Effective economic decision making requires students to be able to reason logically about key economic issues that affect their lives as consumers, producers, savers, investors and citizens. Economic decision making and skills engage students in the practice of analyzing costs and benefits, collecting and organizing economic evidence and proposing alternatives to economic problems.
	Scarcity	There are not enough resources to produce all the goods and services that people desire.
	Production and Consumption	Production is the act of combining natural resources, human resources, capital goods and entrepreneurship to make goods and services. Consumption is the use of goods and services.
	Markets	Markets exist when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce resources, goods and services.
	Financial Literacy	Financial literacy is the ability of individuals to use knowledge and skills to manage limited financial resources effectively for lifetime financial security.

2010 Academic Content Standards:
Pre-Kindergarten Social Studies

Ohio Department of Education

Theme: *The Classroom Community*

For many young children, the preschool classroom is the first experience they have in a group setting. Within the classroom community, children may explore social studies content in meaningful ways. They learn about themselves and others, and how people live, work, get along, solve problems and contribute to the collaborative cultures of the classroom, the school and the community.

Topic:	***Historical Thinking and Skills***	***Heritage***
History Strand	**Content Statements:** 1. Words associated with time are meaningful in the context of daily classroom routines. 2. People develop an awareness of their personal histories.	**Content Statement:** 3. Personal family stories and traditions support the understanding of heritage.
Topic:	***Spatial Thinking and Skills***	***Human Systems***
Geography Strand	**Content Statement:** 4. Relative location can be described by words such as *up, down, over, under, here, there, front, back, behind* and *in front.*	**Content Statement:** 5. People belong to a number of groups and these groups have unique characteristics. Similarities among people are used to define groups.
Topic:	***Civic Participation and Skills***	***Rules and Laws***
Government Strand	**Content Statements:** 6. Everyone has responsibilities within a group. 7. Relationships in families, schools and communities benefit from cooperative behaviors and problem-solving skills. 8. Choices have consequences.	**Content Statement:** 9. Schools and classrooms have rules and routines that govern daily life. Rules exist in families, schools and communities.
Topic:	***Scarcity***	***Production and Consumption***
Economics Strand	**Content Statement:** 10. People have wants and must make decisions to satisfy those wants.	**Content Statement:** 11. Resources are used to satisfy wants.

2010 Academic Content Standards:
Kindergarten Social Studies

Ohio Department of Education

Theme: *A Child's Place in Time and Space*

The kindergarten year is the time for children to begin to form concepts about the world beyond their own classrooms and communities. Culture, heritage and democratic principles are explored, building upon the foundation of the classroom experience. Children deepen their learning about themselves and begin to form an understanding of roles, responsibility for actions and decision making in the context of the group setting.

Topic:	***Historical Thinking and Skills***	***Heritage***
History Strand	**Content Statements:** 1. Time can be measured. 2. Personal history can be shared through stories and pictures.	**Content Statements:** 3. Heritage is reflected through the arts, customs, traditions, family celebrations and language. 4. Nations are represented by symbols and practices. Symbols and practices of the United States include the American flag, Pledge of Allegiance and the National Anthem.
Topic:	***Spatial Thinking and Skills***	***Human Systems***
Geography Strand	**Content Statements:** 5. Terms related to direction and distance, as well as symbols and landmarks, can be used to talk about the relative location of familiar places. 6. Models and maps represent places.	**Content Statements:** 7. Humans depend on and impact the physical environment in order to supply food, clothing and shelter. 8. Individuals are unique but share common characteristics of multiple groups.
Topic:	***Civic Participation and Skills***	***Rules and Laws***
Government Strand	**Content Statement:** 9. Individuals have shared responsibilities toward the achievement of common goals in homes, schools and communities.	**Content Statement:** 10. The purpose of rules and authority figures is to provide order, security and safety in the home, school and community.
Topic:	***Scarcity***	***Production and Consumption***
Economics Strand	**Content Statement:** 11. People have many wants and make decisions to satisfy those wants. These decisions impact others.	**Content Statement:** 12. Goods are objects that can satisfy people's wants. Services are actions that can satisfy people's wants.

2010 Academic Content Standards:
Grade One Social Studies

Ohio Department of Education

Theme: *Families Now and Long Ago, Near and Far*

The first-grade year builds on the concepts developed in kindergarten by focusing on the individual as a member of a family. Students begin to understand how families lived long ago and how they live in other cultures. They develop concepts about how the world is organized spatially through beginning map skills. They build the foundation for understanding principles of government and their roles as citizens.

Topic:	*Historical Thinking and Skills*	*Heritage*
History Strand	**Content Statements:** 1. Time can be divided into categories (e.g., months of the year, past, present and future). 2. Photographs, letters, artifacts and books can be used to learn about the past.	**Content Statement:** 3. The way basic human needs are met has changed over time.

Topic:	*Spatial Thinking and Skills*	*Places and Regions*	*Human Systems*
Geography Strand	**Content Statement:** 4. Maps can be used to locate and identify places.	**Content Statement:** 5. Places are distinctive because of their physical characteristics (landforms and bodies of water) and human characteristics (structures built by people).	**Content Statements:** 6. Families interact with the physical environment differently in different times and places. 7. Diverse cultural practices address basic human needs in various ways and may change over time.

Topic:	*Civic Participation and Skills*	*Rules and Laws*
Government Strand	**Content Statements:** 8. Individuals are accountable for their actions. 9. Collaboration requires group members to respect the rights and opinions of others.	**Content Statement:** 10. Rules exist in different settings. The principles of fairness should guide rules and the consequences for breaking rules.

Topic:	*Scarcity*	*Production and Consumption*	*Markets*	*Financial Literacy*
Economics Strand	**Content Statement:** 11. Wants are unlimited and resources are limited. Therefore, people make choices because they cannot have everything they want.	**Content Statement:** 12. People produce and consume goods and services in the community.	**Content Statement:** 13. People trade to obtain goods and services they want.	**Content Statement:** 14. Currency is used as a means of economic exchange.

2010 Academic Content Standards: Grade Two Social Studies

Ohio Department of Education

Theme: *People Working Together*

Work serves as an organizing theme for the second grade. Students learn about jobs today and long ago. They use biographies, primary sources and artifacts as clues to the past. They deepen their knowledge of diverse cultures and their roles as citizens.

Topic:	*Historical Thinking and Skills*	*Heritage*
History Strand	**Content Statements:** 1. Time can be shown graphically on calendars and timelines. 2. Change over time can be shown with artifacts, maps, and photographs.	**Content Statements:** 3. Science and technology have changed daily life. 4. Biographies can show how peoples' actions have shaped the world in which we live.

Topic:	*Spatial Thinking and Skills*	*Places and Regions*	*Human Systems*
Geography Strand	**Content Statement:** 5. Maps and their symbols can be interpreted to answer questions about location of places.	**Content Statement:** 6. The work that people do is impacted by the distinctive human and physical characteristics in the place where they live.	**Content Statements:** 7. Human activities alter the physical environment, both positively and negatively. 8. Cultures develop in unique ways, in part through the influence of the physical environment. 9. Interactions among cultures lead to sharing ways of life.

Topic:	*Civic Participation and Skills*	*Rules and Laws*
Government Strand	**Content Statements:** 10. Personal accountability includes making responsible choices, taking responsibility for personal actions and respecting others. 11. Groups are accountable for choices they make and actions they take.	**Content Statement:** 12. There are different rules that govern behavior in different settings.

Topic:	*Economic Decision Making and Skills*	*Scarcity*	*Production and Consumption*	*Markets*	*Financial Literacy*
Economics Strand	**Content Statement:** 13. Information displayed on bar graphs can be used to compare quantities.	**Content Statement:** 14. Resources can be used in various ways.	**Content Statement:** 15. Most people around the world work in jobs in which they produce specific goods and services.	**Content Statement:** 16. People use money to buy and sell goods and services.	**Content Statement:** 17. People earn income by working.

2010 Academic Content Standards:
Grade Three Social Studies

Ohio Department of Education

Theme: *Communities: Past and Present, Near and Far*

The local community serves as the focal point for third grade as students begin to understand how their communities have changed over time and to make comparisons with communities in other places. The study of local history comes alive through the use of artifacts and documents. They also learn how communities are governed and how the local economy is organized.

Topic:	***Historical Thinking and Skills***	***Heritage***
History Strand	**Content Statements:** 1. Events in local history can be shown on timelines organized by years, decades and centuries. 2. Primary sources such as artifacts, maps and photographs can be used to show change over time.	**Content Statement:** 3. Local communities change over time.

Topic:	***Spatial Thinking and Skills***	***Places and Regions***	***Human Systems***
Geography Strand	**Content Statement:** 4. Physical and political maps have distinctive characteristics and purposes. Places can be located on a map by using the title, key, alphanumeric grid and cardinal directions.	**Content Statement:** 5. Daily life is influenced by the agriculture, industry and natural resources in different communities.	**Content Statements:** 6. Evidence of human modification of the environment can be observed in the local community. 7. Systems of transportation and communication move people, products and ideas from place to place. 8. Communities may include diverse cultural groups.

Topic:	***Civic Participation and Skills***	***Rules and Laws***	***Roles and Systems of Government***
Government Strand	**Content Statements:** 9. Members of local communities have social and political responsibilities. 10. Individuals make the community a better place by solving problems in a way that promotes the common good.	**Content Statement:** 11. Laws are rules which apply to all people in a community and describe ways people are expected to behave. Laws promote order and security, provide public services and protect the rights of individuals in the local community.	**Content Statements:** 12. Governments have authority to make and enforce laws. 13. The structure of local governments may differ from one community to another.

Topic:	***Economic Decision Making and Skills***	***Scarcity***	***Production and Consumption***	***Markets***	***Financial Literacy***
Economics Strand	**Content Statements:** 14. Line graphs are used to show changes in data over time. 15. Both positive and negative incentives affect people's choices and behaviors.	**Content Statement:** 16. Individuals must make decisions because of the scarcity of resources. Making a decision involves an opportunity cost, the value of the next best alternative given up when an economic choice is made.	**Content Statement:** 17. A consumer is a person whose wants are satisfied by using goods and services. A producer makes goods and/or provides services.	**Content Statement:** 18. A market is where buyers and sellers exchange goods and services.	**Content Statements:** 19. Making decisions involves weighing costs and benefits. 20. A budget is a plan to help people make personal economic decisions for the present and future and to become more financially responsible.

B4

Career Pathways Model for Ohio Early Childhood & Afterschool Professionals

Rationale: Overview of Ohio's career lattice that is utilized within the regulatory system and Step Up To Quality as evidence for meeting teacher and administrator qualifications.

Referenced in:

VI(B)(1)

Ohio Professional Development Network
Career resources for early childhood & afterschool professionals

Career Pathways Model
for Ohio Early Childhood & Afterschool Professionals

Revised October 2006

I. Overview

The purpose of this model is to provide a common system for all Ohio early care and education professionals to document and quantify their professional growth and accomplishments, and by doing so to define and advance the profession. The model uses one framework to integrate the pathways of formal education, training, experience, and specialized credentials and certifications.

Individuals accumulate "Points" along each of four pathways-- formal education, inservice training and continuing education, experience, and credentials and certifications. Total points assign one of 6 professional designations.

II. Pathways

A. Formal Education

1. **Degrees**
   Points are awarded for the **highest degree attained**, regardless of major course of study.
   HS or GED = 5 points;
   AA or AS degree = 10 points;
   Bachelors degree = 20 points;
   Masters degree = 30 points;
   PhD, Ed.D. = 40 points.

2. **Credit Hours**
   Points are awarded for all courses completed, including those completed for a degree.
   Number points = 1 x # quarter hours; 1.5 x # semester hours**.**

3. **Area of Study**
   a. Points are awarded to a professional that has majored in Early Childhood Education, Child Development or Family Studies. 30 points should be awarded for each degree in those specific areas of study.
   b. 5 Points are awarded for the completion of the Career Technical Early Childhood Program.

B. Inservice Training and Continuing Education Units (CEUs)

One point is awarded for every 20 hours of inservice training.
One point is awarded for every 1.5 CEUs.

C. Experience

Experience awards three points for every year work in the field and three longevity points for every five years work in the field.

"Experience" for purposes of this model includes:
1) direct work* with young children (birth - 8) and families, includes field experiences;
2) supervision, leadership, or management;
3) program coordination, development, or regulation;
4) training, instruction, or technical assistance;
5) evaluation or research.
**** must be 18 years of age or have senior standing in jvs program.***

D. Credentials and Certifications

Add points for all credentials and certifications attained.

1	Family Child Care PPI
2	Family Child Care Limited Certification
5	Family Child Care Professional Certification
5	Program for Infant & Toddler Caregivers Module I
5	Program for Infant & Toddler Caregivers Module II
5	Program for Infant & Toddler Caregivers Module III
5	Program for Infant & Toddler Caregivers Module IV
10	CDA (Family Child Care)
10	CDA (Infant Toddler)
10	CDA (Preschool)
10	CDA (Bilingual)
10	CDA (Home Visitor)
10	MR/DD Program Assistant Certification
10	MR/DD Supervisor
10	Help Me Grow Service Coordinator Credential
15	National Association for Family Child Care Accreditation
15	PreKindergarten Associates Teacher License
20	AMS I/T Credential
25	AMS Early Childhood Credential
25	AMI (Association Montessori Internationale) Certification
30	Early Childhood Teacher License
30	PreKindergarten Validation
30	Early Education of the Handicapped (EEH) Validation
30	Early Childhood Intervention Specialist (ECIS) Teacher License
30	MR/DD Early Intervention Specialist Certification

III. Early Childhood Professional Designations

"Points" are totaled across **Formal Education, Inservice Training and Continuing Education Units, Experience,** and **Credentials and Certifications.**

Point ranges are determined for each of the following levels:

Early Childhood Professional Level I	(1-49 points)
Early Childhood Professional Level II	(50-149 points)
Early Childhood Professional Level III	(150-249 points)
Early Childhood Professional Level IV	(250-349 points)
Early Childhood Professional Level V	(350-449 points)
Early Childhood Professional Level VI	(450+ points)

IV. Advancement

Early childhood professionals will advance to higher levels as they obtain more education, training, experience, and credentials. The two Early Childhood Level III professionals described below emphasize the options for designing one's career advancement so that it meets individual goals:

***Professional A*)** 23 years as a Professionally Certified Type B Home Provider, with National Accreditation. Taking at least 20 hours of in-service training each year, she has received both the Family Child Care and Preschool CDA credentials.

***Professional B*)** Five years experience as a teacher, with AA in ECE, 45 hours in-service training, and a PreKindergarten Associate Teacher License.

Use the attached worksheet to find your place on the Career Pathway.

For more information, please contact registry@occrra.org or visit www.ohpdregistry.org.

Ohio Professional Development Network
Career resources for early childhood & afterschool professionals

Worksheet
Career Pathways Model
for Ohio Early Childhood & Afterschool Professionals

Use this worksheet to find your current designation on the Career Pathways.

Formal Education **POINTS**

A. Degree/Completion

- Enter points for highest degree attained
  High School or GED = 5 points; AA/AS = 10 points; BA/BS = 20 points
  MA, MS, M.Ed. = 30 points; Ph.D., Ed. D. = 40 points

B. Credit Hours

- Enter total number quarter hours completed ☐ x 1 = ☐
  and/or
- Enter total number semester hours completed ☐ x 1.5 = ☐
  (Normally AA = 90 qtr/60 sem.hrs; BA = 180 qtr/120 sem.hrs
  MA = 50 qtr/30 sem.hrs; PhD = 80 qtr/60 sem.hrs.)

C. Area of Study

- Enter total number of completed degree with majors in
  ECE, CD and/or Family Studies x 30 = ☐ ☐
- Completion of the Career Technical Early Childhood Program = ☐ ☐
  Enter 5 points for this completed program

Credentials

- Total all credentials and certifications currently held = ☐

Training

- Enter total number in-service hours ☐ Divide by 20 = ☐
- Enter total number CEUs ☐ Divide by 1.5 = ☐

Experience

- Enter number of years worked in field ☐ Multiply by 3 = ☐
- Longevity - Enter number of years worked in the field
  Divide by 5, then multiply by 3 = ☐ ☐

Total Points

Add all points in boxes together = ☐

Early Childhood Professional Designation

Where are you now? Check the level that matches your total points.

_____	Early Childhood Professional Level I	(1-49 points)
_____	Early Childhood Professional Level II	(50-149 points)
_____	Early Childhood Professional Level III	(150-249 points)
_____	Early Childhood Professional Level IV	(250-349 points)
_____	Early Childhood Professional Level V	(350-449 points)
_____	Early Childhood Professional Level VI	(450+ points)

B5

TQRIS Alignment with National Guidelines

Rationale: Supportive Evidence for Section IV(B)(1). Demonstrates that Ohio's quality standards are commensurate with nationally recognized standards.

Referenced in:

IV(B)(1)

Benchmark	Step 3	Early Learning Guidelines	NAEYC	Head Start/ Early Head Start	NIEER
Ratio and Group Size (Group size twice the ratio)	Infant 0-12 months – 1:4 or 2:8 or 3:10 12-18 months – 1:5 Group size for children 0-18 months not to exceed 10 children Toddler 18-36 months – 1:6 Preschool 36-48 months – 1:10 48-60 months 1:10 Schoolage 5-15 years - 1:15 Mixed Age 0-36 months – 1:4 36-60 months – 1:10 Alternate Pathway Available – (National Accreditation or overall ERS score of 5)	Infant N/A Toddler N/A Preschool N/A Schoolage N/A Mixed Age N/A	Infant 0-15 months – 1:4 Toddler 12-28 months – 1:4 21-36 months – 1:6 Preschool 30-48 months – 1:9 48-60 months – 1:10 Schoolage 5 – 15 years – 1:12 Mixed Age If infants/toddlers – youngest child ratios apply; 30 months and older, ratios for predominate age group apply	Infant 0-18 months – 1:4 Toddler 18-36 months – 1:4 Preschool 36-48 – 2:17 single session 2:15 double session 48-60 - 2:20 single session 2:17 double session Schoolage N/A Mixed Age N/A	Infant N/A Toddler N/A Preschool 36-60 months – 1:10 Schoolage N/A Mixed Age N/A

Benchmark	Step 3	Early Learning Guidelines	NAEYC	Head Start/ Early Head Start	NIEER
Staff Education and Qualifications	Administrator has a BA in ECE or related field or the Career Pathways level 4 **AND** Each classroom has a Lead Teacher with an AA in ECE or related field for school age teachers or Career Pathways Level 3 **AND** 50% of classrooms have Assistant Teachers who have a CDA or Career Pathways Level 2	All lead teachers have at least a two year degree in ECE or an approved related field.	Administrator has either a Bachelor's degree or the required combination of experience & education. If not, must meet within 5 yrs. BA degree must include: - 9 hours in adm., leadership, and/or management; and - 24 hours in child development and learning from birth-K in ECE, child development, elementary education, or early childhood special education <u>1 or 2 classrooms:</u> Lead Teachers have, or are working toward, an AA or BA degree Effective 2010: Lead Teachers have an AA degree and at least one is working toward a BA or equivalent <u>3 classrooms:</u> at least 1 Lead Teacher has an AA or BA degree Effective 2010: All 3 Lead Teachers have an AA degree; at least 1 Lead Teacher is working toward a BA degree <u>4 or more classrooms:</u> 25% of Lead Teachers have an Associate or BA Degree Effective 2010: All must have a CDA; 50% have a minimum of an AA degree; 25% have a minimum of a BA degree; all must be enrolled in AA or BA degree program **AND** 50% of Assistant Teachers have a CDA, and 100% of those without a CDA are enrolled in a program leading to CDA or equi.	Staff working with infants and toddlers must obtain CDA for infants/toddlers or equivalent credential within one year of hire. Preschool Classrooms: Each classroom must have a teacher with a minimum of a CDA appropriate to the age of the children being served Effective 10-1-11: Each classroom must have a teacher with a minimum of an AA in ECE or related field Effective 9-30-13: Each classroom must have a teacher with a minimum of an AA in ECE or related field; and 50% of teachers have a minimum of BA degree in ECE or a related field	Lead Teachers hold a Bachelor's Degree and have specialization in Pre-K. **AND** Assistant Teachers hold a CDA or equivalent

Benchmark	Step 3	Early Learning Guidelines	NAEYC	Head Start/ Early Head Start	NIEER
Staff Training	Administrators, Lead Teachers, and Assistant Teachers receive a minimum of 20 clock hours of specialized training every two years. 10 hours of specialized training must be completed prior to an initial rating being awarded. After completion of 10 hours of pre-requisites, the annual training must be completed with topics related to the individual's PD plan. Training must be approved as listed on the PD registry at: www.ohpdnetwork.org Individuals who are currently enrolled in a degree granting program in early childhood or a related field can use coursework to fulfill the annual training requirement.	Teachers annually receive instruction and/or participate in professional development seminars that address standards, curriculum, assessment and the alignment process using an ODE approved tool. Lead teachers will complete the state minimum number of hours of ODE-approved professional development per biennium.	All teaching staff have specialized college-level coursework and/or professional development in specified areas. There are no specifics regarding the amount of hours needed in each specific area, nor are there specifics regarding if this coursework needs to be on-going. Specific areas include: Working with children from diverse backgrounds; Curriculum and communication skills; Knowledge and skills for age group with which they work; Assessment procedures; Special needs children.	Each Head Start teacher shall attend not less than 15 clock hours of professional development per year. **AND** All staff must have an annual review. The results of the review are used to identify training and professional development needs.	All teachers must complete at least a minimum of 15 clock hours of training annually.

Benchmark	Step 3	Early Learning Guidelines	NAEYC	Head Start/ Early Head Start	NIEER
Administrative Practices	**Program Planning/Evaluation** A quality improvement plan is completed and implemented based on a PAS self-assessment, classroom assessments, and input from parents and staff and updated annually. **AND** **Human Resource Development** Administrator and all teachers must have an annual professional development plan that at a minimum includes a performance appraisal, goals, and a plan for completing specialized training. **AND** **Benefits/Compensation 3 of the following:** Salary structure based on education and length of employment; employer offers and/or pays a portion of health insurance; 5 days of paid leave; Paid professional membership; Education benefits (T.E.A.C.H.); Retirement; Discount on child care	Program leaders develop an review an agency-wide professional development plan annually. Program leaders observe each lead teacher a minimum of one time per year to support continuous improvement. Each lead teacher has a written professional development plan that is reviewed annually. Lead teachers annually complete a state-approved, self-assessment to help them advance their teaching practices. A family survey is conducted at least every two years. A leadership team that includes a minimum of one administrator and one lead teacher is identified. Program leaders engage the leadership team at least once a year to review the program plan, outcomes and results.	All employees receive a copy of written personnel policies. Personnel policies provide for incentives based on participation in professional development opportunities. Salary scales are in place with increments based on professional qualifications, length of employment, and performance evaluation. **AND** Benefits packages are offered for full-time staff. These include health insurance, employee leave, including sick, vacation, holiday, and personal leave; education benefits; and retirement. Benefits for part-time employees are available on a prorated basis. If some of these benefits are not available, a written plan for improving benefits is developed and implemented.	All employees receive an orientation which includes, at a minimum, the goals and philosophy of the Head Start program.	N/A

Benchmark	Step 3	Early Learning Guidelines	NAEYC	Head Start/ Early Head Start	NIEER
Early Learning	Program utilizes a written, evidence based comprehensive curriculum. Curriculum planning is aligned with the Infant/Toddler Guidelines and/or Ohio's Early Learning Content Standards and/or Ohio's K-12 Standards to maximize growth across a broad range of developmental and content areas. Children are assessed systematically utilizing both formal and informal methods to inform intentional teaching and the sharing of progress with families. **AND** All children (except school age) receive a developmental screening within 60 days of enrollment. Referrals, if needed, are completed within 90 days.	A written, evidence-based comprehensive early childhood curriculum is employed that addresses child development objectives and Ohio's Early Learning Content Standards. Children are assessed at least twice a year, using a curriculum-based assessment. Progress is documented through the curriculum based assessment and/or through portfolios, work samples and other informal methods of recording progress. Health and developmental screenings of all children occur within 60 business days of their entrance into the program. Referrals, if needed, occur within 90 days. Program leaders have documentation of a transition plan for children moving from p/s to kindergarten. An annual report or update of transition activities is provided to families and outreach personnel.	Curriculum guides the teachers to integrate assessment information with goals to support individualized learning. **AND** The curriculum addresses social, emotional, physical, language, and cognitive development and integrates key areas of content including literacy, mathematics, science, technology, creative expression and the arts, health and safety, and social studies. **AND** There is on-going child assessment and the results are used to align curriculum and teaching practices to the individualized interests and needs of children.	Program must demonstrate improved child outcomes annually, based on the Outcomes Framework.	Comprehensive, covering all areas identified as fundamental by the National Education Goals Panel including: Physical well-being and motor development Social/emotional Development Approaches toward learning Language development Cognition and general knowledge

B6

Star Rating Progressive Sanctions for Child Care Centers

Rationale: Provides evidence that on-going licensing compliance is required for programs to maintain their rating through the TQRIS.

Referenced in:

VI(B)(3)

Star Rating Progressive Sanctions
for Child Care Centers

The consequence for each non-compliance will begin at the level indicated, but may progress to a higher level based on one or more of the following factors:

- Age of the child (infant, toddler, preschool, school age)
- Location of the child (inside, outside, swimming)
- Actual harm to a child
- Multiple non-compliances with the same rule

Points are accumulated during a two year period of time.

- Programs that accumulate two points will have their rating suspended.
- Programs that accumulate six or more points may have their rating removed.
- Points are calculated on each rule non-compliance per inspection date.

Level 1
1 point per rule non-compliance

***Risk – Warning**
Red on website and compliance report

Rule 12 - Food Service License – Center unable to obtain or maintain license due to violations; Serving food with no license

Rule 14 - Outdoor Play – "S" hooks not closed appropriately; Climbing equipment and/or ropes not securely anchored; Entrapment hazards exist; No protective barriers; No way to summon second adult without leaving children unsupervised; Not supervising while walking to off-site space or using unsafe route; Fence or barrier missing or inadequate

Rule 15 - Safe Equipment – Chemicals accessible to children; Unsafe equipment accessible to children (lawnmowers, power tools accessible, etc.); Space heaters used without approval

Rule 18 - Transportation – Annual vehicle inspection not completed by ASE certified mechanic; Driving vehicle w/o correcting noted violations; exit/entering not from curb

Rule 42 - Cribs – Stacked cribs are used; Cribs do not meet required size requirements; Cribs are unstable; Mesh cribs, bassinets, playpens are used for napping

Level 2
2 points per rule non-compliance

*** Elevated Risk – Suspension**
Rating suspended from web- 45 days
Red on website and compliance report

Rule 10 - Building Approval – Center fails to obtain approval for rooms used; Center exceeds room/building occupancies; Center cares for children in room not approved for age group

Rule 11 - Fire Approval – Unable to obtain approval due to violations; Does not obtain approval in a timely manner; Cares for children on unapproved floor; Using space not approved

Rule 14 - Outdoor Play – Protective surfacing absent under climbing equipment

Rule 15 - Safe Equipment – No mats under indoor climbing equipment

Rule 18 - Transportation – Not meeting second adult requirements; More than one child in a seat belt; Children sitting or standing in moving vehicle; Not using required seat belts and/or car seats; Child not using seat belt; Child under 12 in front seat; No health care plan on trip; Vehicle purchased after 2008, type not permitted to be used

Rule 20 – Supervision – Child left unattended; Program does not check on the location of a child who does not arrive from another location. Staff under the influence of substance which impairs ability to supervise. Ratio – Program out of ratio. Second Adult – None present when 7 or more children present

Rule 21 - Care & Nurturing – Children not protected from harm

Rule 22 -Child Guidance & Management – Center uses prohibited techniques.

Rule 26 - Background Check – Staff member/student worker/service provider begins employment with no check requested; Results more than 12 months old on file from previous employer; Results not updated if employee left employment and returns; Results not on file w/in 30 days; Required FBI check not completed; No statement of non-conviction on file

Rule 31 - Medication – Medication form not on file or missing information; No label on prescription medication; Not in original container; Medication accessible; Instructions not followed

Rule 38 - Care of Children with Health Conditions – No health care plan completed; Health care plan missing information and/or signatures; No trained staff on-site when child is present

Rule 42 - Cribs – Child placed on stomach to sleep, no sleep position waiver on file; Child placed in crib with object which poses suffocation/ strangulation risk (item tied around neck, pillows, boppies, bumper pads, etc.)

Level 3
6 points per rule non-compliance

***Imminent Risk – Removal**
Rating Removed
Red on website and compliance report

Rule 07 – Inspection and Investigation Rights – Refuses ODJFS access to the program

Rule 09 - Actions of the Administrator – Administrator/owner falsifies information to ODJFS

Rule 15 - Safe Equipment – Firearms on the premises

Rule 17 - Swimming – No life guard; Staff not actively supervising; Life guard used to count in ratio; Swimming site accessible to children w/o staff supervision; Children other than s/a swimming in lakes, ponds, rivers, etc.

Rule 18 - Transportation – Child left unattended on field trip or in vehicle; Driver not 18; Driver w/o valid license; Driver under the influence

Rule 20 – Supervision – Child left unattended outside of facility building or during a swimming activity

Rule 21 - Care & Nurturing – Program fails to report possible abuse/neglect/endangering

Rule 22 - Child Guidance and Management – Physical abuse /neglect/ endangerment; substantiated CSB finding; involvement of owner in inappropriate discipline

Rule 23 - Evening and Overnight Care – Staff responsible for supervising children are asleep; Children asleep on unapproved floor of building.

Rule 26 - Background Check - Prohibitive conviction, person remains employed; Employee refuses to be fingerprinted and remains employed.

Rule 31 - Medication – Medicine administered to the wrong child; Wrong dosage given to child

*Programs who have earned a Star Rating in Step Up To Quality, will receive a warning, or have the rating suspended or removed, based on the point total accumulated during a two year period of time.

B7

Quality Achievement Award Payment Matrix for Centers

Rationale: Provides evidence that on-going licensing compliance is required for programs to maintain their rating through the TQRIS.

Referenced in:

VI(B)(2)

Quality Achievement Awards (QAA)
Payment Matrix for Centers
Effective for centers rated or renewed beginning July 1, 2009

Program Size based on Total Enrollment	1 Star Base	1 Star Subsidized Enrollment (per child amount)	2 Star Base	2 Star Subsidized Enrollment (per child amount)	3 Star Base	3 Star Subsidized Enrollment (per child amount)
Small Up to 59 Children	$1,500	$100	$2,500	$250	$4,000	$500
Medium 60 – 99 Children	$2,500	$100	$3,500	$250	$5,000	$500
Large 100 – 159 Children	$3,500	$100	$4,500	$250	$6,000	$500
Very Large 160 or more Children	$4,500	$100	$5,500	$250	$7,000	$500

Quality Achievement Awards are:

1. Determined by ODJFS after a program earns or renews a Star Rating
    a. Total Enrollment is based on last licensing inspection
    b. Subsidized Enrollment is based on County data 90 days prior to date on Star Rating Certificate
2. Processed by OCCRRA after submission and approval of documents as outlined in the QAA Users Guide
3. Contingent upon completing a reconciliation process for the previous year's QAA as outlined in the QAA Users Guide
4. Paid annually in one installment
5. Contingent upon the availability of funds

* ODJFS reserves the right to modify this payment matrix at any time.

6/17/2009

Quality Achievement Awards (QAA)
Payment Matrix for Type A Homes
Effective for type A homes rated or renewed beginning July 1, 2009

1 Star Base	1 Star Subsidized Enrollment (per child amount up to 12 children)	2 Star Base	2 Star Subsidized Enrollment (per child amount up to 12 children)	3 Star Base	3 Star Subsidized Enrollment (per child amount up to 12 children)
$600	$50	$1,000	$100	$1,600	$150

Quality Achievement Awards are:

1. Determined by ODJFS after a program earns or renews a Star Rating
2. Processed by OCCRRA after submission and approval of documents as outlined in the QAA Users Guide
3. Contingent upon completing a reconciliation process for the previous year's QAA as outlined in the QAA Users Guide
4. Paid annually in one installment
5. Contingent upon the availability of funds

* ODJFS reserves the right to modify this payment matrix at any time.

B8

SUTQ Verification Visit Process Assessment

Rationale: Demonstrates one of Ohio's existing financial incentives to support sustained levels of quality in programs serving young children.

Referenced in:

VI(B)(3)

step up to quality

Ohio Department of Job and Family Services

STEP UP TO QUALITY
VERIFICATION VISIT PROCESS ASSESSMENT

Name of Program				License #
Name of Administrator(s)				
Step Up Licensing Specialist				
Date of Visit	Date of Visit	Date of Visit	Date of Visit	Date of Visit
Step applied for *(check one)* ☐ Step 1 ☐ Step 2 ☐ Step 3				

Directions: At the completion of the verification visit, the program administrator and Step Up Licensing Specialist (SULS) initial each procedure listed below and sign verifying that all Step Up To Quality (SUTQ) procedures were followed in accordance with standard verification procedures. If a program administrator believes that any of the procedures were not properly followed, the procedure should not be initialed.

On-site Verification Visit	Administrator	SULS
1. The SULS introduced them self to the Administrator and reviewed what to expect over the course of the visit.		
2. The SULS asked for the program's Professional Development Registry Profile report to see if it accurately reflects current program staff.		
3. The SULS took a tour of the program, verifying ratios, group size, enrollment and lead and assistant teachers.		
4. The SULS observed all age groups served for a minimum of 15 minutes per classroom (observation time increases with step level).		
5. The SULS reviewed the corresponding lesson plans, schedules, standards and guidelines for each age group.		
6. The SULS interviewed all lead teachers for all age group in programs that applied for Steps 2 & 3.		
7. The SULS reviewed the Evidence Portfolio, requesting additional information if necessary.		
8. The SULS reviewed staff and children files as needed.		
9. An exit interview was conducted and the verification visit report was reviewed.		
10. The SULS answered and/or addressed any questions/concerns and the program received the report.		

I affirm that all verification visit procedures described above were completed, and that there is no conflict of interest between myself and the Step Up to Quality Licensing Specialist.

Signature of Administrator	Date

Step Up Licensing Specialist

I, _____ as a verifier for Step Up To Quality, affirm that all verification visit procedures described above were followed and completed during the visit. I affirm my commitment to maintaining confidentiality regarding all information about this program during the verification visit, except as required by law. I affirm that there is no conflict of interest between this program and myself.

Signature of Step Up Licensing Specialist	Date

Attachment C: Promoting Early Learning and Development Outcomes for Children

C1

Essential Domains of School Readiness

Rationale: Supportive Evidence for Section VI(C)(1)(a). This chart demonstrates how each of the early learning and development standards for birth-grade 3 in Ohio address each of the essential domains of school readiness.

Referenced in:

VI(C)(1)(a)

Early Learning Challenge Grant
Essential Domains of School Readiness

Essential Domains	Infant & Toddler Guidelines	Pre-Kindergarten Content Standards	Common Core State Standards ELA/Math K-3 Ohio's Revised Standards Science and Social Studies K-3
Developmentally Appropriate	Ohio's Infant/Toddler Guidelines are evidence-based and identify the developmental drivers and major milestones in all developmental domains in three distinct stages of infancy. These include: • Birth – 8 months: *Security* • Six – 18 months: *Exploration* • 16 – 36 months: *Identity*	The PreK standards in all content areas are evidence-based and address concepts and skills 3 - 5 year old children should know and be able to do prior to kindergarten entry and are aligned to developmental learning trajectories.	Evidence-based standards developed to address learning progressions from kindergarten through grade 3.
Language and Literacy Development	**Language & Communication Development** • Comprehending Language • Expressing Language • Social Communication • Early Literacy	**English Language Arts** • Reading ○ Literature ○ Informational Text ○ Foundational Skills • Writing • Speaking and Listening • Language	**English Language Arts** • Reading ○ Literature ○ Information al Text ○ Foundationa l Skills • Writing • Speaking and Listening • Language

Cognition and General Knowledge (including early mathematics & early scientific development)	**Cognitive Development** • Group and categorize • Cause and effect • Problem-solving • Memory • Space • Imitation • Attention and Persistence	**Mathematics** • Counting and Cardinality • Operations and Algebraic Thinking • Measurement and Data • Geometry **Science** Theme PreK-grade 2 Observations of the Environment • Science Inquiry and Application • Earth and Space Science • Physical Science • Life Science	**Mathematics K:** • Counting and Cardinality • Operations and Algebraic Thinking • Number Operations in Base Ten • Measurement and Data • Geometry **Science** Theme PreK-grade 2 Observations of the Environment • Science Inquiry and Application • Earth and Space Science • Physical Science • Life Science
Approaches toward Learning	Approaches to learning are addressed holistically through responsive, respectful care teaching.	Not evident in this document	Not evident in this document
Physical Well-Being & Motor Development (including adaptive skills)	**Physical Health** • Health Practice • Oral Health • Positive Nutritional Status **Motor Development** • Large Muscle • Small Muscle • Oral-Motor	Not evident in this document	**Physical Education Academic Content Standards (2009)** • Non-locomotor and locomotor skills • Manipulative skills • Combined movement skills • Physical activity for fitness and enjoyment

Social and Emotional Development	**Social Development**
	• Attachment
	• Expression of Social Behavior
	  ○ Interactions with adults
	  ○ Interactions with peers
	  ○ Empathy
	  ○ Social Identity
	Emotional Development
	• Attachment
	• Expressions of Emotion
	• Self-Awareness
	• Sense of Competence
	• Self-Comforting
	• Impulse Control
		Social Studies
		Social-emotional learning goals are embedded in the Government strand of the Social Studies Standards
		
		History
		Geography
		Economics
		Government
		• Everyone has responsibilities within a group
		• Relationships in families, schools and communities benefit from cooperative behaviors and problem-solving skills.
		• Choices have consequences
		• Schools and classrooms have rules and routines that govern daily life. Rules exist in families, schools and communities..
			Social Studies
			• History
			• Geography
			• Economics
			• Government
			Social-emotional learning goals are embedded in the Government strand and include:
			• **Social problem-solving**
			• **Personal and shared responsibility**
			• **Accountability**
			• **Collaboration**
			• **Social rules governing behavior**

C2

Ohio's Infant & Toddler Field Guide

Rationale: Supportive evidence for Section IV(C)(1)(a) and (b). This document provides evidence that Ohio currently has early learning and development program standards for infants and toddlers.

Referenced in:

VI(C)(I)

Ohio's Infant &Toddler Field Guide
Strengthening the Professional Practices of Infant Toddler Care Teachers

Infant & ToddlerField Guide Introductory Section
DRAFT 9/22/11 – For Print October 2011

Purpose Statement: Why a Field Guide for Infant Toddler Care Teachers?

This Field Guide was created for the special individuals who spend their days nurturing and supporting the hearts, minds and bodies of our youngest citizens. This Field Guide is designed for you, the infant and toddler care teacher! Your work is emotionally and physically challenging yet it is also exhilarating and rewarding. The hope is that this Field Guide will deepen your understanding of infant and toddler development, give you ideas to strengthen your care teaching practices and encourage you to seek out and try new teaching approaches. The research is clear - early experiences last a lifetime - and you, the care teacher, influence the long term impact of these experiences. In other words, the everyday experiences young children have while in your care contribute to who they will become.

What is the Field Guide?
This field guide suggests various strategies for you to try. There is no one single, "right way" to care for a baby and there is no one "right" answer to many questions asked by infant/toddler teachers. When asked how to handle common child care challenges, many experts will initially respond by saying, "It depends." We agree. But it is still worthwhile to explore ideas that have worked for other infant/toddler teachers. We set out to develop a resource that care teachers can use to help address the real life challenges that infant/toddler care teachers face every day. The Field Guide does just that. It is not an answer book with quick fixes to common child care challenges. Instead, it provides a framework to help care you examine issues that you may find most challenging and explore possible solutions through reflective questioning.

The Field Guide focuses on some of the key concepts of reflective practice. Reflective practice is an approach to caregiving that promotes observation, questioning and planning as tools that care teachers can use to inform how to interact and respond to the young children in care. The Field Guide demonstrates how to apply these elements of reflective practice - observation, questioning, and planning- into the everyday life of care teachers, and it offers examples of how reflection can lead to better child care practices. .

The Field Guide presents vignettes that capture a moment in time in an infant, mobile infant or toddler program based on real life childcare challenges. The vignettes enable you to "see" and "hear" children and teachers during play, learning and caregiving routines and the interactions involved. After reading a vignette, the reader walks through a series of questions and possible teaching strategy solutions. Then one can see how the suggested strategies are woven into the final vignette depicting a more developmentally appropriate child-teacher encounter.

The Path to Creating the Field Guide
In February of 2010 professionals came together from two states, South Carolina and Ohio, along with Peter Mangione and Kay Albrecht, to begin a collaboration to create a field guide for care teachers that would offer strategies and possible solutions to everyday type situations that occur in infant and toddler programs. It was decided at the beginning of the project that this document would be a companion to Ohio's and South Carolina's Infant & Toddler Guidelines. As with the Infant & Toddler Guidelines, the Field Guide is influenced by the philosophy of WestEd's Program for Infant/Toddler Care (PITC).

The Field Guide was widely reviewed during various stages of development by representatives in both states and at several national conferences. South Carolina and Ohio also held focus groups during the development phase to collect feedback which was overwhelmingly positive. The focus groups' suggestions for strengthening the Field Guide helped make the document the wonderful resource it is today. This document represents a shared vision with a common goal: create a tool that is relevant, realistic and empowering for care teachers in the diverse settings where they care for infants and toddlers.

Writing Team / Thank you pages

The Development Team
The Field Guide is reflective of the individual talents and collective wisdom of the following professionals. To all of you we owe a big "Thank you!"

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- Ohio's and South Carolina's focus groups were comprised of care teachers from center based and family child care programs, educational coordinators and program administrators. Your input and feedback on the structure and content was extremely valuable and a great asset in the development of the Field Guide. The focus group members were:

Guiding Principles

The professional practices identified in the Field Guide must:

- Promote research based best practices
- Respect individual differences of children and their families
- Be sensitive to cultural and linguistic differences
- Be inclusive of children with disabilities and other special needs
- Endorse care teaching practices that are both ethical and professional
- Reflect everyday experiences of care teachers
- Be rooted in the philosophical belief that children's optimal development is nested in relationships that are respectful and responsive
- Include all domains comprehensive of development that are best supported during individualized routines and in play

Using the Field Guide
There is no "right" way to use the Field Guide; the best approach is the one that works for you. Though, to get the most out of the Field Guide it is important to understand the purpose of this document, the vignette topic list and the 3 main components of each vignette, "Watch", "Ask Yourself" / Give It a Try" and "Putting It All Together" as described below.

Please note, any similarities with the names and/or actions of teachers, children or families portrayed in the vignettes are coincidental.

- **Vignette Topics**

The Vignette Topic chart is a list of common child care situations, or topics, covered in the Field Guide. Each topic is presented as a vignette, a moment in time in an infant or toddler program.

The vignettes are divided into 3 age groups, infants (Birth to 8 months), mobile infants (6-18 months), and toddlers (16-36 months). Notice that the age ranges overlap to reflect the impact of individual differences on the rate of development.

While a majority of topics are presented in each of the three age groups there are a few topics that are not. Some topics are not suitable for the age group represented, due either to the developmental stages of children in that age range or the appropriateness of the experience. For example, for infants and mobile infants there is not a vignette on limiting the use of television. Based on national recommendations, use of television, videos/DVDs, and computers are not appropriate for children under the age of 24 months in any circumstance.

Vignette Format

- **"Watch"**

"Watch", the initial vignette, sets up an example of a real life situation that a teacher may experience.The teacher's professional practices illustrated in the "Watch" vignette are not "wrong" but rather are practices than could be strengthened.

Child's Quote
The child's quote on the "Watch" page suggests what a child, in this age group, may be experiencing, summarizing his/her needs as portrayed in this vignette. The development team titled this piece as "One Thing Right Now"; the *one thing* we would like the reader to consider *right now*.

- **"Watch"** *on second page of vignette*

The "Watch" vignette is presented again so readers can drill down, "observe" and focus on what the child is experiencing. Observation is a key professional practice in your work with infants and toddlers. Revisiting the "scene" helps clarify and identify what is happening to help deepen a teacher's understanding. "Watch" vignette directly links to the next component, "Ask Yourself / Give It a Try."

"**More About…" (note to ME: same thought of placement as child's quote above)**
The "More About" paragraph expands on the vignette content providing a rationale and points to ponder.

- **“Ask Yourself”**

The “Ask Yourself” questions, written in the reader’s voice, align to the “Watch” vignette. This section enables you to consider questions that directly relate to child behaviors and professional practices that are outlined in the vignette. This process of reviewing a scenario and asking questions provides an opportunity to explore a critical component of the reflective process. Reflection is a professional practice that can deepen your understanding of children’s learning and behavior, and probing for solutions to unanswered questions will support you in your work.

- **“Give It a Try”**

“Give It a Try” presents possibilities-possibilities to strengthen your professional practices, increase your knowledge and to reflect on your ideas and beliefs. Be open to trying new ideas and seeing what works and what doesn’t. The suggested professional practices are options and do not represent a complete list. They do however illustrate the common theme of the importance of building relationships, and providing responsive, reciprocal and respectful care.

“Give It a Try” strategies are depicted by bullet point symbols. The symbols identify the professional practices that refer to the environment, caregiving routine, teacher interaction and child development & interest.

The “Ask Yourself” / “Give It a Try” strategy is based on The Program for Infant Toddler Care’s Watch, Ask, and Adapt; a process that utilizes the skills of observation, reflection and application to support care teaching.

- **Putting It All Together**

The “Putting It All Together” vignette is based on the “Watch” vignette and represents possible outcomes if the process of “Ask Yourself” and “Give It a Try” professional practices are carried out. Of course there is not one solution and there are many factors to take into consideration, but what we do know is that knowledgeable, responsive and respectful care s leads to meaningful early experiences that last a lifetime.

Infant & Toddler Guideline Connections

Because children’s experiences directly relate to their development, this document was designed to illustrate this connection. In the “Putting It All Together” vignette, Ohio’s & South Carolina’s Infant & Toddler Guideline’s developmental domains and indicators are visually aligned to specific child behaviors.

The vignettes demonstrate that using the Infant & Toddler Guidelines is not something extra that you must do but rather that child development is something you often encounter in your day to day work. The vignettes show that the different developmental domains do not operate separately, but instead are inextricably woven together and are part of every care teaching decision you make.

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C3

Mathematics Model Curriculum

Rationale: Supportive evidence for Section IV(C)(1)(c). This document serves as an example of how standards are incorporated into model curricula in Ohio.

Referenced in:

VI(C)(I)

Pre-Kindergarten Content Standards Mathematics
Model Curriculum

Domain	**Counting and Cardinality**
Cluster	*Know number names and the count sequence.*
Standards	1. Count to 10 by ones. 2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1). 3. Identify and name numerals 1-9.
Content Elaboration	Initially, learning the verbal counting sequence is a rote process. Young children mimic counting often with lack of purpose or meaning. Developing fluency and familiarity with the rote, verbal counting sequence promotes the understanding of counting forward. The ability to count forward (from a number other than one) is a landmark on the path to number sense. Learning mathematical symbols and terminology begins by connecting a verbal number name with a numeral 1-9.
Instructional Strategies	• Incorporate and model counting in daily classroom activities (e.g., counting out snacks, count the number of boys and girls in attendance, etc.). • Sing and say counting songs, rhymes, poems, finger-plays • Read counting books
Instructional Resources and Tools	*Big Fat Hen*, Keith Baker *Over in the Meadow*, Ezra Jack Keats *Ten Red Apples*, Pat Hutchins Ohio Resource Center – Resources for Early Childhood at http://rec.ohiorc.org/
Strategies for Diverse Learners	For children with visual impairments, use materials in highly contrasting colors Flexible grouping Use Assistive Technology* when appropriate. (See Glossary for additional information.) Accept children's approximations and attempts and elaborate/expand on these as appropriate. Scaffold**each learner in his zone of proximal development. (See Glossary for additional information.) Resources based on the *Universal Design for Learning* principles are available at www.cast.org
Cluster	*Count to tell the number of objects.*
Standards	4. Subitize to determine how many: immediate recognition of small quantities up to 6. 5. Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. b. Understand that the last number name said tells the number of objects counted up to 10. The number of objects is the same regardless of their arrangement or the order in which they were counted.
Content Elaboration	Cardinality is a fundamental concept of number and counting and involves knowing that the number said tells the quantity

	you have, and, that the last number said represents the entire quantity counted. The big idea is: The number counted means amount, and no matter how you arrange and rearrange the items, the quantity is the same. Coordinating the saying, touching or moving of objects in a one-to-one correspondence bridges rote counting and the understanding of cardinality. To subitize is to perceive at a glance the number of items presented without counting. Young children can identify (subitize) small quantities of items up to 3 and may recognize familiar grouping patterns up to 6 when given the opportunity to play math games using number cubes, dominoes, dot cards or other patterned counting devices.
Instructional Strategies	• Model stable-order counting during routine classroom experiences and in play. • Provide opportunities to demonstrate/practice one-to-one correspondence during routines (e.g., ensuring each child has a napkin at snack). • Provide opportunities for the children to find the same number of objects as that represented in a prompt or model (e.g., select three crackers to match the picture of three crackers in a rebus snack chart, or counting napkins for the number of seats at the snack table). • Provide multiple opportunities and a variety of materials and manipulatives for counting. • Counting games • Gross-motor games where children roll a large number cube and move an equivalent number. • Read counting books during shared-reading, pausing to count items in the story or informational text. • Question children to determine quantity within the context of daily experiences and conversations. • Give children a brief glimpse of a small collection of items and ask how many there are.
Instructional Resources and Tools	Blocks, manipulatives and collections of small natural and found items (e.g., lids, keys, shells, etc.). Short and Long-path and other board games using number cubes, dominoes or patterned counting devices *Ten Black Dots*, Donald Crews *Fish Eyes: A Book You Can Count On*, Lois Ehlert *The Hungry Caterpillar*, Eric Carle *One Duck Stuck*, Phyllis Root *Henry the Fourth*, Stuart J. Murphy **Teacher Resource:** Ohio Resource Center – Resources for Early Childhood at http://rec.ohiorc.org/ *Dot Card and Ten Frame Activities*, Winnipeg School Division http://www.edplus.canterbury.ac.nz/literacy_numeracy/maths/numdocuments/dot_card_and_ten_frame_package2005.pdf
Strategies for Diverse Learners	Tactile dots on large cards (e.g., raised, sandpaper, fuzzy, etc.). Use Assistive Technology** when appropriate. Accept approximations and attempts and expand/elaborate as appropriate. Scaffold** each learner in his zone of proximal development. Resources based on the *Universal Design for Learning* principles are available at www.cast.org

Cluster	*Compare numbers.*
Standards	6. Identify whether the number of objects in one group is greater than, less than or equal to the number of objects in another group up to 10. 7. Compare two numbers between 1 and 5 when presented as written numerals.
Content Elaboration	As children develop meaning for numerals, they also compare these numerals and the quantities represented. Comparisons rely on understanding the relationship between the number sequence and cardinality. Cardinality is extended through the comparison of groups. Children count to determine and compare quantities (using language such as "greater than" "less than" and "same as/equal to"). Children connect the concrete comparison to written numeral comparison.
Instructional Strategies	• Facilitate conversations and ask questions that require comparisons (e.g., Does Jason have as many crackers as Jasmine?). • Encourage children to create and compare sets and explore number relationships in a many contexts (e.g., during dramatic play, snack). • Count and compare the numbers of letters in the children's names. • Model comparative language such as "greater than," "less than" and "same as/equal to." • Encourage children to create and compare sets (e.g., I have 5 blocks, you have 6 blocks. Who has more?). • Display and discuss numerals in print. • Talk about numerals in context pointing out distinctive features. • Pair numerals with numbers of objects or pictures.
Instructional Resources and Tools	A variety of manipulatives and collections Balance scale Number/picture cards *Just Enough Carrots*, Stuart J. Murphy *The Doorbell Rang*, Pat Hutchins *More, Fewer, Less*, Tana Hoban *More Bugs? Less Bugs?,* Donald L. Curry *Henry Keeps Score*, Daphne Skinner **Teacher Resource:** Ohio Resource Center – Resources for Early Childhood at http://rec.ohiorc.org/
Strategies for Diverse Learners	Accept approximations and attempts and expand/elaborate as appropriate. Use Assistive Technology* when appropriate. Scaffold** each learner in his zone of proximal development. Resources based on the *Universal Design for Learning* principles are available at www.cast.org
Domain	**Operations and Algebraic Thinking**
Cluster	*Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.*

Standards	1. Construct sets up to 10 with more or fewer objects than a given set; join two sets of objects to make one large set.
Content Elaboration	The foundation of part-part-whole relationships begins by understanding the process of joining and separating groups. The total number of objects when combined should not exceed 10. Children begin to understand that when two sets are joined, the resulting quantity of the combined group will be "more than" the number in either of the original groups. Formal addition and subtraction is not addressed until grade 1.
Instructional Strategies	• Model mathematic vocabulary in conversation, within the context of daily routines and play (e.g., joining, more than, less than, equal to, same as, groups, bigger and smaller, taller, shorter, etc.). • Provide opportunities within the context of daily routines and play to observe and count children and objects in groups. Examples might include: "How many children are at school?" "How many are at home?" "How many girls are here?" "How many boys?" • Use flannel board pieces and/or concrete objects to group and count sets or demonstrate grouping (e.g., 3 dogs and 2 cats are 5 animals; 4 dogs and 1 cat are 5 animals or act out *Ten in the Bed* using concrete objects). • During interactive reading, introduce and discuss new vocabulary and concepts within the story or informational text. • Pose and solve problems within the context of real situations in the classroom (e.g., "How many people will be at the snack table if Jenny comes?").
Instructional Resources and Tools	Flannel board and flannel board forms *Ten Terrible Dinosaurs*, Paul Stickland *The Hershey's Kisses Subtraction Book*, Jerry Pallotta *Feast for Ten,* Cathryn Falwell *The Napping House,* Audrey Wood *Ten in the Bed,* Penny Dale *Monster Musical Chairs,* Stuart J. Murphy Ohio Resource Center – Resources for Early Childhood at http://rec.ohiorc.org/
Strategies for Diverse Learners	Differentiate instruction based on age, developmental level and learning style/modality (e.g., adjust number of objects/manipulatives; provide multiple opportunities; use technology/assistive technology like touch-screen computers; task boxes to provide structure and focus; teach and re-teach; flexible grouping and peer teaching). Use Assistive Technology* when appropriate. Accept approximations and attempts and expand/elaborate as appropriate. Scaffold** each learner in his zone of proximal development Resources based on the *Universal Design for Learning* principles are available at www.cast.org
Domain	**Measurement and Data**
Cluster	*Describe and compare measureable attributes.*
Standards	**1.** Describe measureable attributes of objects, such as length or weight. Sort, order and classify by one attribute. 2. Directly compare two objects with a measureable attribute in common, to see which object has "more of"/"less of"

	the attribute and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*
Content Elaboration	Children will develop the ability to classify, compare and order objects based on an attribute that can be measured (e.g., height or length). Measurement in preschool should be limited to non-standard measures and comparison language. Children should verbally describe *one common attribute* of two objects using comparison words such as taller, shorter, longer, heavier, lighter, etc.
Instructional Strategies	• Relate measurement language to children's interests, experiences and prior knowledge, versus abstract ideas and data. • Provide a variety of manipulatives and collections of natural and found materials for exploration and comparison of attributes. • Model and encourage the use of comparison language (e.g., bigger/smaller, longer/shorter, heavier/lighter) in the context of daily experiences and play (e.g., "This block feels heavier than that book." "I wonder if this block tower is taller than the table." • Provide opportunities for children to sort and classify in the context of daily routines and play (e.g., at clean-up time, children sort blocks by size and shape for stacking on the labeled block shelves). • Provide opportunities to describe and compare attributes of objects. • Provide collections and sets of materials (e.g., measuring cups and spoons, nesting blocks, beads) that can be sorted, ordered and classified by one attribute. Ask the children to describe how they are sorting the items. • Read stories in which size relationships play an important part and encourage children to represent stories using real objects (e.g., doll house furniture to retell *The Three Bears*).
Instructional Resources and Tools	Balance scale. *Is It Larger? Is It Smaller*, Tana Hoban *Goldilocks and the Three Bears* *Who Sank the Boat?* Pamela Allen *Inch by Inch,* Leo Leonni *A Million Fish…More or Less*, Patricia McKissack *Pigs in the Pantry: Fun with Math and Cooking,* Amy Axelrod *The Button Box*, Margarette Reid *Just a Little Bit*, Ann Tompert *Math! Math! Math!* Audio CD by Ron Brown **Teacher Resource:** Ohio Resource Center – Resources for Early Childhood at http://rec.ohiorc.org/ *Explore, Discover, Learn…. Kindergarten-Lessons.com* http://www.kindergarten-lessons.com/manipulatives.html and http://www.kindergarten-lessons.com/teaching-measurement.html *NOTE: While these websites contains some good teaching tips for young learners, some are more appropriate for*

	kindergarten-age children, and some (like math worksheets) are not appropriate at all. Use with caution.
Strategies for Differentiated Instruction	Modify vocabulary and utilize props and more familiar words Provide visual cues Use Assistive Technology* when appropriate. Accept approximations and attempts and expand/elaborate as appropriate. Scaffold** each learner in his zone of proximal development. Differentiation based on: • individual child ability • Instructional level – appropriate expectation of child's level - take child where he is Different size blocks, different texture blocks. Some need large blocks, some need Lego size. Children may occupy different amounts of space based on their personal needs and abilities. Children may need alone space within the visual range of classroom peers. Resources based on the *Universal Design for Learning* principles are available at www.cast.org
Cluster	*Classify objects and count the number of objects in each category*
Standards	3. Sort and classify objects into given categories; count the number of objects in each category and sort compare the categories by count. Limit total number of objects to 10.
Content Elaboration	Children use prior knowledge of grouping initially to sort objects into given categories by one attribute (e.g., "red" and "not red," or "round" and "not round" or simply creating a set of all the red items or all the round items). Children progress toward sorting a group of objects into multiple groups by one attribute (e.g., "all blue, all red, all yellow" or "all bears, all cats, all dogs"). The number of objects in each group can then be counted and the quantities compared using words such as "greater than," "less than," or "same as/equal to."
Instructional Strategies	• Model sorting and classifying language and conversation to compare attributes in everyday play or group experiences. • Invite children to sort and organize collected materials by color, size, shape, etc. and ask them to count to find which group has the most. • Use "not" language to help children sort by one attribute (e.g., "These bears are all red, and these bears are NOT red.").
Instructional Resources and Tools	Manipulatives, collections of natural and found materials, similar items of different sizes/colors/weights – counting bears, buttons, cubes, etc. Sorting trays *Is it Red? Is it Yellow? Is it Blue?,* Tana Hoban *Sorting All Sorts of Socks*, Betsy Franco *Hats, Hats, Hats*, Ann Morris *Shoes, Shoes, Shoes*, Ann Morris

	Teacher Resources: Ohio Resource Center – Resources for Early Childhood at http://rec.ohiorc.org/
Strategies for Diverse Learners	Use Assistive Technology* when appropriate. Accept all approximations and attempts and expand/elaborate as appropriate. Scaffold** each learner in his zone of proximal development. Resources based on the *Universal Design for Learning* principles are available at www.cast.org
Domain	**Geometry**
Cluster	*Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres).*
Standards	1. Describe objects in the environment using names of shapes and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind and next to. 2. Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional (solid).
Content Elaboration	Children develop geometrical understanding by recognizing, identifying, and describing common shapes in their environment and in play. Young children often identify the more complex shapes by rote. Children demonstrate and begin to use the language of the relative position of objects in the environment in play situations (e.g. up, down, over, under, etc.). Children will identify two- and three-dimensional shapes as "flat" or "solid" and by using descriptive vocabulary. (e.g., sphere-"ball", cube-"box", cylinder-"can" or "tube," cone-"ice cream cone").
Instructional Strategies	• Introduce and label a wide variety of two and three-dimensional shapes pointing out and discussing distinctive features. • Provide a variety of regularly-shaped materials and manipulatives. • Encourage play experiences sorting and matching shapes. • Listen for children's use of "shape talk" – vocabulary describing two and three dimensional shapes occurring during play (e.g., building in the block center, painting/drawing in the art center). • Provide well-designed learning experiences, learning centers, and guided conversations where children explore, predict and reason about geometric ideas (e.g., a "shape hunt" to match a given shape in the classroom environment, continuing patterns with geometric shapes). • Model and encourage positional vocabulary (e.g., up, down, over, under) in conversation and in the context of daily routines and play. • Provide opportunities and materials to explore spatial concepts by moving objects, including their own bodies, through space. • Select children's books that use "spatial language" (e.g., *Going on a Bear Hunt, Inside Outside Upside Down*).
Instructional Resources and Tools	Tangrams, pattern blocks, parquetry blocks, geo-boards. Unit, architectural and 3-dimensional block sets. *Rosie's Walk,* Pat Hutchins *Shapes, Shapes, Shapes*, Tana Hoban *Changes, Changes*, Pat Hutchins *Mouse Shapes*, Ellen Stoll Walsh

	Inside, Outside Upside Down, Stan & Jan Berenstain *Going on a Bear Hunt,* Michael Rosen & Helen Oxenbury **Teacher Resources:** Ohio Resource Center – Resources for Early Childhood at http://rec.ohiorc.org/
Strategies for Diverse Learners	Accept approximations and attempts and expand/elaborate as appropriate. Use Assistive Technology* when appropriate. Scaffold** each learner in his zone of proximal development. Resources based on the *Universal Design for Learning* principles are available at www.cast.org
Cluster	*Analyze, compare, create and compose shapes.*
Standards	3. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts and other attributes. 4. Model shapes in the world by building shapes from components and drawing shapes. 5. Compose simple shapes to form larger shapes.
Content Elaborations	Children describe the difference between two-dimensional and three-dimensional shapes informally (e.g., sphere = "ball," circle = "flat and round," cube = "box," square = "flat box," cylinder = "can" or "tube," cone = "ice cream cone"). They name and describe these shapes first using their own descriptions and increasingly adopt mathematical language. Children may begin to recognize that three-dimensional shapes are made from two-dimensional shapes, and may describe two-dimensional shapes by number of sides and corners. They begin to describe three-dimensional shapes using language developed from experiences with two-dimensional shapes. Children use their knowledge and developed skills to model, build, and draw familiar shapes from their environment. They combine simple shapes and objects to form new and larger designs.
Instructional Strategies	• Model and encourage conversation describing and comparing the sizes and orientations of two- and three-dimensional shapes. • Encourage children to make and talk about models created with blocks and toys. • Provide two- and three-dimensional shapes for children to explore, questioning where they might find the two-dimensional shapes "in" the three-dimensional shapes. • Watch for shape-making play using a variety to manipulatives (e.g., tangrams, puzzles, pattern blocks) and listen for "shape talk." • Scaffold children's use of descriptive language, modeling mathematical language. • Provide blueprints, architectural models, photographs and other authentic props and engage the children in exploring the presence of shapes. • Provide a variety of art media and materials for children to use to model, construct and draw familiar shapes in the learning environment indoors and outdoors.
Instructional Resources and Tools	Unit, architectural and three-dimensional blocks Blueprints, photographs, graphic drawings and other authentic architectural models in block, art, and manipulative centers Multiple forms of art media for drawing, painting, sculpting, constructing.

	Cubes, Cones, Cylinders, & Spheres, Tana Hoban *So Many Circles, So Many Squares*, Tana Hoban *Color Zoo,* Lois Elhert *Twizzlers Shapes and Patterns*, Jerry Pallotta Ohio Resource Center – Resources for Early Childhood at http://rec.ohiorc.org/
Strategies for Diverse Learners	Open-ended materials allow children to use them successfully in their own way Explicitly model mathematical language. Accept approximations and attempts and expand/elaborate as appropriate. Use Assistive Technology* when appropriate. Scaffold** learners in the zone of proximal development Resources based on the *Universal Design for Learning* principles are available at www.cast.org.

Glossary

Assistive technology: technology used by individuals with disabilities in order to perform functions that might otherwise be difficult or impossible. For more information on specific strategies visit: http://www.newton.k12.ks.us/at/examples.htm

Cardinal Numbers (Cardinality): A cardinal number tells "how many." Cardinal numbers are also known as "counting numbers," because they show quantity (e.g., 7 puppies, 3 dolls).

Cluster: Groups of related standards within each math domain (e.g., *Know number names and the count sequence* within Counting and Cardinality.).

Discipline: An organized branch of knowledge within a larger field of study (e.g., *Economics* within the Social Studies or *Life Science* with the Natural Sciences).

Domain: A content area within mathematics. (e.g., *Counting and Cardinality* or *Geometry*).

Flexible grouping: children of different ages and ability levels are grouped and re-grouped according to specific learning goals, activities and individual needs. For more information visit http://www.eduplace.com/science/profdev/articles/valentino.html

Interactive Reading: carefully planned read-alouds to help children gain new vocabulary and learn new concepts. The teacher and children talk about a book before, during and after it is read. During these discussions, teachers insert definitions of a few vocabulary words and listen carefully to children's comments and questions so that they can clarify misunderstandings and expand responses.

Modality: Learning modalities are the sensory channels or pathways through which individuals give, receive, and store information (e.g., visual learners, auditory learners, tactile/kinesthetic learners. For more information visit http://web.cortland.edu/andersmd/learning/Modalities.htm

Ordinal Numbers (Ordinality): Ordinal numbers tell the order of things in a set—first, second, third, etc. Ordinal numbers do not show quantity. They only show rank or position, (e.g., first, second third).

***Scaffolding:* an instructional strategy in which the teacher provides information and assistance that allow children to perform at a higher level than they might be able to do on their own. . Examples include: providing children hints or prompts; demonstrating the task, and/or the thinking required by "talking out loud" through the process. Begin practice with easier material and once the child has mastered the concept/skills it is appropriate to move to the next level. If the child is still having difficulties, assess where s/he is making the error in thinking, and begin scaffolding from that point.

Standard Statement: defines what students should understand and be able to do (also *Content Statement, Standard*).

Strand: The content area – or discipline – within the larger field of study (e.g., *Reading* within ELA; *Geometry* within Mathematics, etc.).

Subitize: the process of recognizing and naming the number of objects in a set without counting.

Task Box: a strategy whereby individual learning activities are presented in a box or tray with visual cues/directions to support children with autism and others requiring visual structure.

Tangram: a puzzle consisting of seven flat shapes, called *tans*, which are put together in different ways to form distinct geometric shapes.

Zone of Proximal Development: The zone of proximal development is the gap between what a learner has already mastered (the actual level of development) and what he or she can achieve when provided with educational support (potential development).

Additional Resources:

Copley, J. (2000). *The young child and mathematics*. Washington, DC: National Association for the Education of Young Children (NAEYC).

Copley, J. (2010). *The young child land mathematics, 2nd Edition*. Washington, DC: National Association for the Education of Young Children (NAEYC).

Moomaw, S. & Hieronymus, B. (1995). *More than counting: Whole math activities for preschool and kindergarten*. St. Paul, MN: Redleaf Press.

Moomaw, S. & Hieronymus, B. (2002). *Much more than counting: More whole math activities for preschool and kindergarten*. St. Paul, MN: Redleaf Press.

National Research Council (2002). *Helping children learn mathematics*. Washington, DC: National Academy Press.

National Research Council. (2009). *Mathematics learning in early childhood: Paths toward excellence and equity*. Washington, DC: National Academy Press.

Ohio Resource Center – Resources for Early Childhood: http://rec.ohiorc.org/

A BY NO MEANS EXHAUSTIVE LIST OF TOOLS AND MATERIALS TO SUPPORT MATHEMATICAL LEARNING

Counting and Cardinality

- Balance, scales
- Bingo, lotto games
- Cuisenaire® rods (numerically-related colored rods)
- Large blocks (hollow wood, compressed sponge, and/or cardboard)
- Large interlocking panels for construction
- Pegboards
- Simple games (e.g., board games with dice or spinner; variations of dominoes)
- Tens frames, abacuses
- Tinkertoys®
- Unifix® cubes (cubes in different colors representing units, tens, hundreds)
- Unit blocks, Lincoln Logs®, interlocking plastic blocks -- in sufficient quantities for several children to work together
- Variety of materials for counting and sorting

Operations and Algebraic Thinking

- Collections of materials for sorting (e.g., buttons, shells, spools)
- Colored beads, cubes, pattern cards for matching shapes and colors
- Lotto and/or matching games
- Manipulatives to snap, button, lace
- Nesting or stacking materials
- Parquetry blocks, tangrams
- Puzzles depicting sequence, size, or matching numerals to groups of objects
- Sorting trays and/or egg cartons
- Toys to enrich block play (trucks, planes, trains and tracks; boats, people and animals)
- Visual discrimination games

Measurement and Data

- Nonstandard materials for measuring (pieces of string or ribbon, masking tape, blocks)
- Sand and water table, waterproof aprons, measuring materials (e.g., transparent containers of various shapes and sizes, measuring cups, shovels, and scoops)
- Standardized measurement tools (ruler, tape measure, yardstick)

Geometry (also see blocks in Counting and Cardinality section)

- Attribute blocks (basic shapes that vary in color, size, and thickness)
- Geo-boards (boards with pegs to stretch rubber bands in patterns)
- Materials/equipment that foster exploration of spatial concepts such as top/bottom, up/down, in/out
- Pattern cards
- Three-dimensional blocks (cube, cylinder, pyramid)

C4

Ohio's Existing Comprehensive Assessment System

Rationale: Supportive evidence for Section IV(C)(1) and IV(C)(2). This table provides an overview of Ohio's existing Comprehensive Assessment System including screening measures, formative assessments, measures of environmental quality, and measures of the quality of adult-child interactions for children and programs birth to kindergarten entry.

Referenced in:

VI(C)(1) and VI(C)(2)

Ohio's Existing Comprehensive Assessment System

Comprehensive Assessment System Components								
Screening Measures Elements	**Screening Measures**: age and developmentally appropriate, valid, and reliable instruments that are used to identify children who may need follow-up services to address developmental, learning, or health needs in, at a minimum, the areas of physical health, behavioral health, oral health, child development, vision, and hearing.							
	Early Childhood Education (State PK)	**Preschool Special Education (Part B IDEA)**	**SUTQ Star Rated**	**Early Intervention (Part C IDEA) and Home Visiting**	**Head Start**	**Early Head Start**	**Early Childhood Mental Health Consultation**	**Kindergarten Entry**
Health (including physical health, oral health, vision and hearing)	Screen all children within 60 days of entrance in: Height, Weight, Vision, Hearing, Dental, Lead, Hemoglobin	Screen all children within 60 days of entrance in: Height, Weight, Vision, Hearing, Dental, Lead, hemoglobin	Medical forms required for medications, health conditions, and immunization record No additional requirements beyond ODJFS licensing rules.	Screen all children in Vision, Hearing, & Nutrition within 45 days of referral, unless child has a documented issue already identified in one of these areas.	Screen all children within 45 days. Refer children needing additional assessment or services within 90 days of screening.	Screen all children within 45 days. Refer children needing additional assessment or services within 90 days of screening.		First time kindergartners and first graders are required to be screened by November 1 in areas: Hearing, Vision, Speech, Communications, Health or medical problems. Developmental disorders Body Mass Index (BMI) is also a required screening
Health Referrals	Refer children needing additional assessment or services within 90 days of screening	Refer children needing additional assessment or services within 90 days of screening	There are no requirements for physical health screenings beyond annually updated medical forms. Therefore no referrals are made based on health screenings.	Refer children needing additional diagnostic or assessment for services as a result of a screening which indicates a concern.	Refer children needing additional assessment or services within 90 days of screening	Refer children needing additional assessment or services within 90 days of screening	If the consultant has concerns around health issues, then they make the appropriate referral	If screening reveals possibility of special learning needs, district is required to conduct further assessment. Districts are required to document results of hearing and vision tests and report results to ODH. ODE does not collect the results in EMIS. (3313.50). Results must be reported to parents (3313.73)

Comprehensive Assessment System Components								
Screening Measures Elements	**Screening Measures**: age and developmentally appropriate, valid, and reliable instruments that are used to identify children who may need follow-up services to address developmental, learning, or health needs in, at a minimum, the areas of physical health, behavioral health, oral health, child development, vision, and hearing.							
	Early Childhood Education (State PK)	**Preschool Special Education (Part B IDEA)**	**SUTQ Star Rated**	**Early Intervention (Part C IDEA) and Home Visiting**	**Head Start**	**Early Head Start**	**Early Childhood Mental Health Consultation**	**Kindergarten Entry**
Developmental (including behavioral health)	Screen all children within 60 days of entrance in: Speech/language, cognitive, gross/fine motor, and social/ emotional/behavioral	Screen all children within 60 days of entrance in: Speech/language, cognitive, gross/fine motor, and social/ emotional/behavioral	Children are screened within 60 days of enrollment in all developmental domains.	Screen all children in Vision, Hearing, & Nutrition within 45 days of referral, unless child has a documented issue already identified in one of these areas. **For Home Visiting:** Screen all children within 45 days of entrance in: Speech/language, cognitive, gross/fine motor, and social/ emotional/behavioral	Screen all children within 45 days of entrance in: Speech/language, cognitive, gross/fine motor, and social/ emotional/behavioral	Screen all children within 45 days of entrance in: Speech/language, cognitive, gross/fine motor, and social/ emotional/behavioral	Devereux Early Childhood Assessment(DECA), which has a Preschool and infant toddler version, is used to screen for behavioral concerns	First time kindergartners and first graders are required to be screened by November 1 in areas: Speech, Communications, Developmental disorders
Developmental Referrals	Refer children needing additional assessment or services within 90 days of screening	Refer children needing additional assessment or services within 90 days of screening	Referral s are done within 90 days of enrollment based on developmental screening results.	Children with a medical condition are screened using ASQ: SE during assessment. Children referred with a suspected delay receive a full developmental evaluation and thus are not screened. **Home Visiting:** All children screened using the ASQ and ASQ: SE within 45 days of referral.	Refer children needing additional assessment or services within 90 days of screening	Refer children needing additional assessment or services within 90 days of screening	Refer children needing additional services (work with teachers in centers and create an action plan or may make a referral for treatment services outside of the consultative model)	If screening reveals possibility of special learning needs, district is required to conduct further assessment.

Comprehensive Assessment System Components								
Screening Measures Elements	**Screening Measures**: age and developmentally appropriate, valid, and reliable instruments that are used to identify children who may need follow-up services to address developmental, learning, or health needs in, at a minimum, the areas of physical health, behavioral health, oral health, child development, vision, and hearing.							
	Early Childhood Education (State PK)	**Preschool Special Education (Part B IDEA)**	**SUTQ Star Rated**	**Early Intervention (Part C IDEA) and Home Visiting**	**Head Start**	**Early Head Start**	**Early Childhood Mental Health Consultation**	**Kindergarten Entry**
Specific Screening Tools Required by State Agency	Ages and Stages Questionnaires: Social-Emotional (ASQ:SE) required once each fall.	Ages and Stages Questionnaires: Social-Emotional (ASQ:SE) required twice per year—once in fall and once in spring.	To allow flexibility within programs, no specific tool is required. The tool used must meet the following criteria: evidence-based, valid and reliable, age appropriate and comprehensive.	EPDS for maternal depression, unless a mom opts out of the screening **Home Visiting:** ASQ ASQ: SE every 4 – 6 months	Performance Standards does not require a specific screening tool. All children enrolled in Head Start are screened as the first step in the assessment process. When appropriate standardized developmental screening instruments exist, they must be used. Required only once within 45 days of enrollment.	Performance Standards does not require a specific screening tool. All children enrolled in Head Start are screened as the first step in the assessment process. When appropriate standardized developmental screening instruments exist, they must be used. Required only once within 45 days of enrollment.	If they are providing child specific services it is required that they use the DECA	The board may provide any of the elements of the screening program itself, contract with any person or governmental entity to provide any such elements, or request the parent to obtain any such elements from a provider selected by the parent.

Comprehensive Assessment System Components								
Formative Assessment Elements	**Formative Assessments**; (also known as a classroom-based or ongoing assessment) means assessment questions, tools, and processes that are:(1) Specifically designed to monitor children's progress in meeting the Early Learning and Development Standards; (2) Valid and reliable for their intended purposes and their target populations; (3) Linked directly to the curriculum and the results of which are used to guide and improve instructional practices.							
	Early Childhood Education (State PK)	**Preschool Special Education (Part B IDEA)**	**SUTQ Star Rated**	**Early Intervention (Part C IDEA) and Home Visiting**	**Head Start**	**Early Head Start**	**Early Childhood Mental Health Consultation**	**Kindergarten Entry**
Progress Monitoring Tools	Get It, Got It, Go required twice per year (fall and spring) to measure progress monitoring in language and literacy	Get It, Got It, Go required twice per year (fall and spring) to measure progress monitoring in language and literacy Early Childhood Outcomes Summary Form used twice per year (fall and spring) to document the child's progress in each of three categories (Positive Social and Emotional Skills, Acquiring and Using Knowledge and Skills, Taking Appropriate Action to Meet Needs).	To allow flexibility for programs, a variety of formal and informal assessments can be used to determine children's progress. These assessment measure results are then linked to curriculum and individualized instructional practices to meet a child's needs. The following are examples of formal tools that are most commonly used : ASQ, ASQ: S/E, Creative Curriculum Teaching Strategies: Gold, High Scope: The C.O.R.	Bayley Battelle E-LAP HELP AEPS are the five assessment tools used for initial evaluation and/or assessment as well as ongoing assessment of child's development. Early Childhood Outcomes Summary Form used twice per year (fall and spring) to document the child's progress in each of three categories (Positive Social and Emotional Skills, Acquiring and Using Knowledge and Skills, Taking Appropriate Action to Meet Needs).	Performance Standards do not require a specific assessment tool. Developmental assessment is the collection of information on each child's functioning in these areas: gross and fine motor skills, perceptual discrimination, cognition, attention skills, self-help, social and receptive skills and expressive language. Must be based on scientifically valid research and aligned to the Head Start Child Outcomes Framework and, as appropriate, State early learning standards. In addition, as part of the federal review process, a review and assessment of child outcomes and performance as they relate to agency-determined school readiness goals will be evaluated.	Performance Standards do not require a specific assessment tool. Developmental assessment is the collection of information on each child's functioning in these areas: gross and fine motor skills, perceptual discrimination, cognition, attention skills, self-help, social and receptive skills and expressive language. Must be based on scientifically valid research and, as appropriate, State early learning standards.	DECA used for ongoing progress monitoring of protective factors, pre and post completed with caregiver and family	

Comprehensive Assessment System Components								
Formative Assessment Elements	**Formative Assessments**; (also known as a classroom-based or ongoing assessment) means assessment questions, tools, and processes that are:(1) Specifically designed to monitor children's progress in meeting the Early Learning and Development Standards; (2) Valid and reliable for their intended purposes and their target populations; (3) Linked directly to the curriculum and the results of which are used to guide and improve instructional practices.							
	Early Childhood Education (State PK)	**Preschool Special Education (Part B IDEA)**	**SUTQ Star Rated**	**Early Intervention (Part C IDEA) and Home Visiting**	**Head Start**	**Early Head Start**	**Early Childhood Mental Health Consultation**	**Kindergarten Entry**
Curriculum Embedded Performance Measures	All programs required to use CEPM that are aligned to content standards and used in ongoing fashion. Results not reported to state.(many programs use High Scope or Creative Curriculum)	All programs required to use CEPM that are aligned to content standards and used in ongoing fashion. Results not reported to state.(many programs use High Scope or Creative Curriculum)	All Step 3 programs use informal and ongoing assessment which must be aligned with infant/toddler guidelines and/or early learning content standards and integrated into the curriculum. Although not an exhaustive list, examples may include: anecdotes, portfolios, running records, work samples and photos	Bayley Battelle E-LAP HELP AEPS and the COSF **Home Visiting:** Parents As Teachers knowledge tool (although not required)	Must implement a research-based early childhood curriculum that-- (A) promotes young children's school readiness in the areas of language and cognitive development, early reading and mathematics skills, socio-emotional development, physical development, and approaches to learning; (B) is based on scientifically valid research and has standardized training procedures and curriculum materials to support implementation; (C) is comprehensive and linked to ongoing assessment, with developmental and learning goals and measurable objectives; (D) is focused on improving the learning environment, teaching practices, family involvement, and child outcomes across all areas of development; and (E) is aligned with the Head Start Child Outcomes Framework developed by the Secretary and, as appropriate, State early learning standards.	Must implement a research-based early childhood curriculum that-- (A) promotes young children's school readiness in the areas of language and cognitive development, early reading and mathematics skills, socio-emotional development, physical development, and approaches to learning; (B) is based on scientifically valid research and has standardized training procedures and curriculum materials to support implementation; (C) is comprehensive and linked to ongoing assessment, with developmental and learning goals and measurable objectives; (D) is focused on improving the learning environment, teaching practices, family involvement, and child outcomes across all areas of development; and (E) is aligned with the Head Start Child Outcomes Framework developed by the Secretary and, as appropriate, State early learning standards.		

Comprehensive Assessment System Components								
Environmental Quality and Adult-Child Interaction Quality Elements	**Measures of Environmental Quality**: valid and reliable indicators of the overall quality of the early learning environment. **Measures of the Quality of Adult-Child Interactions:** measures obtained through valid and reliable processes for observing how teachers and caregivers interact with children, where such processes are designed to promote child learning and to identify strengths and areas for improvement for early learning professionals.							
	Early Childhood Education (State PK)	**Preschool Special Education (Part B IDEA)**	**SUTQ Star Rated**	**Early Intervention (Part C IDEA) and Home Visiting**	**Head Start**	**Early Head Start**	**Early Childhood Mental Health Consultation**	**Kindergarten Entry**
Environmental Quality	All programs required to observe program teachers each year and programs may use environmental quality tools such as ECERS (only aggregate reflection summary reported to state).	All programs required to observe program teachers each year and programs may use environmental quality tools such as ECERS (only aggregate reflection summary reported to state).	Step 2 and 3 programs are required to do a self-assessment using the ERS, ELLCO, CLASS or other tool that measures similar characteristics. Programs then created Quality Improvement Plans (QIP). At the annual verification, each classroom observation includes observation for environment and interaction quality.	EPDS for mother if she does not opt out of completing screening **Home Visiting:** HOME or NCAST; Safety Checklist	Although not required, many agencies evaluate environmental quality using tools such as ECERS-R	Although not required, many agencies evaluate environmental quality using tools such as ITERS-R	Consultants are required to use the Environment Portion of the DECA Reflective Checklist	
Quality of Adult-Child Interactions	All programs required to observe program teachers each year and programs may use tools such as ELLCO, CESEFL, CLASS (only aggregate reflection summary reported to state. External program evaluation using ELLCO completed annually by ODE with external vendor to observe in sample of programs.	All programs required to observe program teachers each year and programs may use tools such as ELLCO, CESEFL, CLASS (only aggregate reflection summary reported to state. External program evaluation using ELLCO completed annually by ODE with external vendor to observe in sample of programs.	Step 2 and 3 programs are required to do a self-assessment using the ERS, ELLCO, CLASS or other tool that measures similar characteristics. Programs then created Quality Improvement Plans (QIP). At the annual verification, each classroom observation includes observation for environment and interaction quality.	**Home Visiting:** Home or NCAST; PSI, ISEL, and AAPI	Included as part of the federal reviews, a valid and reliable research-based observational instrument, implemented by qualified individuals with demonstrated reliability, that assesses classroom quality, including assessing multiple dimensions of teacher-child interactions that are linked to positive child development and later achievement. (CLASS)	The Infant/Toddler version of CLASS is under development and will soon be available to agencies	n/a	

Help Me Grow Acronym Key
ASQ = Ages and Stages Questionnaire (version 2 and 3 are both being used statewide)
ASQ: SE = Ages and Stages Questionnaire: Social Emotional
EPDS = Edinburgh Postnatal Depression Scale
AAPI = Adult Adolescent Parenting Inventory - 2
PSI = Parenting Stress Index – Short Form
ISEL = Interpersonal Support Evaluation List (12 item)
Bayley = Bayley Scales of Infant Development - III
Battelle = Battelle Developmental Inventory - 2
E-LAP = Early Learning Accomplishment Profile
HELP = Hawaii Early Learning Profile
AEPS = Assessment, Evaluation, and Programming System for Infants and Children
COSF = Child Outcomes Summary Form
HOME = Home Observation Measurement of the Environment
NCAST = Nursing Child Assessment Satellite Training

C5

Evidence Used to Ensure Reliability and Validity of Comprehensive Assessment System Assessments

Rationale: Supporting Evidence for IV(C)(2) and IV(E)(1). The document provides a list of the types of reliability and validity evidence that will be used in the development of the formative assessment and Kindergarten Entry Assessment to ensure the assessments are appropriate for the target populations and that this information is clear for early childhood educators.

Referenced in:

VI(C)(2) and VI(E)(I)

C2. Proof of use of Early Learning and Development Standards by Early Learning and Development Programs.

- Ohio legislation requires state funded public district preschool programs to meet and report compliance with the Ohio early learning program guidelines which require use of the Pre-kindergarten Content Standards. The Pre-kindergarten standards are referenced in Appendix Attachment XX. Legislation

As enacted in Am. Sub. H. B. No. 153 of the 129th Ohio General Assembly.
SECTION 267.10.10. EARLY CHILDHOOD EDUCATION

The Department of Education shall distribute the foregoing appropriation item 200408, Early Childhood Education, to pay the costs of early childhood education programs.

(A) As used in this section:

(1) "Provider" means a city, local, exempted village, or joint vocational school district, or an educational service center.

(2) In the case of a city, local, or exempted village school district, "new eligible provider" means a district that did not receive state funding for Early Childhood Education in the previous fiscal year or demonstrates a need for early childhood programs as defined in division (D) of this section.

(3) "Eligible child" means a child who is at least three years of age as of the district entry date for kindergarten, is not of the age to be eligible for kindergarten, and whose family earns not more than two hundred per cent of the federal poverty guidelines as defined in division (A)(3) of section 5101.46 of the Revised Code. Children with an Individualized Education Program and where the Early Childhood Education program is the least restrictive environment may be enrolled on their third birthday.

(B) In each fiscal year, up to two per cent of the total appropriation may be used by the Department for program support and technical assistance. The Department shall distribute the remainder of the appropriation in each fiscal year to serve eligible children.

(C) The Department shall provide an annual report to the Governor, the Speaker of the House of Representatives, and the President of the Senate and post the report to the Department's web site, regarding early childhood education programs operated under this section and the early learning program guidelines.

(D) After setting aside the amounts to make payments due from the previous fiscal year, in fiscal year 2012, the Department shall distribute funds first to recipients of funds for early childhood education programs under Section 265.10.20 of Am. Sub. H.B. 1 of the 128th General Assembly in the previous fiscal year and the balance to new eligible providers of early childhood education programs under this section or to existing providers to serve more eligible children or

for purposes of program expansion, improvement, or special projects to promote quality and innovation.

After setting aside the amounts to make payments due from the previous fiscal year, in fiscal year 2013, the Department shall distribute funds first to providers of early childhood education programs under this section in the previous fiscal year and the balance to new eligible providers or to existing providers to serve more eligible children or for purposes of program expansion, improvement, or special projects to promote quality and innovation.

Awards under this section shall be distributed on a per-pupil basis, and in accordance with division (H) of this section. The Department may adjust the per-pupil amount so that the per-pupil amount multiplied by the number of eligible children enrolled and receiving services on the first day of December or the business day closest to that date equals the amount allocated under this section.

(E) Costs for developing and administering an early childhood education program may not exceed fifteen per cent of the total approved costs of the program.

All providers shall maintain such fiscal control and accounting procedures as may be necessary to ensure the disbursement of, and accounting for, these funds. The control of funds provided in this program, and title to property obtained, shall be under the authority of the approved provider for purposes provided in the program unless, as described in division (J) of this section, the program waives its right for funding or a program's funding is eliminated or reduced due to its inability to meet financial or early learning program guidelines. The approved provider shall administer and use such property and funds for the purposes specified.

(F) The Department may examine a provider's financial and program records. If the financial practices of the program are not in accordance with standard accounting principles or do not meet financial standards outlined under division (E) of this section, or if the program fails to substantially meet the early learning program guidelines or exhibits below average performance as measured against the guidelines, the early childhood education program shall propose and implement a corrective action plan that has been approved by the Department. The approved corrective action plan shall be signed by the chief executive officer and the executive of the official governing body of the provider. The corrective action plan shall include a schedule for monitoring by the Department. Such monitoring may include monthly reports, inspections, a timeline for correction of deficiencies, and technical assistance to be provided by the Department or obtained by the early childhood education program. The Department may withhold funding pending corrective action. If an early childhood education program fails to satisfactorily complete a corrective action plan, the Department may deny expansion funding to the program or withdraw all or part of the funding to the program and establish a new eligible provider through a selection process established by the Department.

(G) Each early childhood education program shall do all of the following:

(1) Meet teacher qualification requirements prescribed by section 3301.311 of the Revised Code;

(2) Align curriculum to the early learning content standards developed by the Department;

(3) Meet any child or program assessment requirements prescribed by the Department;

(4) Require teachers, except teachers enrolled and working to obtain a degree pursuant to section 3301.311 of the Revised Code, to attend a minimum of twenty hours every two years of professional development as prescribed by the Department;

(5) Document and report child progress as prescribed by the Department;

(6) Meet and report compliance with the early learning program guidelines as prescribed by the Department.

(H) Per-pupil funding for programs subject to this section shall be sufficient to provide eligible children with services for a standard early childhood schedule which shall be defined in this section as a minimum of twelve and one-half hours per school week as defined in section 3313.62 of the Revised Code for the minimum school year as defined in sections 3313.48, 3313.481, and 3313.482 of the Revised Code. Nothing in this section shall be construed to prohibit program providers from utilizing other funds to serve eligible children in programs that exceed the twelve and one-half hours per week or that exceed the minimum school year. For any provider for which a standard early childhood education schedule creates a hardship or for which the provider shows evidence that the provider is working in collaboration with a preschool special education program, the provider may submit a waiver to the Department requesting an alternate schedule. If the Department approves a waiver for an alternate schedule that provides services for less time than the standard early childhood education schedule, the Department may reduce the provider's annual allocation proportionately. Under no circumstances shall an annual allocation be increased because of the approval of an alternate schedule.

(I) Each provider shall develop a sliding fee scale based on family incomes and shall charge families who earn more than two hundred per cent of the federal poverty guidelines, as defined in division (A)(3) of section 5101.46 of the Revised Code, for the early childhood education program.

The Department shall conduct an annual survey of each provider to determine whether the provider charges families tuition or fees, the amount families are charged relative to family income levels, and the number of families and students charged tuition and fees for the early childhood program.

(J) If an early childhood education program voluntarily waives its right for funding, or has its funding eliminated for not meeting financial standards or the early learning program guidelines, the provider shall transfer control of title to property, equipment, and remaining supplies obtained through the program to providers designated by the Department and return any unexpended funds to the Department along with any reports prescribed by the Department. The funding made available from a program that waives its right for funding or has its funding eliminated or reduced may be used by the Department for new grant awards or expansion grants.

The Department may award new grants or expansion grants to eligible providers who apply. The eligible providers who apply must do so in accordance with the selection process established by the Department.

(K) As used in this section, "early learning program guidelines" means the guidelines established by the Department pursuant to division (C)(3) of Section 206.09.54 of Am. Sub. H.B. 66 of the 126th General Assembly.

(L) Eligible expenditures for the Early Childhood Education program shall be claimed each fiscal year to help meet the state's TANF maintenance of effort requirement. The Superintendent of Public Instruction and the Director of Job and Family Services shall enter into an interagency agreement to carry out the requirements under this division, which shall include developing reporting guidelines for these expenditures.

SECTION 267.30.20. SPECIAL EDUCATION ENHANCEMENTS

Of the foregoing appropriation item 200540, Special Education Enhancements, up to $2,206,875 in each fiscal year shall be used for home instruction for children with disabilities.

Of the foregoing appropriation item 200540, Special Education Enhancements, up to $45,282,959 in each fiscal year shall be used to fund special education and related services at county boards of developmental disabilities for eligible students under section 3317.20 of the Revised Code and at institutions for eligible students under section 3317.201 of the Revised Code. Notwithstanding the distribution formulas under sections 3317.20 and 3317.201 of the Revised Code, funding for DD boards and institutions for fiscal year 2012 and fiscal year 2013 shall be determined by providing the per pupil amount received by each DD board and institution for the prior fiscal year for each student served in the current fiscal year.

Of the foregoing appropriation item 200540, Special Education Enhancements, up to $1,333,468 in each fiscal year shall be used for parent mentoring programs.

Of the foregoing appropriation item 200540, Special Education Enhancements, up to $2,537,824 in each fiscal year may be used for school psychology interns.

The remainder of appropriation item 200540, Special Education Enhancements, shall be distributed by the Department of Education to county boards of developmental disabilities, educational service centers, and school districts for preschool special education units and preschool supervisory units under section 3317.052 of the Revised Code. To the greatest extent possible, the Department of Education shall allocate these units to school districts and educational service centers.

The Department may reimburse county DD boards, educational service centers, and school districts for services provided by instructional assistants, related services as defined in rule 3301-51-11 of the Administrative Code, physical therapy services provided by a licensed physical therapist or physical therapist assistant under the supervision of a licensed physical therapist as required under Chapter 4755. of the Revised Code and Chapter 4755-27 of the

Administrative Code and occupational therapy services provided by a licensed occupational therapist or occupational therapy assistant under the supervision of a licensed occupational therapist as required under Chapter 4755. of the Revised Code and Chapter 4755-7 of the Administrative Code. Nothing in this section authorizes occupational therapy assistants or physical therapist assistants to generate or manage their own caseloads.

The Department of Education shall require school districts, educational service centers, and county DD boards serving preschool children with disabilities to adhere to Ohio's Early Learning Program Guidelines and document child progress using research-based indicators prescribed by the Department and report results annually. The reporting dates and method shall be determined by the Department.

Attachment D: A Great Early Childhood Education Workforce

D1

Ohio's Early Childhood Core Knowledge and Competencies

Rationale: Supportive Evidence for Section IV(D)(1). This document provides evidence that Ohio is currently utilizing a common, statewide workforce and competency framework that addresses all elements of the definition of a Workforce and Competency Framework as outlined in section III.

Referenced in:

IV(D)(1)

(b)(6)

(b)(6)

Ohio's Early Childhood
Core Knowledge & Competencies

Ohio Professional Development Network

Career resources for early childhood & afterschool professionals

Table of Contents

Introduction

Young children are amazing! Inside the vulnerable, wobbly head of the youngest newborn is a stunning amount of sophisticated brain activity! Thanks to modern science, we are just beginning to understand just how perfectly equipped and innately capable children are from the start to learn, to function, to adapt, and to make sense of the world in which they are born.

But modern science has also shown that the amazing capabilities of each child are not enough by themselves to ensure a successful passage into a healthy, happy adulthood. Decades of research have made it abundantly clear – the adults who care for and educate young children will shape:

- children's understanding of themselves, others and the world around them;
- the pathways of children's physical, social, cognitive, and emotional development; and
- even the very structure of the young child's brain!

Parents, of course, are their children's first and most influential caregivers and teachers. During the course of their early years, however, most of the children in Ohio will also have their development and experiences shaped by at least one early childhood professional – someone dedicated to the well-being of young children, birth to age eight, and their families. In this document, you will discover the breadth and depth of knowledge and skills that are needed to fully foster young children's inborn capabilities.

Core Knowledge

The Ohio Core Knowledge and Competencies for Early Childhood Professionals is based on the understanding that there are critical areas of knowledge and skills that are necessary for early childhood professionals to have if young children are to thrive under their care. Core Knowledge strives to clearly communicate the nature of these critical areas of professional practice and be useful to anyone who is interested in the competency of early childhood professionals, whether it be those working or considering work in the field, those families who depend upon early childhood services, or those who make decisions and policies about early childhood professionals.

A Note About Wording

In writing this document, some key decisions were made about language that would be used. Ohio's Early Childhood Core Knowledge and Competencies was developed by people in a wide variety of disciplines and roles within the early childhood profession and defines and describes what we, as early childhood professionals, know and do and why. It is intended to be a statement from us, the early childhood professional community in Ohio, and it is our sincere desire that each of you who share in this work will see yourself in these pages and feel that you are well-represented here.

Early childhood professional is the term chosen for those whose work is represented in Core Knowledge. It is intended to encompass not only those who have the responsibility for the direct care and education of young children but all those whose primary work responsibilities are related to the well-being of children birth through age eight. These professionals, though they are found in a wide variety of roles and settings, share a common goal of ensuring young children's healthy development, optimal care, and success and joy in learning.

Professional practice is the term chosen to describe the early childhood professional's work. It is a phrase intended to include all of the customary activities and responsibilities – the "practices" – of work focused on young children and their families.

Recommended practices is the term chosen to describe professional practices that are generally considered to be the most highly recommended by the field, based on current research and the collective wisdom of expert practitioners at this time. It is understood that, as new evidence arises, the practices that are recommended in the care and education of young children may change.

A glossary can be found in Appendix A that defines many more of the terms used throughout Core Knowledge and within specific content areas. Words that are defined in the glossary are marked with an asterisk*.

What and Why

Core Knowledge and Competencies define what all adults who work with young children need to know, understand and be able to do in order to ensure that children have the best possible environments, experiences and relationships in which to grow and learn. Core Knowledge is based upon all that we currently know about young children's development, care and learning through research as well as the combined wisdom of leaders in our field.

Having a clearly defined Core Knowledge and Competencies has many benefits:

- Work with young children gains stature as a profession when everyone understands that it requires specialized knowledge, skills and dispositions gained through education and ongoing professional development.
- Core Knowledge represents the scope of professional practice and can provide a well-rounded framework for the preparation of newcomers to the field and the continued professional growth of those already working with young children and their families.
- Lastly, a Core Knowledge document that covers a range from entry level to master level is a helpful tool as individuals assess their own knowledge and skill level and chart a course for their own development.

Guiding Principles

The process of creating Core Knowledge for Ohio's early childhood community involved the wisdom, creativity, and passion of a committed group of the state's early childhood professionals. The Ohio Early Care and Education Professional Development Network invited professionals from across the state to join one of six writing teams, a team for each of the six identified Core Knowledge content areas. The resulting teams, each with ten members, represented many roles and settings in which early childhood professionals work. (Please see the Acknowledgements on page 8 for a list of all of the writing team members.)

The writing teams were strongly committed to a set of eight guiding principles. The writing teams labored to create a Core Knowledge and Competencies document that would:

1. identify the key concepts that apply to anyone working with young children;
2. apply to early childhood professionals who work with young children and their families to provide care and/or education in many different settings and roles;
3. represent knowledge and observable skills needed for all levels of professionals, from beginners just entering the field through those at an expert level;
4. apply to the development, care and learning of children from birth through age eight;
5. recognize that children with special needs are included in the population of children that all early childhood professionals serve;
6. be culturally sensitive and respectful;
7. be based on what is currently known, from research and expert wisdom, about young children and the practices that best support them in their development and learning; and
8. be reader-friendly and useful in a variety of ways.

Content Areas

Definitions

Six broad content areas were identified as key categories of specialized knowledge that shape early childhood professional practice. Here we give general definitions of each. They are in no particular order and should be seen as equally important areas of professional knowledge and competency that are interrelated and dynamic.

Child Growth and Development:
Early childhood professionals base their practice on an understanding of all of the ways that children change over time, including expected patterns of development as well as the many ways that individual children can differ.

Family & Community Relations:
Early childhood professionals understand how important it is that they know the family, culture and community context in which each child lives. They also appreciate that developing strong, positive connections to families and community resources benefit children.

Health, Safety and Nutrition:
Early childhood professionals realize the importance of children's physical well-being as a basic and necessary foundation for their growth, development and learning, and they understand the many ways of fostering it.

Child Observation and Assessment:
Early childhood professionals are able to continually improve each child's care and learning experiences because they understand that every child follows a unique path of growth and development; therefore, they will gather and apply information about each child's progress as part of their regular practice.

Professional Development:
Early childhood professionals see themselves as members of a larger professional community and accept the responsibilities that go along with being a positive reflection on the profession and a positive contributor to the profession.

Learning Experiences and Environments:
Early childhood professionals appreciate their role as designer and builder of the world in which each child lives while in an early childhood program. They also understand the interplay between children's experiences, environments and relationships and their well-being, development and learning.

Over-arching Considerations

Some aspects of professional practice cut across all six content areas. In identifying the Core Knowledge and Competencies within each content area, each writing team considered the implications of:

- the inclusion of children with special needs*;
- the differences among children and families that are due to such influences as culture*, family* structure, or religion; and
- the responsibility of the professional for guiding young children's behavior.

Dispositions

Every profession has a set of attitudes, beliefs and perspectives that distinguish its members as a group. Together they are called professional "dispositions." The early childhood profession, too, has dispositions that are highly valued among its members.

Although dispositions are an important part of professional practice, they are different than professional knowledge and competencies. Dispositions describe how a person sees all aspects of the work of the early childhood profession rather than what is known and done. They are more often absorbed by newcomers and nurtured by seasoned veterans within the professional community than formally taught. Because dispositions apply to all members of the early childhood profession and are evident in every aspect of their work, we've chosen to list them separately.

The model early childhood professional is one who:

- delights in and is curious about children and how they grow and learn
- appreciates and supports the unique and vital role of parents in their children's lives
- is eager to learn new knowledge and skills that will support young children's development and learning
- models the attitudes and behaviors that she/he values in children
- values and celebrates the diversity found among children and their families and in the world around them
- is willing to ask for help, to learn from others, and to accept constructive criticism
- reflects on the personal beliefs and values that influence her/his own attitudes and practices
- accepts responsibility for her/his own actions
- shows respect for children, families, and colleagues by maintaining confidentiality
- communicates clearly, respectfully and effectively with children and adults
- responds to challenges and changes with flexibility, perseverance and cooperation
- expresses her/his own emotions in healthy and constructive ways
- values and nurtures imagination, creativity and play, both in children and in herself/himself
- demonstrates responsible professional and personal habits in working and interacting with others
- has a collaborative attitude

Sections

Each of the six content areas has three sections:

Rationale:
This section states the reasons that the content area is crucial in the early childhood professional's day-to-day practice. The statements identify the effect of professional competency on children and families and are based on current research and standards of practice. A list of the references used in creating each area's rationale section is provided in Appendix B.

Knowledge Base:
This section defines the concepts and facts that a professional must learn in order to become competent in each area of practice. This knowledge provides the cognitive foundation for the skills and behaviors defined in the competencies section.

Competencies:
This section is the bulk of the Core Knowledge document. In it, specific observable behaviors and skills are identified that describe the range of practice of a capable early childhood professional.

In Appendix C, a list of additional resources is provided for each content area if more information on that topic is desired.

Levels

In order to represent the development of professional practice over time, competencies are given for three levels of professional development. All early childhood professionals would be expected to possess Level 1 competencies. As they continue learning and advancing their knowledge and skills, they would be expected to add the competencies in Level 2 and, eventually, Level 3.

The three levels of Core Knowledge competencies are coordinated with Ohio's Career Pathways Model for Early Childhood Professionals. The Career Pathways Model provides a systematic way of placing professionals along a continuum of professional achievement based on their formal education, inservice training, experience, and credentials and certifications. Although the Career Pathways Model delineates six levels, Core Knowledge describes competencies at three general levels of development. Here is how the Core Knowledge competencies coordinate with the Career Pathways levels of professional achievement:

Core		Career Pathways
Level 1	...applies to...	Early Childhood Professional Levels 1 and 2
Level 2	...applies to...	Early Childhood Professional Levels 3 and 4
Level 3	...applies to...	Early Childhood Professional Levels 5 and 6

For more information about the Career Pathways Model, please visit the website of the Ohio Child Care Resource & Referral Association: http://www.occrra.org.

Alignment

Core Knowledge is an important addition to a growing collection of key Ohio documents already in existence that are related to early childhood. The writing teams were committed to creating Core Knowledge that supports, aligns with, and complements these documents. The following section clarifies the similarities and differences between these key documents.

Ohio's Early Childhood Core Knowledge and Competencies
Focus: early childhood (birth – age eight) professionals
Content: professional knowledge and skills
Format: 6 areas of professional practice; 3 levels of competency

Ohio's Infant & Toddler Guidelines
Focus: children birth to 36 months
Content: developmental characteristics
Format: 6 developmental domains; 3 age ranges

Ohio's Early Learning Content Standards
Focus: preschool children
Content: essential skills and concepts for young children to have learned by entry into kindergarten
Format: 4 curricular areas: English language arts, mathematics, science and social studies

Ohio's Standards for the Teaching Profession
Focus: licensed classroom educators, preK-grade 12
Content: professional knowledge and skills
Format: 7 "standards" or aspects of professional practice; 3 levels of performance

Ohio's Early Learning Program Guidelines
Focus: framework for preschool and child care programs
Content: goals & outcomes for early learning programs
Format: 4 sections, each with goals, intended outcomes and indicators

Core Knowledge also aligns with key documents of national organizations in the early childhood profession. In writing Core Knowledge, we believed it was important that we show clear links between Core Knowledge and three important source documents from leading organizations in the field, the National Association for the Education of Young Children (NAEYC) and the Council for Exceptional Children/Division of Early Childhood. The following documents are closely related to Core Knowledge and were used as resources in its development:

- *NAEYC Standards for Early Childhood Professional Preparation Programs:* identifies standards for higher education programs that prepare early childhood professionals and states the knowledge and skills that students should have after reaching different levels of educational achievement
- *NAEYC Early Childhood Program Standards and Accreditation Criteria:* articulates standards of excellence for ten different aspects of early childhood programs
- *DEC Recommended Practices in Early Intervention/Early Childhood Special Education:* identifies recommended practices in seven different aspects of serving children with special needs

A table is provided in Appendix D that shows which Core Knowledge areas link with which standards/recommended practices from these three source documents.

Uses of Core Knowledge

Core Knowledge can be useful to many people in many ways, including:

Audience	Use
Early Childhood Professionals	• Self-assessment; identify knowledge or competencies to acquire • Create a plan for developing as a professional
Program Administrators	• Clarify knowledge and skills required of staff positions • Identify training and staff development needs and staff development plan • Assess current staff to identify gaps and target areas of higher competency in recruiting new staff • Tie level of competency to pay scale
Developers and Providers of Training	• Organize and identify training using Core Knowledge areas and levels • Assess current availability of training across all content areas and all levels of competency • Use as framework for developing comprehensive system of training
Higher Education	• Use framework to facilitate articulation between institutions • Assess current program content to guide course development • Prepare early childhood professionals for roles and settings in addition to classroom settings
State and Local Agencies	• Develop policy, initiatives and funding decisions that will increase the level of competency of early childhood professionals • Identify common goals to improve inter-agency coordination
Early Childhood Advocates	• Educate parents, policymakers and general public about the areas of professional practice in early childhood and the need for competent professionals • Reinforce the concept and language of professionalism for the field of early childhood
Parents	• Assess potential or current caregivers and teachers of their children
Others	• Make informed decision about entering the field of early childhood • Appreciate the degree of knowledge and skill required for professional competency in early childhood • Support public and private investments, incentives and initiatives that encourage and facilitate professional competency

Acknowledgements

The Writing Teams

The task of creating Ohio's Core Knowledge and Competencies was accomplished by a talented, passionate, knowledgeable and committed group of early childhood professionals from a wide variety of disciplines and early childhood settings with a broad range of expertise.

Six writing teams were formed in January, 2006 and by July their tremendous investment of time, thought, and energy had resulted in a resource that will benefit Ohio's early childhood professionals and the children and families they serve in so many ways.

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Child Growth & Development

Rationale

Research indicates that children's growth and development is optimized when early childhood professionals know and apply the fundamental principles of human development. Understanding the significant theories, general concepts, and processes of human growth and development enables the early childhood professional to design care and education that positively impact the current and future life of the child. By integrating current knowledge about children's growth and development into their daily practice, early childhood professionals provide relevant, meaningful interactions and experiences for young children in an emotionally and physically safe, healthy environment. The early childhood professional also recognizes that an understanding of developmental patterns and individual differences, as well as the influences of family and culture, is critical to implementing developmentally appropriate* practices in programs for young children. By demonstrating respect for young children as unique human beings, each child's individual potential may be nurtured and enhanced.

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* Definition for this term can be found in the glossary in Appendix A. Each defined term is only marked the first time it is used in this content area.

Knowledge Base

In order for children to thrive in early childhood programs, professionals who provide services to young children and their families must strive to know and understand:

- the principles of child growth and development, including:
    - the interdependence of developmental domains* (social, emotional, cognitive, language, sensory, creative, physical and adaptive)
    - developmental sequences, stages and milestones
    - the varying rates of development in individual children
- that development results from interaction between the child and the child's early relationships and experiences, which include family, language, culture and environment
- how attachment* significantly impacts all areas of development
- the cumulative and delayed effects of early experiences and their potential for both positive and negative effects on child growth and development
- how self-regulation* affects all areas of development and behavior
- that caring, consistent relationships with adults provide external supports that serve as the basis for developing self-regulation
- the importance of effective language and communication between children and adults, and among children, for healthy growth and development
- how children's pro-social behavior* is supported by adults who model positive behavior and view challenging behavior* as a learning opportunity
- appropriate strategies for responding to the differing developmental needs of children, including those with developmental delays
- how play provides the opportunity for young children to grow and develop, incorporating different modes of learning and different ways of representing knowledge and demonstrating skills
- that the early childhood profession has a constantly evolving knowledge base of research and theory that guides appropriate practice.

Competencies - Developmental Process

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Recognizes and respects individual differences in children's growth, development and learning and adjusts practices and expectations for individual children accordingly.

1.2 Identifies basic developmental sequences, stages and milestones of young children.

1.3 Understands children's developmental levels in relation to age appropriate norms and uses this information to meet the general needs of children showing typical development.

1.4 Recognizes and accepts that family*, community* and culture* influence the development of children and adjusts practice and interaction patterns for individual children and/or families accordingly.

1.5 Understands that challenging behavior has environmental and developmental causes and uses this information to modify environment, activities and expectations to improve behavioral outcomes.

1.6 Understands that children develop skills and abilities and learn best through their natural medium of play and uses this medium to enhance development, behavior and learning outcomes for all children.

Level 2

2.1 Applies direct observation and knowledge of children's development as a framework to provide appropriate experiences for children.

2.2 Identifies children's differing developmental needs and implements responsive strategies.

2.3 Recognizes the need to make referrals for evaluation to determine skills and abilities, based on ongoing observation and assessment, understands the referral process, and becomes an active member of the assessment team as needed.

2.4 Articulates current theory, research, and policy on child growth and development as evidenced by the ability to relate personal practices and beliefs to professional standards.

Level 3

3.1 Implements intentional strategies to meet the changing needs, interests and abilities of individual children and groups of children.

3.2 Analyzes, evaluates and applies current theory, research, and policy on child growth and development to general practice and the development of a personal teaching philosophy.

3.3 Analyzes and evaluates practice on an on-going basis and implements changes to enhance children's growth and development.

3.4 Provides mentoring support to colleagues to enhance their understanding of child growth and development by sharing knowledge, assisting with colleague growth and developing mutually supportive professional relationships.

Competencies - Nurturing Relationships

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Engages in safe, responsive relationships with each child to provide a sense of security and promote optimal development.

1.2 Respects families as the primary teachers of their children by valuing their opinions and nurturing their involvement in the educational process.

1.3 Observes and understands attachment and separation* behaviors as evidenced by the ability to respond and assist both child and family members in a supportive and comforting manner.

1.4 Models positive, pro-social behavior in all settings including child, family and professional interactions.

1.5 Talks with children frequently to develop relationships and promote children's understanding of their world through a variety of approaches including special consideration of children with cultural differences and special needs that might hinder development of this skill.

1.6 Communicates respectfully and responsibly with families and colleagues.

Level 2

2.1 Establishes nurturing relationships with children that respect individuality in learning style, developmental profile and cultural background.

2.2 Provides support and guidance in consistent, non-threatening and positive ways that reinforce children's feelings of confidence and competence.

2.3 Models problem-solving skills in the context of children's interactions and play.

2.4 Interacts with children in ways that facilitate the development of expressive language and thought in all children, especially those with developmental, language or other issues that may hinder communication.

2.5 Provides information to families about the general principles of child growth and development relative to their needs and ensures that this information meets the developmental, language and reading ability levels required for full understanding.

Level 3

3.1 Integrates the understanding of the dynamic relationship among aspects of development and learning to shape program planning, teaching roles and strategies.

3.2 Collaborates with consultants and families in planning learning experiences for children's individual needs.

3.3 Establishes partnerships with families, involving them in all aspects of the program, including advocating for their own children both within the program and in the public sector.

Competencies - Appropriate Environments

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Recognizes the importance of consistency in environments*, expectations and responses to children.

1.2 Recognizes and respects the importance of exploration and play in children's growth and development and uses this medium consistently across the day.

1.3 Provides a variety of activities and experiences that foster the development of the whole child.

1.4 Recognizes and supports appropriate and culturally responsive environments for children by weaving awareness and sensitivity of diversity through total learning experience.

Level 2

2.1 Provides consistency in environments, expectations and responses to children as evidenced by the usage of standard best practices at all times.

2.2 Enhances and adapts environments and experiences based on the needs of individual children, including children with special developmental, learning and/or emotional needs.

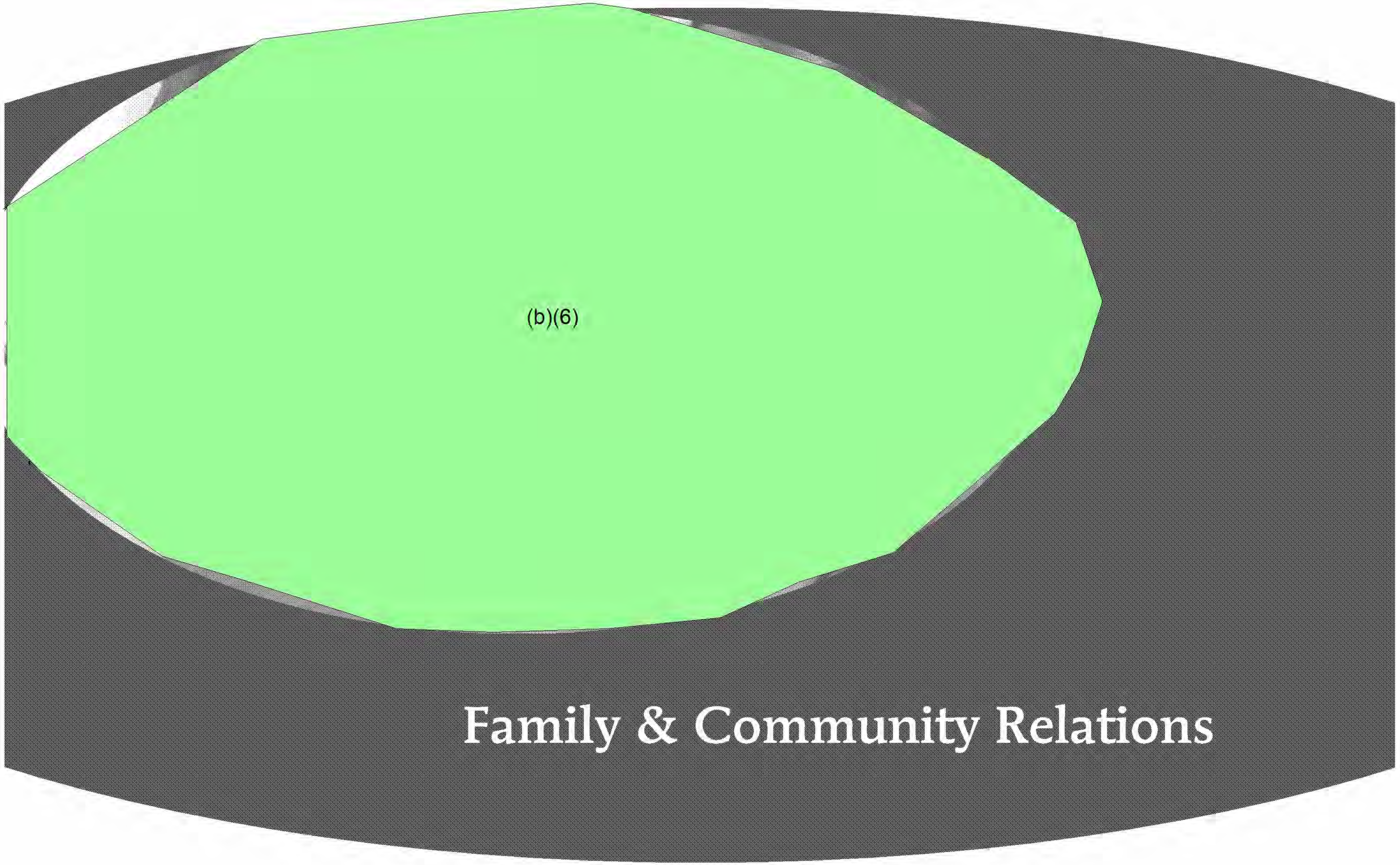
2.3 Provides a responsive environment where children initiate and extend their learning through play.

Level 3

3.1 Incorporates children's individual, unique and special needs (illness, disability, family stress, etc.) into planning for environments and experiences.

3.2 Creates environments with appropriate supports that empower children to communicate, negotiate and problem-solve and directly teaches and/or supports development of these social skills.

3.3 Creates environments and experiences that affirm and respect cultural and linguistic diversity by making sure materials, activities and graphics represent all cultures represented within the room and the surrounding community.



Family & Community Relations

Rationale

Families* are diverse in structure and nature. They include people who are related by birth, by marriage, by legal ties, or simply by affection and concern. Children's lives are embedded in their families and communities*; therefore early childhood professionals must value children and families in the context of their culture*, home and community. Research indicates that successful early childhood care and education depends on partnerships with families and communities that are built upon ongoing, interactive communication and a commitment to confidentiality. Children thrive when early childhood professionals utilize knowledge and understanding of family and community characteristics. Children's successful development is supported when early childhood professionals: are aware of community resources*; know how to make collaborative community connections; and build meaningful, reciprocal, respectful relationships that empower* families.

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Knowledge Base

In order for children to thrive in early childhood programs, professionals who provide services to young children and their families must strive to know and understand:

- that families are children's primary educators and must be supported in that role
- that families contribute significantly to children's learning and development
- the necessity of developing a collaborative partnership with each family
- strategies to initiate and maintain family involvement
- a variety of communication skills to engage and promote reciprocal interaction
- problem solving skills and conflict resolution strategies to assist families
- the impact of diverse family support systems on children, families and communities
- the unique contribution of culture and community on the family system*
- community resources and services and how to utilize them
- how to make collaborative connections to benefit children and families

* Definition for this term can be found in the glossary in Appendix A. Each defined term is only marked the first time it is used in this content area.

Competencies - Valuing Families

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Acknowledges families as their children's first and most influential caregivers and teachers.

1.2 Recognizes families' contributions in identifying their children's varied strengths and actively uses this information to construct appropriate programs for individual children.

1.3 Recognizes different parenting styles and their impact on children's learning and development.

1.4 Recognizes the influence that family members have on children's behaviors.

Level 2

2.1 Engages in careful, reflective observation of family roles as evidenced by usage of observations in daily planning and environment development.

2.2 Accepts the values of families in a non-judgmental way.

Level 3

3.1 Incorporates the families' knowledge of their children in programming.

3.2 Empowers* families to be equal partners in the decision-making process by listening to family opinions, valuing information provided, and attempting to reconcile any differences in opinions between professionals and family members.

Competencies - Positive Family-Professional Relationships

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Establishes rapport with families through regular communication.

1.2 Maintains and follows rules of confidentiality*.

1.3 Assesses the primary language of the child and family.

1.4 Communicates with families in a sensitive and appropriate manner.

1.5 Knows and understands problem-solving and conflict resolution strategies.

Level 2

2.1 Provides a family communication system where families can find information on educational materials, daily activities, schedules, etc., through a variety of means and makes this information accessible to all family members regardless of technology, reading and language differences.

2.2 Encourages feedback from parents and incorporates it into practice.

2.3 Works to present communication in the primary language of the parents utilizing various sources and technology.

2.4 Maintains a collaborative relationship with families using a variety of communication tools and communication levels.

2.5 Implements effective problem-solving and/or conflict resolution strategies as needed, using outside supports such as interpreters as appropriate.

Level 3

3.1 Develops and implements relationship-based practices (such as parent mentors, parents as parent coaches, parents as board members, etc.) that foster respectful/reciprocal interactions with families.

3.2 Evaluates the readability and inclusiveness of communication to families and uses this information to develop appropriate communication strategies for individual families.

3.3 Anticipates and negotiates potential conflicts involving families and educational settings, using outside supports such as interpreters as appropriate.

Competencies - Supporting Family Connections

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Acknowledges the value of family and community partnerships within children's learning environment.

1.2 Identifies the community resources and services* available to support children and families.

Level 2

2.1 Recognizes the value of families networking with each other and provides support to make such networks possible and accessible to all families.

2.2 Connects children and families to community resources and services.

Level 3

3.1 Establishes partnerships between families, early childhood programs, and communities.

3.2 Encourages and plans activities to help families network with each other and provides support to make such networks possible and accessible to all families.

3.3 Collaborates with families and communities to identify and research possible solutions for unmet needs.

3.4 Assumes a leadership role in working with service providers and families by providing information on best practices, educational research and other pertinent topics in forms most easily accessible and valued by that individual.

Competencies - Community Collaborations

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Participates on teams for the development of individualized service plans (the Individualized Family Service Plan, or IFSP, for under three years of age; the Individualized Education Plan, or IEP, for over three years of age).

1.2 Follows individualized plans developed by service providers and families.

Level 2

2.1 Collaborates with service providers working with children and families.

2.2 Utilizes community resources in learning experiences and uses community sites (fire stations, parks, libraries, etc.) as field trip opportunities and/or brings resources to children, as appropriate.

2.3 Supports community activities by being a visible partner in all appropriate activities or initiatives in the surrounding geographic location.

Level 3

3.1 Participates in outreach activities that support community improvement or advocacy projects (advisory boards, committees, etc.).

3.2 Advocates for needed services and resources that the community is lacking.

3.3 Educates the community about quality early care and education services by providing reading materials, classroom visitations, public service announcements and general advocacy whenever possible.

3.4 Articulates knowledge of current recommended practices in early care and education to families and the community through a variety of means and to a widely divergent audience including family members, local businesses, and civic administration personnel.

Competencies - Impact of Culture, Community and Family Systems

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Recognizes the levels of community including home, center, and neighborhoods.

1.2 Recognizes the ever-changing nature of families (i.e., socioeconomic status, culture, religion, and family structure).

Level 2

2.1 Modifies curriculum to be culturally sensitive and uses this information across all practices with children and families.

2.2 Utilizes families and communities as cultural resources in the learning environment.

Level 3

3.1 Critically examines own cultural experience and its impact on engagement with families and communities and removes any barriers or biases that might hinder development of mutually respectful relationships.

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Health, Safety & Nutrition

Rationale

Healthy and safe experiences in children's early years lay a necessary foundation for development and growth in all areas. Children are more able to fully develop socially, emotionally, cognitively and physically when their health and nutritional needs are met and when they are safe from physical and emotional harm. When early childhood professionals know, understand and apply recommended practices in health*, safety* and nutrition*, children can thrive. Early childhood professionals, working in partnership with families* and communities*, have a key opportunity and responsibility to provide environments* and experiences for all young children that set them on a pathway toward lifelong health and well-being.

Knowledge Base

In order for children to thrive in early childhood programs, professionals who provide services to young children and their families must strive to know and understand:

- that sound practices in health, safety and nutrition have a lifelong impact
- how to integrate good health, safety and nutrition practices throughout the curriculum*
- that research in the areas of health, safety and nutrition generates theory that informs best practice
- when and how to access reliable and current health, safety and nutrition information and resources
- that early childhood professionals, families, and communities are partners in assuring optimal health, safety and nutrition for children
- benefits and methods of communicating, teaching, and modeling sound health, safety, and nutrition practices to children, parents and families
- national, state and local health, safety and nutrition guidelines and regulations applicable to written program policies and procedures
- the limitations of their own knowledge regarding health, safety and nutrition and when and how to initiate appropriate referrals

Health

- children's need for a healthy environment and how it impacts the growth and development of children birth through eight, including children with special needs*
- the importance of applying a broad definition of health that includes the child and family's physical, mental, social and emotional health in policy and procedure
- that each child has unique health care needs
- that families as the primary caregivers play a central role in child health and developmental services
- that all health curricula* should be designed to motivate and support children to improve health, prevent disease, and avoid risky behaviors
- the role of the early childhood professional in preventing the spread of disease, promoting wellness, and caring for the ill child

Safety

- children's need for a physically and emotionally safe environment and how it impacts the growth and development of young children, including children with special needs
- that safety risks change with each child's developmental stage
- the importance of active and age-appropriate supervision of children
- that children can and should play an active role in keeping self and others safe
- routine care and maintenance of materials and equipment
- fundamentals of first aid and CPR (cardiopulmonary resuscitation)
- potential threats to children associated with natural or human initiated disasters or emergencies
- basic emergency procedures and safe practices and regulations

* Definition for this term can be found in the glossary in Appendix A. Each defined term is only marked the first time it is used in this content area.

Nutrition

- children's need for good nutrition and hydration and how it impacts the growth and development of young children, including children with special needs
- that food plays many roles for children: social, emotional and cultural as well as physical development
- how to provide pleasant, relaxed, and developmentally appropriate meal and snack experiences
- typical age progression of feeding, from liquid to semi-solid to solid to table food, appropriate portion sizes for all ages, and children's hunger and fullness cues
- which foods may present hazards for individual children according to their ages, needs and abilities (e.g. choking hazards, allergies, and feeding constraints due to health conditions) and correct procedures for handling food-related emergencies
- safe and sanitary food handling practices

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Competencies - Health

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Recognizes the symptoms of common childhood illness.

1.2 Maintains clean and sanitized* learning materials and environments.

1.3 Practices effective hand washing procedures to reduce the spread of diseases.

1.4 Encourages and models good health practices and effective use of hand washing procedures.

1.5 Applies effective sanitation procedures during diapering, toileting, cleaning toys, washing dishes and materials.

1.6 Practices standard precautions in handling blood or bodily fluids to ensure safety of adults and children.

1.7 Explains reasons for health-related rules to children.

1.8 Assesses each child's health status daily and objectively documents and responds when necessary.

1.9 Holds current and valid training in communicable disease prevention and cardiopulmonary resuscitation (CPR).

1.10 Recognizes the signs and symptoms of communicable* disease and responds according to the Ohio Department of Health's Communicable Disease chart.

1.11 Follows current medication administration policies and procedures according to local, state or national regulations and documents appropriately.

1.12 Provides appropriate care for ill children.

Level 2

2.1 Implements policies and procedures for care of ill children and seeks out additional information and support for all unusual cases or situations where appropriate practices are unclear.

2.2 Accesses community health resources and professionals for consultation, emergencies, diagnoses, treatments and more information (including Ohio Child Care Health Consultants).

2.3 Assures appropriate implementation of medical and physical care plans.

Level 3

3.1 Articulates, analyzes, evaluates and applies current theory and research on health practices.

3.2 Develops, enforces, and evaluates policy and procedures for care of ill children and children with special health care needs.

3.3 Designs and implements curriculum activities emphasizing healthy bodies, healthy lifestyles and healthy environments and adapts information as needed for various cultural and religious differences.

3.4 Collaborates with health care professionals in the community to ensure that the health needs of children are met.

3.5 Advocates for health resources within the community by providing health information to families, articulating best practices and actively promoting continued development of resources and opportunities for families in the surrounding community.

3.6 Continuously monitors the effectiveness and safety of medication administration policies and procedures and documents appropriately.

3.7 Mentors other early childhood professionals in sound health practices.

Competencies - Safety

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Understands and complies with local, state, and federal emergency preparedness* and program's general emergency procedures.

1.2 Responds to accidents and injuries according to appropriate first aid training while assuring the comfort and care of other children.

1.3 Complies with appropriate local, state and national regulations and guidelines for ratios and group sizes.

1.4 Chooses and utilizes safe and appropriate learning materials and media.

1.5 Recognizes types and stages of bullying*.

1.6 Recognizes and protects against hazards in the environment.

1.7 Explains reasons for safety precautions to children.

1.8 Supervises all activities, indoors and outdoors, to anticipate and prevent dangerous situations and accidents.

1.9 Encourages and models simple safety precautions.

1.10 Encourages and models the safe use of learning materials and media.

1.11 Safely stores and uses hazardous materials, medication, emergency supplies and equipment.

1.12 Follows procedures for documentation and reporting of injuries, incidents and suspected abuse.

1.13 Releases children only to approved individuals as designated by the parent or guardian.

1.14 Holds current and valid training in first aid, CPR, and child abuse prevention and recognition.

1.15 Maintains a safe sleep* environment and position based on the child's age and developmental stage.

Level 2

2.1 Engages children in appropriate emergency preparedness activities and ensures the understanding and/or safety of children with special needs who may not fully understand the appropriate procedures.

2.2 Regularly practices and appropriately documents emergency and safety procedures such as fire, disaster and tornado drills.

2.3 Responds appropriately to bullying and makes every attempt to foster social development and skills that will keep bullying from developing in the first place.

2.4 Maintains and promotes safety in the learning environment for all children regardless of developmental level or disability.

2.5 Observes and adjusts supervision to meet different ages, abilities, interests, environments and activities.

2.6 Educates parents about general child safety using materials appropriate for individual learning styles, culture and reading levels.

Level 3

3.1 Articulates, analyzes, evaluates and applies current theory and research on safety practices.

3.2 Develops, trains on and revises, in collaboration with community resources, emergency preparedness procedures.

3.3 Develops and provides training for staff and families on a "bully prevention" policy.

3.4 Selects, purchases, and provides training on safe, developmentally and culturally appropriate materials and media.

3.5 Assumes responsibility for training and policy development regarding safety and hazardous materials and monitors the success of the training and implementation of policies over time.

3.6 Assures staff are appropriately trained in documentation and reporting requirements and procedures and monitors the success of the training and implementation of policies over time.

3.7 Conducts continuous evaluation of safety practices, environment and data from reports to reduce and prevent safety risks.

3.8 Mentors other early childhood professionals in sound safety practices.

Competencies - Nutrition

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Understands and follows diet modifications for children with identified health or cultural issues pertaining to food or feeding.

1.2 Creates pleasant, relaxed, safe and developmentally appropriate meals and snacks.

1.3 Teaches and models healthy eating habits.

1.4 Encourages children to learn and develop self-help skills during meal time and food activities.

1.5 Practices safe and sanitary food handling procedures when purchasing, storing, preparing and serving meals and snacks.

1.6 Monitors eating habits to ensure a healthy diet including the need for children to eat and drink frequently.

1.7 Responds appropriately to hunger and fullness cues.

1.8 Recognizes health hazards in meals and snacks (i.e. choking and allergies) and takes steps to prevent dangerous situations.

1.9 Follows current policies and procedures as related to food and nutrition such as USDA dietary guidelines and CACFP (Child and Adult Care Food Program) meal patterns.

1.10 Ensures that food is not used as punishment and only used as a reward when all other reinforcers are inappropriate or ineffective.

1.11 Recognizes and responds to limitations of personal knowledge regarding nutrition and knows when to seek professional guidance.

1.12 Communicates with parents regarding menus, child's eating patterns and amounts, mealtime skills and behaviors as appropriate per age and situation.

1.13 Accesses current, reliable nutrition and resources and information.

Level 2

2.1 Consults with families about children's health or cultural issues that may require modification to diet.

2.2 Provides learning experiences that teach children about good nutrition.

2.3 Provides opportunities to introduce new tastes, textures and cultural food experiences to children.

2.4 Assures appropriate implementation of medical and physical care plans.

2.5 Identifies resources within the community that provide nutrition information and screens the information for appropriateness for families with varied cultural and religious guidelines concerning food.

Level 3

3.1 Articulates, analyzes, evaluates and applies current theory and research on nutrition practices.

3.2 Participates and provides information on an as needed basis in MFEs*, IEPs*, IFSPs* and transition plans, medical and physical care plan.

3.3 Develops and executes family and parent nutrition education and screens the information for appropriateness for families with varied cultural and religious guidelines concerning food.

3.4 Provides professional development around nutrition to staff.

3.5 Creates opportunities for food related education for staff and parents.

3.6 Mentors other early childhood professionals in sound nutrition practices.

3.7 Assesses nutrition practices for the purpose of program improvement.

3.8 Establishes and implements policies and procedures that foster appropriate nutrition practices.

3.9 Advocates and collaborates within the community to promote nutrition and awareness of cultural and religious diversity involving food.

(b)(6)

Child Observation & Assessment

Rationale

Observation* and assessment* of children in early childhood programs is integral to a variety of decisions that affect each child and his or her family*. When early childhood professionals know and use methods of observation and assessment that are unbiased with regard to culture* or language, adaptive to individual children's abilities, and sensitive to children's needs, the resulting information is reliable*, valid* and useful. Regular, systematic observation and the use of multiple ways of collecting information aid early childhood professionals in learning more about children's unique qualities, developing appropriate goals and plans, making referrals as appropriate and implementing and evaluating effective curriculum*. Early childhood professionals must know when and how to communicate observation and assessment results to parents and to other professionals so that children's growth and development are supported.

(b)(6)

Knowledge Base

In order for children to thrive in early childhood programs, professionals who provide services to young children and their families must strive to know and understand:

- child growth and development, including sequences of typical development
- how children's home language, culture*, strengths, needs, preferences, genetics and physical/social environment influences their performance
- goals, benefits and appropriate uses of selected assessment instruments and methods .
- importance of maintaining confidentiality* of child and family records and assessment information
- availability of community services* and how to access community resources*
- multiple assessment and observation instruments and methods used to determine children's strengths and challenges (i.e. running records, anecdotal information, portfolios, work samples, norm-referenced* instruments, screenings*, etc.)
- the importance of objective, culturally sensitive, non-biased documentation
- the relationship between planning for observation and assessment and curriculum planning and instruction

* Definition for this term can be found in the glossary in Appendix A. Each defined term is only marked the first time it is used in this content area.

Competencies - Foundations and Principles

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Recognizes and accepts the range of children's development and skills.

1.2 Recognizes environmental* factors that place children at risk for developmental concerns.

1.3 Lists the reasons for conducting observation and assessment.

1.4 Identifies the differences between informal* and formal* assessment.

1.5 Recognizes that there is more than one way to gather information about a child.

1.6 Identifies the need for confidentiality.

1.7 Recognizes that observation and assessment practices are guided by established standards.

1.8 Is aware of ethical principles that guide observation and assessment processes.

Level 2

2.1 Modifies observations and assessment practices to accommodate* the range of children's development, skills and learning needs.

2.2 Implements the appropriate formal and/or informal observation or assessment technique.

2.3 Implements observation and assessment practices that adhere to established standards including those related to confidentiality.

2.4 Recognizes how and when to access appropriate community resources and problem solves continued action when appropriate resources and supports cannot easily be obtained.

Level 3

3.1 Evaluates results considering the environmental factors and individual differences that will influence children's performance.

3.2 Articulates the characteristics, strengths, limitations, and appropriate uses of formal/informal observation and assessment instruments.

Competencies - Gathering and Documenting

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Recognizes appropriate methods of documenting developmental progress.

1.2 Assists in collecting information about developmental progress from multiple sources and using a variety of means.

1.3 Maintains confidentiality of observation and assessment information.

1.4 Recognizes ways to develop a relationship with a child before observation and assessment procedures are implemented.

Level 2

2.1 Organizes information about developmental and educational progress that is collected from multiple, age appropriate sources and uses this information to construct more responsive programs.

2.2 Implements appropriate formal and informal methods of documenting developmental progress of individual children.

2.3 Incorporates observation and assessment strategies throughout the child's day within their everyday settings.

2.4 Integrates contributions from families and other professionals into formal and informal observation and assessment procedures.

Level 3

3.1 Plans diverse observation and assessment strategies that are culturally and linguistically sensitive*, and that meet individual child's needs.

3.2 Evaluates the use of a variety of observation and assessment strategies, both formal and informal, to collect information and adjusts or substitutes when assessments are not appropriate.

3.3 Provides guidance in selection, implementation and documentation of assessment methods.

Competencies - Summarizing and Interpreting

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Recognizes the importance of observation and assessment data in curriculum planning for individual children and groups of children.

1.2 Recognizes the importance of analyzing and interpreting assessment data in a non-biased way.

1.3 Recognizes the importance of maintaining confidentiality of the results of observations and assessments for non-family members.

Level 2

2.1 Interprets and analyzes assessment data to identify children's areas of strengths and those needing improvement and uses this information to develop more responsive and appropriate programs for individual children.

2.2 Incorporates results of formal and informal observations and assessments to make decisions that benefit children's growth, development and learning.

2.3 Implements observation and assessment results to plan for individual children and groups of children.

2.4 Aligns results of observations and assessments with other parts of the curriculum, including content standards and local, state and federal regulations.

Level 3

3.1 Evaluates the multiple factors such as culture, language, environment and learning styles that may influence the observation and assessment data and provides additional supporting information when data from multiple sources is conflicting in nature.

3.2 Plans and implements necessary strategies for individual needs of all children.

3.3 Provides guidance and support for staff members regarding theories, research, practices and issues relevant to results from observation and assessment.

3.4 Works cooperatively and collaboratively with the teaching team, family and other involved specialists regarding assessment results.

3.5 When appropriate, refers children to other community resources for further evaluation and remains an active team member and information source.

Competencies - Sharing and Reporting

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Recognizes the importance of confidentiality in reporting child observation and assessment results.

1.2 Identifies appropriate reporting methods for child observation and assessment results.

Level 2

2.1 Explains the purpose and benefits of ongoing observation and assessment to staff and families being sensitive to the differences in opinion and the emotions that such assessment may produce in family members.

2.2 Uses strength-based* language to communicate results in written and oral formats.

2.3 Communicates results to families in an appropriate, objective*, understandable and supportive manner.

2.4 Communicates results with appropriate staff and administrators.

2.5 Plans with families for communicating results to other involved professionals.

Level 3

3.1 Develops reports to be shared with families, appropriate staff, administrators, and other involved professionals or agencies using the communication avenues appropriate for each individual to ensure full understanding.

3.2 Facilitates the sharing and reporting of observation and assessment results used to determine the next steps for an individual child in collaboration with families and other professionals or agencies that may be involved.

(b)(6)

Professional Development

Rationale

Research supports that early childhood professionals play a critical role in the well-being and development of every child in their care. The interactions and environments* that early childhood professionals provide for children lay the foundation for learning and success in school and life. When early childhood professionals are equipped with specialized education and training, and continue to learn and develop as professionals, they are better able to provide care and education that supports every aspect of children's growth and learning. Each early childhood professional is a member of a larger community* of professional practice. When each professional adopts the responsibilities of the profession regarding ethical behavior, advocacy* for young children and families*, and effective communication of the importance of high quality early childhood programs, not only do young children and their families benefit but the profession as a whole is elevated.

(b)(6)

Knowledge Base

In order for children to thrive in early childhood programs, professionals who provide services to young children and their families must strive to know and understand:

- that professional preparation and training is the foundation for knowing how to create experiences and interactions that help children reach their potential
- the importance of effectively communicating research, theory, and professional guidelines as the basis for practice
- how to make decisions about program planning based on the most current recommended practices, professional standards*, and research available
- the value of continually seeking to increase one's own knowledge and skill by reflecting on, analyzing and evaluating one's own professional practices
- how to seek out and take advantage of opportunities to develop personally and professionally
- the ethical responsibilities and practices of the early childhood professional community and their impact on children, families, co-workers, and the community
- how to advocate for effective services and legislation for children and families and develop collaborative partnerships within the community
- the value of professional relationships and the value of each professional's contribution in building the larger community of early childhood practice

* Definition for this term can be found in the glossary in Appendix A. Each defined term is only marked the first time it is used in this content area.

Competencies - Professionalism in Practice*

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Communicates effectively using appropriate oral and written language skills.

1.2 Recognizes and respects individual differences among children, families, colleagues and in the community.

1.3 Demonstrates professional work habits including confidentiality, respect for all people, dependability, time management, independence and teamwork.

1.4 Enjoys working with children and models a positive attitude.

1.5 Presents oneself as a professional in physical appearance and use of language.

1.6 Shows positive respect and regard for variation in cultures including family strengths, expectations, values and child rearing practices.

1.7 Manages the demands of personal and professional commitments and seeks support or assistance as needed.

Level 2

2.1 Routinely creates effective written communication such as curriculum plans, parent communication, anecdotal/observation notes, etc.

2.2 Provides materials and experiences within settings to support an understanding of individual differences.

2.3 Adopts and maintains professional behavior and attitudes.

2.4 Interacts in a professional manner that reflects the value of self and respect for others.

2.5 Understands that communication includes speaking, signing, listening, reading, writing, body language, personal appearance and the use of adaptive devices.

2.6 Includes family values and strengths in setting goals for individual children and for the program and problem-solves solutions when family values conflict directly with appropriate education (i.e. family not believing in special education services).

2.7 Recognizes the impact of stress and develops strategies to renew oneself and maintain professional performance.

Level 3

3.1 Prepares and presents ideas, a philosophy and advocacy of early childhood education in a formal written format to the wider community adjusting the message to the interests and understanding of the target audience (i.e. business owners, other educators, medical personnel, etc.)

3.2 Seeks out knowledge of the cultures and populations within the community and integrates it into his or her professional practice.

3.3 Guides others in developing and maintaining professional work habits.

3.4 Routinely engages in reflection on teaching practices and the behaviors of children and uses the additional information to improve both personal practice and general advocacy or support in the wider community.

3.5 Actively models and promotes a professional image for the early care and education field in a variety of settings.

3.6 Explains and models to families and other professionals communication with young children that is respectful, positive, supportive and age-appropriate.

3.7 Articulates and guides others in developing a positive regard and respect for all children and families.

3.8 Provides guidance to others who exhibit signs of stress and assists with the location of resources and additional support as appropriate.

*Competencies - Continuous & Reflective Professional Development**

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Pursues ongoing, intentional learning through professional development planning.

1.2 Meets minimum regulatory requirements for professional development.

1.3 Questions own practices, seeks input from supervisors and colleagues and integrates feedback into professional development planning.

1.4 Utilizes professional resources and seeks information if the appropriate resource cannot easily be located.

1.5 Seeks out knowledge to improve practice through a variety of means (i.e. conferences, reading material, professional organizations, etc.)

1.6 Is aware of state and national standards that promote quality early child care and education (ODE, NAEYC, Ohio Infant Toddler Guidelines).

1.7 Participates in opportunities for professional growth and development at the local, state and national level and through a variety of means (i.e. conferences, reading material, professional organizations, etc.)

1.8 Engages and values supportive working relationships that include mentoring* opportunities.

Level 2

2.1 Develops personal goals based on reflections of current practice articulated into a professional development plan.

2.2 Works toward credential, degrees and/or program accreditation and seeks out and utilizes supports (both monetary and professional) to allow progress to improved practice to continue.

2.3 Uses local, state & national professional resources to evaluate & improve practices (ODE, NAEYC, Ohio Infant Toddler Guidelines).

2.4 Explores current trends & research based practices in early care & education through a variety of means (i.e. conferences, reading material, professional organizations, etc.)

2.5 Applies quality standards and participates in evaluation of program related to quality standards.

2.6 Is actively involved in professional organizations.

2.7 Demonstrates interest in adults' as well as children's development as a means to improving both interaction with families as well as colleagues.

Level 3

3.1 Facilitates professional development opportunities for others based on reflective approaches and adult learning styles.

3.2 Develops and presents professional resources* to improve practices for a variety of audiences including colleagues, community members and families.

3.3 Evaluates & applies current research & trends presented in professional resources and shares information with other colleagues, community members or families as appropriate.

3.4 Engages in the development and implementation of quality standards at the local, state and/or national level.

3.5 Serves in a leadership capacity in professional organizations or groups through direct service, professional organization membership, advocacy and other professional activities that will further the development of appropriate practices across settings.

3.6 Serves as a catalyst for change by enlisting others to support new teachers and colleagues such as mentors and coaches.

Competencies - Leadership and Advocacy**

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Follows all legal and regulatory mandates.

1.2 Recognizes the family's right to make decisions about their child care and education.

1.3 Contributes to staff discussions and decision making based on current knowledge of child development.

1.4 Engages and values mentoring opportunities with both colleagues and families.

1.5 Recognizes oneself as a decision maker within early care and education setting.

1.6 Identifies early care and education as a profession and is fully aware and can articulate this value to the general community.

1.7 Understands that local, state and national legislation and public policy affect young children and families.

Level 2

2.1 Participates in planning and evaluating the program utilizing recognized tools.

2.2 Creates and develops relationships with the family to ensure the family's ability to make decisions about their child care and education and provides support and additional resources when the family is unwilling or unable to make appropriate decisions concerning their child's education.

2.3 Acquires and shares additional knowledge and competencies through participation in staff development.

2.4 Serves as a mentor and resource for less experienced staff by providing guidance, resources and support as appropriate.

2.5 Participates in leadership activities with staff, family and colleagues.

2.6 Discusses the significance of the early years and the value of early care and education programs with families and others in the community.

2.7 Uses experiences and knowledge to inform and influence others about needs of all young children, families and the profession.

Level 3

3.1 Analyzes and evaluates practice on an ongoing basis and implements changes that will strengthen the quality and the effectiveness of the work.

3.2 Educates parents on advocacy measures that are in the best interest of the child, family and community and provides support and additional resources when the family is unwilling or unable to fully advocate for their child's well-being.

3.3 Collaborates with colleagues and others to improve programs and practices for young children and their families and communities.

3.4 Serves as a mentor to others in the field by providing guidance, resources, support and encouragement of continued professional education as appropriate.

3.5 Assumes early childhood leadership role in the community, and in state and national professional organizations.

3.6 Advocates for recognition of early care and education as a profession, including the economic impact.

3.7 Advocates for services and legislation for all young children, families and the profession.

Competencies - Ethical Standards & Professional Guidelines

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Shows awareness of, has read, and practices the ethical responsibilities in the code of ethical conduct* promoted by the professional association most closely associated with his or her professional role.

1.2 Can explain the reason for the code of ethics OR recognizes the core values* that underlie the code of ethics.

1.3 Can identify the difference between a code of ethics and personal values.

1.4 Recognizes and acts on primary responsibility to value early childhood and avoid participating in any practices that are disrespectful, exploitative or potentially harmful to children.

1.5 Discusses the importance of collaboration* and respect among all adults who work in early childhood settings, including confidentiality.

1.6 Describes the responsibility of the profession to provide high quality early childhood programs for the community.

Level 2

2.1 Practices and promotes the ethical responsibilities in the applicable code of ethical conduct.

2.2 Recognizes potentially unethical practices and seeks to apply ethical code as a tool and problem-solves appropriate actions to take when the code of ethics has been transgressed.

2.3 Identifies ethical dilemmas* and solves the identified problem and/or seeks additional assistance as appropriate.

2.4 Promotes and informs others of the need to support emotional, social, physical and intellectual development for every child.

2.5 Describes the roles and responsibilities of supervisors, staff, families and volunteers including respectful communication and implements these best practices as needed.

2.6 Promotes policies and practices that provide for well being of all children and their families.

Level 3

3.1 Consistently models and informs others of standards and principles set forth in the code of ethics.

3.2 Integrates the ethical code into practice and policies and explains to others how the ethical code can be used to solve everyday ethical dilemmas including the appropriate local supports and resources that can be accessed as needed.

3.3 Analyzes ethical dilemmas and determines appropriate course of action.

3.4 Accesses community resources and professional services that respect personal dignity and the diversity of children and families.

3.5 Creates opportunities for respectful dialogue with multiple perspectives cultural diversity and differences in developmental understanding of child development and best practices.

3.6 Informs others about research and current knowledge related to impact of high quality programs for all young children and families.

(b)(6)

Learning Environments & Experiences

Rationale

Early childhood professionals are the "architects" of the world that each child experiences while in an early childhood program, shaping their physical surroundings, the activities that they engage in, and their social interactions. When early childhood professionals create physical spaces that reflect children's developmental needs and abilities, then they are providing important support and guidance for children's development, behavior and learning. Early childhood professionals facilitate the active learning of young children by planning developmentally appropriate* experiences: experiences that are age appropriate, individually appropriate, and appropriate for the social and cultural* contexts in which children live. Active learning for young children is best fulfilled in play where they tend to show higher levels of language, creativity, curiosity, problem-solving, empathy, cooperation, and increased attention spans. Children's relational environment is enhanced when early childhood professionals are attuned to emotional and social "atmosphere" and facilitate positive interactions between adults and children and among children.

Knowledge Base

In order for children to thrive in early childhood programs, professionals who provide services to young children and their families must strive to know and understand:

General

- the principles of developmentally appropriate practice
- how children learn and how the learning process changes from birth through age eight
- the developmental progression of young children's play and strategies for supporting various types of play
- that continuous reflection on the effectiveness of the environment and experiences is needed in order to adapt to children's changing needs

Interactions and Relationships

- their critical role in facilitating and guiding interpersonal relationships (peer to peer, adult to child, and adult to adult)
- the importance of respecting, valuing and accepting each child and treating every child with dignity at all times
- the importance of creating a bias-free, warm and caring emotional climate
- the importance of bringing each child's culture and language into the shared culture of the group
- the benefits and methods of modeling and encouraging behaviors that contribute to a supportive, inclusive sense of community

Physical Environments

- the relationship between the physical environment and young children's behavior and learning
- how to plan and prepare a learning environment that nurtures children's initiative, encourages active exploration of materials, and supports engagement with activities and interaction with others
- how to choose materials and equipment and arrange physical spaces based on children's developmental needs
- how to maintain a safe and positive environment through careful supervision and anticipation and avoidance of problems before they occur

Learning Experiences

- how to embed learning in everyday routines and activities
- the principles of integrating curriculum* across all developmental domains*
- that children learn best through play and concrete experiences that are tied to familiar aspects of their world
- strategies to foster language development and early literacy throughout early childhood
- strategies to create an intellectually engaging environment that fosters curiosity, thinking and problem solving

* Definition for this term can be found in the glossary in Appendix A. Each defined term is only marked the first time it is used in this content area.

Competencies - Interactions and Relationships

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Assumes primary responsibility for specific children in the group while remaining aware of momentary needs or emergencies that may arise outside of their individual assignments.

1.2 Interacts positively with children in responsive, consistent ways.

1.3 Treats all children with fairness, respect and understanding.

1.4 Recognizes that his or her relationships with co-workers, families and others impacts children.

1.5 Bases expectations for behavior on age and developmental level of children.

1.6 Demonstrates awareness that challenging behaviors* can have a variety of causes.

1.7 Prevents challenging behavior by providing consistent and predictable routines and responds to challenging behavior with positive guidance techniques.

1.8 Speaks to children with calm, respectful tones.

1.9 Engages in reciprocal interactions* with children to form safe, nurturing relationships.

1.10 Engages in many one-on-one, face-to-face interactions with children in a calm pleasant manner to foster secure attachments.

1.11 Recognizes a child's social and emotional needs.

1.12 Shows individual attention to each child within the group using the interaction approaches most appropriate for that individual child.

1.13 Listens to children attentively to gain understanding and responds quickly to their needs.

1.14 Conveys respect for diversity among children and families as evidenced by attempts to accommodate beliefs, needs and differences noted among children.

1.15 Encourages and supports children's efforts, ideas, accomplishments and interests.

Level 2

2.1 Interacts with children using encouraging and nurturing words and actions.

2.2 Adapts to and includes each child, individually accommodating for his/her temperament, personality, strengths, interests and development.

2.3 Seeks to identify causes of challenging behaviors and uses guidance approaches that promote positive behaviors, problem solving and self-control.

2.4 Provides activities and environments that promote appropriate behaviors and teaches behaviors and social skills as needed.

2.5 Uses behavior guidance strategies that involve children in creating rules and resolving conflicts.

2.6 Encourages positive social interactions and provides opportunities for children to learn from each other.

2.7 Adapts interactions to respond to each child's unique personality, temperament, mood, ability and culture.

2.8 Engages in responsive interactions with children, following their lead scaffolding interactions where needed.

2.9 Assists children in identifying and expressing their feelings in culturally and socially acceptable ways using whatever communication mode is readily available and possible for that child's unique developmental needs.

2.10 Uses a variety of positive direct and indirect guidance methods and avoids negative methods.

2.11 Solicits information from parents regarding effective strategies to support children.

2.12 Plans and provides opportunities for children to communicate, form friendships, and to interact with each other respectfully.

2.13 Guides children in resolving conflicts through communication, negotiation and problem solving using a variety of means and supports including visual cues, songs, play-based interventions and other appropriate strategies.

Level 3

3.1 Assumes responsibility for the needs of all the children present.

3.2 Moderates interactions with each child based on that child's specific characteristics, strengths, interests and needs.

3.3 Articulates, analyzes, evaluates and applies current theory and research on relationships and supportive interaction.

3.4 Establishes written policies for effective child guidance for both typically developing children and those with disabilities.

3.5 Articulates and demonstrates realistic expectations for children's attention spans, interests, social abilities, and physical needs when planning group experiences and teaches increased "groupness" and other social skills as appropriate.

3.6 Develops and implements written policies for effective social/emotional interactions.

3.7 Applies theory and current research to create a community* that fosters social and emotional development.

3.8 Addresses challenging behavior with an open mind, rather than labeling the child yet can still recognize when behavior reaches the level of concern and can seek additional support or resources as appropriate.

3.9 Recognizes and responds to individual behavioral problems related to developmental or emotional stress.

3.10 Relates guidance practices to knowledge of children's personalities, levels of development and different learning needs.

3.11 Shares information on guidance techniques with families using sensitivity, respect and awareness of diversity.

Competencies - Physical Environments

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Recognizes when a child's behavior is being affected by characteristics of his or her surroundings and adjusts expectations or mitigates the effects of these influences.

1.2 Provides adequate space for routine care and play that supports the age and interests of the children.

1.3 Ensures that equipment and materials are clean, safe and free from hazards.

1.4 Ensures that physical aspects of the room, such as temperature, noise level, and lighting, are comfortable for children.

1.5 Uses equipment that is appropriate for the size of the children.

1.6 Understands state rules and regulations specific to children's environments, both indoors and outdoors.

1.7 Selects and makes accessible developmentally appropriate materials that are rotated frequently.

1.8 Recognizes that individual space is needed for children to keep their individual belongings.

1.9 Labels children's organizers (such as bins, shelving units etc.) with pictures and words to foster children's literacy skills, thinking skills, and independence and to provide organization to their world.

Level 2

2.1 Articulates how changes in the environment may affect the behavior of children and makes adaptations to the environment when necessary.

2.2 Provides a balance of spaces for activities that are active and quiet, child-directed and teacher-directed, individual and group, and indoor and outdoor.

2.3 Uses equipment to help define activity areas and routine areas as well as additional picture or color cues as needed.

2.4 Recognizes that bright colors and multiple patterns and other sensory inputs can over-stimulate children, and in some cases under-stimulate them, and can adjust as needed.

2.5 Uses real world/real life materials relevant to children's experiences and interests.

Level 3

3.1 Continuously observes and evaluates how space is affecting the behavior of children and the management of the classroom and adjusts the environment as needed.

3.2 Articulates, analyzes, evaluates, and applies current theory and research on design of the environment in order to support individual and group growth.

3.3 Evaluates the learning environment, teaching strategies and materials to maximize the learning potential for individual children.

3.4 Uses a continuing process of assessment to guide modification to the environment, teaching strategies and expectations.

3.5 Establishes multiple lighting sources (natural, full spectrum and incandescent).

3.6 Demonstrates that colors and patterns and other sensory inputs can affect stimulation levels for children of various ages and learning needs by over or understimulating them and can adjust as needed.

3.7 Integrates a variety of surfaces for indoor and outdoor use.

Competencies - Learning Experiences

Knowledge in this area of professional practice is demonstrated when the early childhood professional:

Level 1

1.1 Develops and implements a daily schedule and routine, as appropriate.

1.2 Recognizes that learning occurs through play and is able to develop and enhance play in children lacking this skill.

1.3 Chooses and/or implements a curriculum* that includes all of the learning domains and incorporates knowledge of individual children and their interests.

1.4 Supports and encourages children's participation in a variety of activities and in differing degrees of participation dependent on their comfort levels and or special learning needs.

1.5 Frequently engages children in verbal word play and uses this play to develop language skills in children showing difficulty in this developmental area.

1.6 Communicates with parents, using sensitivity and respect, about children's activities, accomplishments, and developmental milestones.

Level 2

2.1 Evaluates a daily schedule and routine and makes the schedule clearly available to children using the most appropriate cues for their age and developmental level (i.e. pictures, etc.)

2.2 Plans and implements curriculum and instructional practices based on knowledge of individual children's needs, interests and abilities as determined by assessment information.

2.3 Incorporates developmentally and individually appropriate materials, activities and strategies in an integrated curriculum*.

2.4 Engages children in adult/child interactions by using open-ended questions or other language expansion activities appropriate for their individual learning needs.

2.5 Allows for peer play among all age groups and develops and supports play interactions as necessary.

2.6 Encourages parent input in planning and participating in activities in both the school setting and through activities sent to the child's home.

2.7 Uses child's home language in daily activities.

2.8 Emphasizes the process of creating instead of the end product.

2.9 Incorporates active play in all activities and routines throughout the day, regardless of children's age and adjusts activity levels for children who easily become over-stimulated or lack voluntary or controlled physical movement.

2.10 Develops activities that enhance learning through play.

2.11 Supports the development of play skills if lack of this ability is hindering play-based learning interactions within the child's environment.

Level 3

3.1 Establishes extended learning opportunities beyond the curriculum using additional resources and materials.

3.2 Implements strategies to support the children's role in planning curriculum based on the interests, skill levels and potential of each child.

3.3 Articulates, analyzes, evaluates, and applies current theory and research on design of curriculum in order to support individual and group growth.

3.4 Plans, implements and uses a variety of open-ended materials*, activities and strategies in an integrated curriculum*.

3.5 Evaluates the learning environment, teaching strategies and materials to maximize the learning potential for individual children.

3.6 Uses a continuing process of assessment to guide modification of the curriculum and environment.

3.7 Integrates various language strategies through visual, written, verbal, graphic organizers*, etc.

3.8 Identifies and communicates the skills fostered in various learning areas and activities to other adults, including parents.

3.9 Articulates the importance of play in a child's development and provides strategies and techniques that will assist families and other colleagues in developing play in children lacking this skill.

3.10 Links curriculum to program philosophy.

3.11 Articulates the major theories of children's development and learning and applies these theories to diverse settings.

Appendix A: Glossary

Although many of these words may have other definitions, for the purposes of this listing the definition is given that best fits the meaning of the word or phrase when used in this document.

Accommodation – Making or becoming suitable; adjusting to circumstances by using the range over which such adjustment is possible.

Advocacy - Long-range thinking that establishes unified, collaborative actions to make effective, lasting and targeted change in the field of endeavor.

Assessment – The process of gathering information through the use of multiple tools and resources for the purpose of making decisions.

Attachment - The process of affection, bonding and connectedness between an infant and significant care providers or parents that builds a sense of trust and security within the child and profoundly affects all areas of development.

Bloodborne pathogens - Pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Bullying - Physical or psychological intimidation that occurs repeatedly over time and creates an ongoing pattern of harassment and abuse.

Challenging behavior - Actions or responses that: indicate the child is not exercising self-regulation or is stressed, afraid and insecure; interfere with children's learning, development and success at play; are harmful to the child, other children or adults; and/or put a child at risk for later social problems or school failure.

Children with special needs – Children with disabilities, developmental delays, or chronic health or behavioral needs that have been identified through a formal assessment process.

Code of Ethics - Defines the core values of the field and provides guidance for what professionals should do when they encounter conflicting obligations or responsibilities in their work.

Collaborative - All members of a group working toward a common goal.

Communicable - A condition that can be spread or transmitted from one individual to another.

Community – The town, city or population group where an early childhood program is located; may also refer to a group of people who share a common culture, language, purpose, etc. (Ex. "early childhood community," "classroom community").

Community resources – Assets and resources available to children and families within a particular community, especially those that can help a family cope with a difficult situation or meet a specific need.

Confidentiality – Ensuring that information is accessible only to those authorized to have access. This includes any information, whether oral, written, or computerized, that is directly applicable to an individual requesting or receiving services from an agency. These include handwritten notes, tapes, films, disks, etc. as well as oral communication based on such information.

Continuous Professional Development - On-going self assessment of professional performance; the establishment of goals to maintain career standards and participate in advocacy actions; and the execution of a plan to make improvements.

Core Values - Critical attitudes and beliefs that shape one's philosophy and guide one's behavior, especially when dealing with work-related ethical issues.

Culturally Sensitive - The ability to work sensitively and respectfully with children and their families, honoring the diversity of their cultures, spoken languages, and racial and ethnic groups.

Culture – All of the socially transmitted behavior patterns, values, beliefs and knowledge that are typical of a population or community of people at a given time.

Curriculum - Planned, sequenced program of study and daily structured activity based on what is age appropriate, skill levels of children, and what is deemed important by the standards of Ohio.

Developmental domains – Term used by professionals to describe areas or categories of skills and concepts that children develop or learn over time. Domains typically include the following areas of development: social, emotional, cognitive, language and literacy, physical (large motor, fine motor, perceptual/sensory), and creative.

Appendix A: Glossary

Developmentally appropriate – Programs, activities, and environments that are designed on the basis of: knowledge of how children develop and learn; knowledge of the strengths, needs, and interests of individual children; and knowledge of the social and cultural contexts in which children live.

Diversity - The variance among family structures, functions, characteristics, and interests.

Early Intervention - Comprehensive educational programs for young children who are at risk or who have been identified as having a disability.

Emergency preparedness - All activities designed or undertaken to minimize the effects of a hazard upon people, to deal with the immediate emergency conditions that would be caused by the hazard, and to repair or restore vital utilities or facilities destroyed or damaged by the hazard.

Empowering - The establishment of a model whereby all families can assert an active role in the care and education of their children.

Environment – All of the physical surroundings and social and cultural conditions that physically and/or emotionally affect children and their ability to learn, grow, develop and survive.

Ethical Dilemma - A moral conflict that involves determining appropriate conduct when an individual faces conflicting professional values and responsibilities.

Family – A social unit of two or more people who share goals and values, have long-term commitments, and often but not always live in the same household. A family may include children and adults living in the home, adults who are responsible for the long-term care and well-being of the child, a child's legal guardian, and/or parents who may not live in the same household as the child.

Family Systems Theory - A framework that emphasizes the notion that everything that happens to any family member affects all other family members.

Formal (observation/assessment) - Following accepted rules and standards for use of forms, structure and arrangement of outcomes.

Graphic Organizers - A pictoral way to organize information and thoughts for understanding, remembering, or writing about.

Health - A state of wellness; complete physical, mental, social, and emotional well-bring. The quality of one element effects the state of the others.

Hydration - The taking in of water.

IEP - Individualized Education Plan.

IFSP - Individualized Family Service Plan.

Inclusion - An educational practice whereby programs enroll both typically developing children and children with identified disabilities.

Informal (observation/assessment) – Assessment that does not use standardized or required forms or procedures or not officially recognized or approved as regular means of gathering information.

Integrated curriculum - Developing model lessons that include cross-curricular activities and assessments.

Leadership - Ability to understand, achieve and maintain institutional quality, as well as to build, manage and sustain organizational culture.

Mentor - A knowledgeable and experienced individual who provides guidance to beginning and experienced professionals to develop skills and reflection of practice. Various strategies of the mentor may include observation and feedback, demonstration of skills, conferencing, and resource provider.

MFE - Under IDEA, children must undergo a multi-factored evaluation to determine eligibility for special education services. An MFE consists of an evaluation, conducted by a multidisciplinary team, of more than one area of a child's functioning so that no single procedure is the sole criterion for determining a child's eligibility for a free appropriate educational program under the law. Children must be evaluated in all areas of suspected disability.

Norm-Referenced – A measure in which an individual child's performance is compared with that of a normative group, usually others of the same age.

Nutrition - The study of food and how it is used in the body.

Objective - Uninfluenced by emotions or personal biases.

Observation - Gathering information through one or more of the five senses for the basic purpose of determining a child's individual needs and learning style.

Appendix A: Glossary

Open-ended materials - Materials that can be used in multiple ways and allow for children's construction, concrete solving of problems, imagination and creativity.

Professional Resources - Education, information, materials, support services, and advocacy for early childhood stakeholders including, providers, teachers, trainers, and those working with families.

Professionalism - Decisions and actions, based on knowledge of early childhood theories, research and practice that shape one's career in the field.

Pro-social behavior - Caring behaviors toward others and concern over the distress of someone else.

Quality Standards - Principles that provide a set of guidelines to ensure the optimum level of regulations and practice in the field of early childhood.

Reciprocal interaction – An interaction with a child in which both adult and child are actively contributing, listening, and responding to one another.

Reflective Professional Development - On-going thinking about one's role, personal actions, or effects on others, (e.g., children, staff, families, or colleagues) that lead to improvement and meaningful change.

Reliability – Consistency of test scores over time and between testers: the extent to which it is possible to generalize from one test result conducted by one person to test results conducted at different times or by different observers.

Safe sleep - A sleep environment that reduces the risks associated with Sudden Infant Death Syndrome.

Safety - Security and freedom from danger.

Sanitize - Cleaned or sterilized.

Screening - A brief procedure to determine whether a child requires further and more comprehensive evaluation.

Self-regulation - Child's ability to gain control of bodily functions, manage powerful emotions and maintain focus and attention.

Sensitivity - Positive responsiveness to the attitudes, feelings, and circumstances of others.

Separation - The process of a young child's sensory interpretation of noticing a prime care giver or parent's leaving or is out of sight, causing the child to experience anxiety and insecurity.

Special health care needs - Children with special health care needs are those who have, or are at risk for, chronic physical, developmental, behavioral, or emotional conditions and who also require health and related services of a type or amount not usually required by typically developing children.

Standards - Agreed upon expectations for young children, programs and teachers. Varying terms are used to describe standards: early learning standards are expectations about learning and development of young children; program standards are expectations for the characteristics and quality of schools, child care centers or other education settings for children; and content standards represent what students – including adult students – should know and be able to do within a particular discipline, such as math, science, language, or the arts.

Strength-based - The ability to recognize and utilize existing abilities and competencies in children in order to refrain from a negative focus.

Valid - Extent to which a test measures what its authors claim it measures; appropriateness of the inferences that can be made on test results.

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Ohio's Core Knowledge and Competencies is closely linked to three important source documents from leading early childhood professional organizations:

1. *NAEYC Early Childhood Program Standards and Accreditation Criteria* (2005). The National Association for the Education of Young Children.
2. *Preparing Early Childhood Professionals: NAEYC's Standards for Initial Licensure, Advanced, and Associate Degree Programs,* (2003). M. Hyson (ed.)., The National Association for the Education of Young Children.
3. *DEC Recommended Practices: A Comprehensive Guide for Practical Application in Early Intervention/Early Childhood Special Education,* (2005). S Sandall, M. L. Hemmeter, B. J. Smith, & M. E. McLean; Division for Early Childhood of the Council for Exceptional Children.

Many of the knowledge and competency areas in Core Knowledge are related to specific standards, criteria or recommended practices in these three documents. In order to allow for easy cross-referencing, the following table links each content area in Core Knowledge with the relevant content in each of the other documents.

Core Knowledge Content Area	*1. NAEYC Accreditation Criteria*	*2. NAEYC Professional Preparation Standards*	*3. DEC Recommended Practices*
Child Growth & Development	1.A Building positive relationships between teachers and families 2.A Curriculum: essential characteristics 7.A Knowing and understanding the program's families	1a. Knowing and understanding young children's characteristics and needs 1b. Knowing and understanding the multiple influences on development and learning 1c. Using developmental knowledge to create healthy, respectful, supportive and challenging learning environments	Adults design environments to promote children's safety, active engagement, learning, participation, and membership (C1-11) Adults use ongoing data to individualize and adapt practices to meet each child's changing needs (C12-16) Adults use systematic procedures within and across environments, activities, and routines to promote children's learning and participation (C17-27) Families and professionals share responsibility and work collaboratively (F1-5) Practices are strengths- and assets-based (C15-17)

Core Knowledge Content Area	*1. NAEYC Accreditation Criteria*	*2. NAEYC Professional Preparation Standards*	*3. DEC Recommended Practices*
Family & Community Relations	1.A. Building Positive Relationships among Teachers and Families 1.E. Addressing Challenging Behaviors 4.A. Creating an Assessment Plan 4.B. Using Appropriate Assessment Methods 4.E. Communicating with Families and Involving Families in the Assessment Process (4.E.01) 6.A. Preparation, Knowledge, and Skills of Teaching Staff 7.A. Knowing and Understanding the Program's Families 7.B. Sharing Information Between Staff and Families 7.C. Nurturing Families as Advocates for Their Children 8.A. Linking with the Community 8.B. Accessing Community Resources 8.C. Acting as a Citizen in the Neighborhood and Early Childhood Community 10.B. Management Policies and Procedures	2a. Knowing about and understanding family and community characteristics 2b. Supporting and empowering families and communities through respectful, reciprocal relationships 2c. Involving families and communities in their children's development and learning 4a. Connecting with Children and Families	Professionals and families collaborate in planning and implementing assessment (A1-12) Assessment is individualized and appropriate for the child and family (A13-20) Professionals meet legal and procedural requirements and meet Recommended Practice guidelines (A37-46) Adults design environments to promote children's safety, active engagement, learning, participation, and membership (C1-11) Adults use ongoing data to individualize and adapt practices to meet each child's changing needs (C12-16) Adults use systematic procedures within and across environments, activities, and routines to promote children's learning and participation (C17-25) Families and professionals share responsibility and work collaboratively (F1-5) Practices strengthen family functioning (F6-10) Practices are strengths- and assets- based (F11-14) Teams including family members make decisions and work together (I1-6) Professionals cross disciplinary boundaries (I7-8) Intervention is focused on function, not services (I9-16) Regular caregivers and regular routines provide the most appropriate opportunities for children's learning and receiving most other interventions (I17-19) Families and professionals shape policy at the national, state, and local levels (PS1-4)

Core Knowledge Content Area	*1. NAEYC Accreditation Criteria*	*2. NAEYC Professional Preparation Standards*	*3. DEC Recommended Practices*
Health, Safety & Nutrition	1.A. Building positive relationships among teachers and families 1.B. Building positive relationships between teachers and children 2.K. Curriculum content area for cognitive development: health and safety 3.C. Supervising children 5.A Promoting and protecting children's health and controlling infectious disease 5.B. Ensuring children's nutritional well-being 5.C. Maintaining a healthful environment 9.A. Indoor and outdoor equipment, materials and furnishings 9.C. Building and physical design 9.D. Environmental health 10.B. Management policies and procedures 10.D. Health, nutrition and safety policies and procedures 10.F. Program evaluation, accountability and continuous improvement	1a. Knowing and understanding young children's characteristics and needs 1b. Knowing and understanding the multiple influences on development and learning 2a. Knowing about and understanding family and community characteristics 2b. Supporting and empowering families and communities through respectful, reciprocal relationships 2c. Involving families and communities in their children's development and learning 3b. Knowing about and using observation, documentation and other appropriate assessment tools and approaches 3d. Knowing about assessment partnerships with families and other professionals 4d. Using own knowledge and other resources to design, implement, and evaluate meaningful, challenging curriculum to promote positive outcomes 5b. Knowing about and upholding ethical standards and other professional guidelines 5c. Engaging in continuous, collaborative learning to inform practice 5d. Integrating knowledgeable, reflective, and critical perspectives on early education 5e. Engaging in informed advocacy for children and the profession	Professionals and families collaborate in planning and implementing assessment (A1-12) Assessment is individualized and appropriate for the child and family (A13-20) Assessment provides useful information for intervention (A21-29) Professionals share information in respectful and useful ways (A30-36) Professionals meet legal and procedural requirements and meet Recommended Practice Guidelines (A37-46) Adults design environments to promote children's safety, active engagement, learning, participation, and membership (C1-11) Adults use ongoing data to individualize and adapt practices to meet each children's changing needs (C12-16) Families and professionals share responsibility and work collaboratively (F1-5) Practices strengthen family functioning (F6-10) Practices individualized and flexible (F11-14) Teams including family members make decisions and work together (I1-16) Families and professionals shape policy at the national, state and local levels (PS1-4) Program policies and administration promote family participation in decision-making (PS12-18)

Core Knowledge Content Area	*1. NAEYC Accreditation Criteria*	*2. NAEYC Professional Preparation Standards*	*3. DEC Recommended Practices*
Child Observation & Assessment:			
Principles/Foundation	4.A Creating and Assessment Plan	3a. Understanding the goals, benefits and uses of assessment 3b. Knowing about and using observation, documentation and other appropriate assessment tools and approaches 3c. Understanding and practicing responsible assessment	Assessment is individualized and appropriate for the child and family (A13-20) Professionals share information in respectful and useful ways (A30-36) Professionals meet legal and procedural requirements and meet DEC Recommended Practices guidelines (A37-46)
Gathering/Documentation	4.B Using Appropriate Assessment Methods 4.E Communicating with Families and Involving Families in the Assessment Process	3b. Knowing about and using observation, documentation and other appropriate assessment tools and approaches 3c. Understanding and practicing responsible assessment	Professionals and families collaborate in planning and implementing assessment (A1-12) Assessment is individualized and appropriate for the child and family (A13-20)
Summary and Uses (Results and Interpretation)	4.C Identifying Children's Interests and Needs and Describing Children's Progress 4.D Adapting Curriculum, Individualizing Teaching, and Informing Program Development	3a. Understanding the goals, benefits and uses of assessment 3d. Knowing about assessment partnerships with families and other professionals	Assessment provides useful information for intervention (A21-29) Professionals meet legal and procedural requirements and meet DEC Recommended Practices guidelines (A37-46)
Sharing and Reporting Methods	4.C Identifying Children's Interests and Needs and describing Children's Progress 4.E Communicating with Families and Involving Families in the Assessment Process 7.B Sharing Information Between Staff and Families 8.A Linking with the Community	3a. Understanding the goals, benefits and uses of assessment 3c. Understanding and practicing responsible assessment 3d. Knowing about assessment partnerships with families and other professionals	Assessment provides useful information for intervention (A21-29) Professionals share information in respectful and useful ways (A30-36) Professionals meets legal and procedural requirements and meet DEC Recommended Practices guidelines (A37-46)

Core Knowledge Content Area	*1. NAEYC Accreditation Criteria*	*2. NAEYC Professional Preparation Standards*	*3. DEC Recommended Practices*
Professional Development	6a. Preparation, knowledge and skills of teaching staff 6b. Teacher's dispositions and professional commitment	5a Identifying and involving oneself with the early childhood field 5b Knowing about upholding ethical standards and other professional guidelines 5c Engaging in continuous, collaborative learning to inform practice 5d Integrating knowledgeable, reflective, and critical perspectives on early education 5e Engaging in informed advocacy for children and the profession	Field experiences are systematically designed and supervised (PP29 – 39) Faculty and other personnel trainers are qualified and well-prepared for their role in personnel preparation (PP40 – 55) Professional development (inservice) activities are systematically designed and implemented (PP56 – 66)
Learning Environments & Experiences:			
Interactions & Relationships	1A. Building positive relationships among teachers and families 1B. Building positive relationships between teachers and children 1C. Helping children make friends 1D. Creating a predictable, consistent, and harmonious classroom 1E. Addressing challenging behaviors 2B. Social-emotional development 3B. Creating caring communities for learning	1a. Knowing and understanding young children's characteristics and needs 1b. Knowing and understanding the multiple influences on development and learning 1c. Using developmental knowledge to create healthy, respectful, supportive, and challenging learning environments 4a. Knowing, understanding, and using positive relationships and supportive interactions	Adults design environments to promote children's safety, active engagement, learning, participation, and membership (C1-11) Adults use ongoing data to individualize and adapt practices to meet each child's changing needs (C12-16) Adults use systematic procedures within and across environments, activities, and routines to promote children's learning and participation (C17-27) Assessment provides useful information for intervention (A21-29)

Core Knowledge Content Area	1. NAEYC Accreditation Criteria	2. NAEYC Professional Preparation Standards	3. DEC Recommended Practices
Learning Environments & Experiences:			
Physical Environments	2.A. Curriculum: essential characteristics 2C. Physical development 2E-L. Curriculum content area for cognitive development 3A. Designing enriched learning environments 3D. Using time, grouping and routines to achieve learning goals 3E. Responding to children's interests and needs 5C. Maintaining a healthful environment 9.A: Physical Environment: Indoor and Outdoor Equipment, Materials, and Furnishings 9.B: Physical Environment: Outdoor Environmental Design 9.C: Physical Environment: Building and Physical Design	1a. Knowing and understanding young children's characteristics and needs 1b. Knowing and understanding the multiple influences on development and learning 1c. Using developmental knowledge to create healthy, respectful, supportive, and challenging learning environments 4b. Knowing, understanding, and using effective approaches, strategies, and tools for early education 4d. Using own knowledge and other resources to design, implement, and evaluate meaningful, challenging curriculum to promote positive outcomes	Adults design environments to promote children's safety, active engagement, learning, participation, and membership (C1-11) Adults use ongoing data to individualize and adapt practices to meet each child's changing needs (C12-16) Adults use systematic procedures within and across environments, activities, and routines to promote children's learning and participation (C17-27) Assessment provides useful information for intervention (A21-29)

Core Knowledge Content Area	1. NAEYC Accreditation Criteria	2. NAEYC Professional Preparation Standards	3. DEC Recommended Practices
Learning Environments & Experiences:			
Learning Experiences	2.A. Curriculum: essential characteristics 2B-D. Areas of development 2E-L. Curriculum content area for cognitive development 3A. Designing enriched learning environments 3D. Using time, grouping and routines to achieve learning goals 3E. Responding to children's interests and needs 3F. Making learning meaningful for all children 3G. Using instruction to deepen children's understanding and build their skills and knowledge	1a. Knowing and understanding young children's characteristics and needs 1b. Knowing and understanding the multiple influences on development and learning 1c. Using developmental knowledge to create healthy, respectful, supportive, and challenging learning environments 4b. Knowing, understanding, and using effective approaches, strategies, and tools for early education 4c. Knowing and understanding the importance, central concepts, inquiry tools, and structures of content areas or academic disciplines 4d. Using own knowledge and other resources to design, implement, and evaluate meaningful, challenging curriculum to promote positive outcomes	Adults design environments to promote children's safety, active engagement, learning, participation, and membership (C1-11) Adults use ongoing data to individualize and adapt practices to meet each child's changing needs (C12-16) Adults use systematic procedures within and across environments, activities, and routines to promote children's learning and participation (C17-27) Assessment provides useful information for intervention (A21-29)

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Ohio Professional Development Network

Career resources for early childhood & afterschool professionals

D2

Ohio Early Childhood Core Knowledge and Competencies Instructor Guide

Rationale: This document is evidence that Ohio has development tools to assist professional development providers with the adoption and implementation of the common, statewide Workforce and Competency Framework.

Referenced in:

IV(D)(1)

(b)(6)

The Ohio Early Childhood
Core Knowledge & Competencies

Instructor Guide

A Guide to Integrating Core Knowledge and Competencies into Early Childhood Professional Development

A Resource of the
Ohio Professional Development Network
Career resources for early childhood & afterschool professionals

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Supporting early childhood professionals in their pursuit of excellence is a worthy goal – and a challenging one! Whether you are new to the work of providing professional development or have been offering learning opportunities to early childhood professionals for years, the *Core Knowledge and Competencies* (CKC) *Instructor Guide* was written for you!

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Purpose

As the title implies, the Instructor Guide is meant as a companion resource for *Ohio's Early Childhood Core Knowledge & Competencies* (CKC).*

Because it covers the breadth and depth of professional practice, the Instructor Guide provides a comprehensive, organized foundation upon which to build learning experiences that are systematically connected – a tremendous asset to individual professional development providers as well as the professional development system as a whole.

For individual trainers and instructors, the Guide was created as a tool to help you build professional development upon the foundation of identified Core Knowledge & Competencies by:

- helping you integrate the CKC into education provided at every stage of an early childhood professional's developmental pathway;
- giving you a hands-on planning tool for every phase of instructional preparation; and
- suggesting tips, tools and resources that will enhance your own knowledge, skills and confidence as an adult educator.

The Guide was also created as a catalyst to help move Ohio toward a more coherent, intentional system of professional education that not only supports individuals in attaining their learning goals but also moves our field toward the goal of an early childhood workforce with a practice solidly based on an identified core body of professional knowledge and competencies.

The Guide has several features that will be useful in the development of training and instruction, in your own development as a professional, and in working towards a more coherent system of professional development for Ohio's early childhood community. Explore the Guide and find the information that best fits your needs.

* The IG frequently refers to the CKC. If you do not have a copy of the CKC, contact your local Child Care Resource and Referral agency or download a copy from the Ohio PD Network website: http://www.ohpdnetwork.org

Terminology

The field of early care and education is very diverse. In many ways, this is one of our greatest strengths. It does, however, present a challenge when it comes to selecting appropriate language. We offer the following clarification:

- **The learning experience:** For the purposes of this document, "professional development" is used as an umbrella term to describe a variety of activities that share the goal of strengthening the knowledge and competencies that form the basis for professional practice (i.e., the CKC). There are many forms of professional development, including on-site technical assistance, college coursework, coaching and independent research/study. However, a large percentage of the professional development experiences in which today's early childhood professionals participate fall into the subcategory of "training," defined as "professional development experiences that take place outside the formal education system."* Training is a term for community-based education that is familiar across many early childhood settings. Although the term can be controversial to some, because of its broad use in the professional development community, both in early childhood as well as many other professional fields, it is used throughout this document, along with other synonymous terms.
- **The professional development provider:** Those whose work is to craft meaningful learning experiences that move others toward greater knowledge and competence in their work with young children go by many titles. In this document, we use the following terms interchangeably: trainer, instructor, and professional development provider.
- **The agency or person requesting training:** Many times pre- and in-service training is requested by an individual or organization other than the intended participant (i.e., program administrator, local funder). They are, therefore, an important stakeholder in the instructional development process. Who that individual or entity is, however, can vary considerably. For the purposes of clarity, in this document the term "sponsor" is used consistently.

* Maxwell, K., Feild, C., & Clifford, R. (2005). Defining and measuring professional development in early childhood research. In Zaslow, M., & Martinez-Beck, I (Eds.), *Critical Issues in Early Childhood Professional Development* (p. 21-48). Baltimore, MD: Paul H. Brookes Publishing

Foundation

Studies of early care and education settings have made it clear that the strongest influence on quality is the caregiving/teaching adult.* What early childhood professionals know about young children's development and learning, and how well they are able to translate that knowledge into their relationships with young children, matters in the well-being of those children. In fact, it matters a great deal. The quality of adult-child interactions in early childhood settings is a strong predictor of children's developmental outcomes. And the factors that most strongly predict positive teaching and caregiving are education, specialized training, and attitudes about working with young children.

Although research on the impact of teacher/caregiver formal and informal education on children's experiences and learning is still in its infancy, and as such is a topic of much debate, empirical evidence does exist to support the following correlations:

- participation in community-based training is related to higher quality environments and better adult-child interactions;
- training is positively correlated with quality for both center-based and family child care professionals; and
- training is related to higher skills, regardless of individual formal educational qualifications.

Although this research affirms that community-based education is an important and effective form of professional preparation and development, it is also true that the quality and effectiveness of those learning experiences varies widely. Unfortunately, a lack of consistency in quality and effectiveness can be found across early childhood teacher preparation programs as well.

It is our intent that this document, in conjunction with the Early Childhood Core Knowledge & Competencies, be yet another tool for building more cohesive, effective professional education, whether in community-based settings or formal education settings.

* Reprinted with permission, *Critical Issues in Early Childhood Professional Development*, Zaslow, M., & Martinez-Beck, I. 2006

Principles of Effective Professional Development

We strongly encourage the early childhood professional development community to adopt and continually refer to the following principles stated in *"A Conceptual Framework for Early Childhood Professional Development,"* a position statement of the National Association for the Education of Young Children.

1. Professional development is an ongoing process.
2. Professional development experiences are most effective when grounded in a sound theoretical and philosophical base and structured as a coherent and systematic program.
3. Professional development experiences are most successful when they respond to an individual's background, experiences, and the current context of their role.
4. Effective professional development opportunities are structured to promote clear linkages between theory and practice.
5. Providers of effective professional development experiences have an appropriate knowledge and experience base.
6. Effective professional development experiences use an active, hands-on approach and stress an interactive approach that encourages students to learn from one another.
7. Effective professional development experiences contribute to positive self-esteem by acknowledging the skills and resources brought to the training process as opposed to creating feelings of self-doubt or inadequacy by immediately calling into question an individual's current practices.
8. Effective professional development experiences provide opportunities for application and reflection and allow for individuals to be observed and receive feedback upon what has been learned.
9. Students and professionals should be involved in the planning and design of their professional development plan.

Retrieved from http://www.naeyc.org/about/positions/pdf/psconf98.pdf

Defining the framework

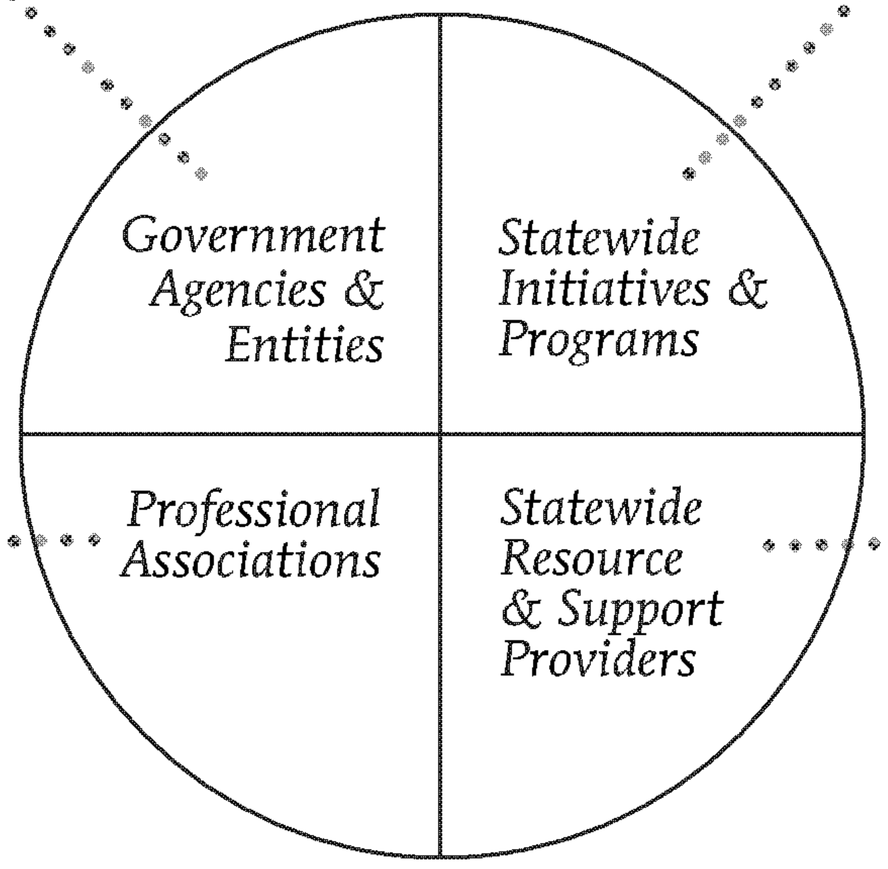
A professional development activity can be bursting with research-based subject matter and relevant learning activities and still fall short of the goal to raise the level of knowledge and competency among Ohio's early childhood professionals. That's because a training, college course or coaching session doesn't happen in a vacuum – many other pieces are needed to complete the picture of high quality professional development for Ohio's early childhood professionals.

What other foundational knowledge do you need?

- Knowledge of Ohio's Early Care & Education system
- Knowledge of relevant requirements, standards and assessments
- Knowledge of one's own knowledge and skills, strengths and weaknesses
- Knowledge of the variety of audiences who have an interest in the professional development of early childhood professionals

The following section of the Guide offers information and tools to help you gain the foundational knowledge you need to help early childhood professionals make the connections between content from *Ohio's Early Childhood Core Knowledge & Competencies*, their own knowledge and competence, the requirements and standards for their professional setting, and the larger picture of professional development within Ohio's early care and education system.

The number of Ohio's agencies, organizations, initiatives, regulations, programs and networks related to the early childhood profession can seem overwhelming, no matter how long you've worked within the system! This diagram is intended to give you an overall picture of the players who work so hard to support everyone in the field. It also shows the resources they have to offer.



Government Agencies & Entities

Governor's Early Childhood Cabinet ●

Ohio Department of Education, Office of Early Learning and School Readiness (ODE-OELSR) ▲◆★

Ohio Department of Health (ODH) ▲★

Ohio Department of Job and Family Services, Bureau of Child Care and Development (ODJFS-BCCD) ▲◆★

Ohio's Family & Children First Cabinet/Councils ●

Professional Associations

Connections Family Child Care Assoc. ◆

Ohio Afterschool Network (OAN) ●★

Ohio Association for the Education of Young Children (Ohio AEYC) ◆★

Ohio Child Care Resource & Referral Association (OCCRRA) ●◆★

Ohio Head Start Association (OHSAI) ◆★

Statewide Initiatives & Programs

21st Century Learning Centers Grant ★

Early Learning Initiative (ELI) ▲

First Steps ■★

Help Me Grow (HMG) ▲★

Step Up To Quality (SUTQ) ▲★■

T.E.A.C.H. Early Childhood® Ohio ★

Statewide Resource & Support Providers

Afterschool Specialist Network ◆■★

Child Care Resource & Referral Network ◆■★

Early Childhood Quality Network (EC Q-Net) ◆

Early Language & Literacy Specialist Network ■ ◆

Head Start Region V TA Network ◆■★

Healthy Child Care Ohio Health Consultant Network ◆■★

Infant/Toddler Specialist Network ◆■★

PBS' *Ready to Learn* Program ◆

State Support Teams ■◆★

Key

- ▲ Includes or regulates pre- and in-service training requirements
- ■ Provides on-site/individual coaching/mentoring/ assessment
- ★ Provides other resources that support professional development (e.g., financial, guidance documents, tools)
- ● Provides inter-agency coordination or management of inter-agency partnerships
- ◆ Provides pre- and/or in-service training

Information was accurate at the time of printing. However services may have changed for individual entities.
For more information and to obtain contact information, please go to the Glossary on pgs. 49-53 of Part 3: Resources and Tools.

The many different programs and initiatives in Ohio mean that more young children are benefiting from more skilled professionals and higher quality learning environments. But these can also mean a lot of confusion for individual professionals who are trying to understand the dizzying array of professional development requirements, standards and guidelines, and quality assessment tools currently being used across the state. The following table is intended to provide you with a helpful tool to identify which requirements, standards/guidelines, and assessments align with each of the six content areas of the CKC. As you plan learning opportunities in each area, it would be wise to have the related documents in front of you in order to clearly understand and communicate to participants how the content presented is related to the requirements, standards/guidelines or assessments that apply to their professional setting. Note: For more information about each document, please see the *Glossary* (pgs. 49-53).

Key

✓ Document contains related material

✗ Document does not contain related material

		Regs	*Assessment Instruments*[1]					*Ohio Standards or Guidelines*					*National Standards, Guidelines or Competencies*			
		ODJFS Licensing Rules	Early Language and Literacy Classroom Observation (ELLCO)	Environment Rating Scales [2]	Program Administrator Scale (PAS)	Ages & Stages Questionnaire (ASQ)[3]	Get It Got It Go!	Early Learning Content Standards	Early Learning Program Guidelines	Standards for Ohio Educators	Infant/Toddler Guidelines	Standards of Care & Teaching for Ohio's Infants & Toddlers	Child Development Associate (CDA) credential competencies	National Association for the Education of Young Children (NAEYC)[4]	Division of Early Childhood (DEC) Recommended Practices	Head Start Performance Standards & Other Guidelines
Core Knowledge & Competencies Content Area	Child Growth & Development	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Family & Community Relations	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Health, Safety & Nutrition	✓	✗	✓	✓	✗	✗	✗	✓	✗	✓	✓	✓	✓	✓	✓
	Child Observation & Assessment	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Professional Development	✓	✗	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓
	Learning Environments & Experiences	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

[1] Although many initiatives and programs incorporate one or more of these assessment instruments, the instrument may not be used in its entirety.
[2] Environment Rating Scales include all of the following: Early Childhood ERS (ECERS), Infant/Toddler ERS (ITERS), Family Day Care ERS (FDCERS), and School-Age Care ERS (SACERS)
[3] Ages & Stages Questionnaire (ASQ) also includes the Ages & Stages Questionnaire: Social Emotional (ASQ:SE)
[4] NAEYC includes Early Childhood Program Standards and Accreditation Criteria and Standards for Initial Licensure, Advanced, and Assoc. Degree Programs

CKC Instructor Profile

This quick tool is designed to provide you with a profile of yourself as an instructor of each of the six CKC content areas. By honestly assessing your experience, knowledge, competency level, and learning style, you will more quickly be able to determine whether you can meet the needs of specific training requests. Complete steps 1-4 and answer the two questions on the following page. Reassess yourself periodically, as you gain knowledge and skills through your own professional development. Note: This tool assumes that the user is very familiar with the contents of the Core Knowledge & Competencies document.

1. Complete Career Pathways Worksheet (if needed): https://www.ohpdnetwork.org/documents/career_pathways_worksheet.pdf
2. Identify MY Career Pathways Level I II III IV V VI
3. Identify MY Learning Style: Visual Auditory Kinesthetic/Tactile
   (To determine your learning style, use the *Learning Styles Inventory* in the Resource & Tools section on pg. 32)
4. Complete the Chart Below

Instructor Self-Assessment			*Audience Level*
Content Expertise Assess your Competency level for each CKC Content Area	**Comfort Level** Plot your comfort level for teaching each of the CKC Content Areas	**Instructional Method(s)** For each content area, write the method(s) (e,g., role play, lecture) that reflect your teaching skill & preference	Based on your self-assessment, circle the CKC audience levels that would be appropriate for you to train
Child Growth & Development 1 2 3	Hesitant (new material) / Comfortable (familar material) / Confident (ease w/material)		1 2 3
Family & Community Relations 1 2 3	Hesitant (new material) / Comfortable (familar material) / Confident (ease w/material)		1 2 3
Health, Safety & Nutrition 1 2 3	Hesitant (new material) / Comfortable (familar material) / Confident (ease w/material)		1 2 3
Child Observation & Assessment 1 2 3	Hesitant (new material) / Comfortable (familar material) / Confident (ease w/material)		1 2 3
Professional Development 1 2 3	Hesitant (new material) / Comfortable (familar material) / Confident (ease w/material)		1 2 3
Learning Environments & Experiences 1 2 3	Hesitant (new material) / Comfortable (familar material) / Confident (ease w/material)		1 2 3

Continued on next page

CKC Instructor Profile continued

5. What changes or accommodations will I need to make to my instructional methods to meet the needs of participants' with learning styles different than my own? (For suggestions on teaching strategies for each learning style, see *Aligning Learning Activities and Media with Learning Preferences* in the Resources and Tools section on pg. 34)

6. What professional goals shall I set for myself, based on my *CKC Instructor Profile*?

Audience	Use
Developers and Providers of Community-Based Professional Development	• Organize professional development opportunities using Core Competencies and levels for varied learners • Assess one's own instructional skills and strengths in CKC content areas • Identify best practices for professional development and teaching adult learners • Set up instructor/presenter guidelines when planning for events or conferences • Identify tracks or levels when planning for events or conferences • Identify the key national, state, and local organizations, initiatives, resources, and assessments/tools essential to professional development within the field of early childhood
Higher Education	• Use framework to facilitate articulation between common points of essential materials in community-based professional development • Provide a link between coursework and community-based professional development topics for faculty using the Ohio Professional Development Network registry, CKC, and professional development
Coaches & Mentors	• Assess one's own areas of strength in CKC content areas and in providing learning experiences • Identify commonalities between coaching/mentoring and other professional development delivery methods • Identify resources to support and enhance coaching/mentoring as an effective component of a comprehensive professional development system
Program Administrators	• Evaluate professional development providers • Identify resources for staff development • Identify links between licensing rules, NAEYC standards, CDA competencies and CKC content areas
State and Local Agencies	• Identify common goals across agencies surrounding professional development • Develop policy, initiatives and regulatory decisions that will elevate the professional development competencies of instructors of early childhood professionals • Reduce redundancy in requirements, processes, reporting, etc. across agencies. • Create a cohesive professional development approval process
Early Childhood Advocates	• Reinforce the concept and language of professionalism in the field of early childhood professional preparation and development • Educate parents, policymakers and general public about the areas of professional practice in early childhood and the need for competent professionals and instructors
Others	• Appreciate the degree of knowledge and skill required for professional competency in early childhood and for the professional preparation of early childhood professionals • Identify the key national, state, and local organizations, initiatives, resources, and assessments/tools essential to professional development within the field of early childhood

Notes

part 2
the cycle of instructional development

As an instructor, you probably have a process that you follow when you are preparing a training, a course, or a learning session with a person you are coaching. In this section, the CKC Instructor Guide introduces a widely used model that organizes this process into four phases:

Phase 1: Assess

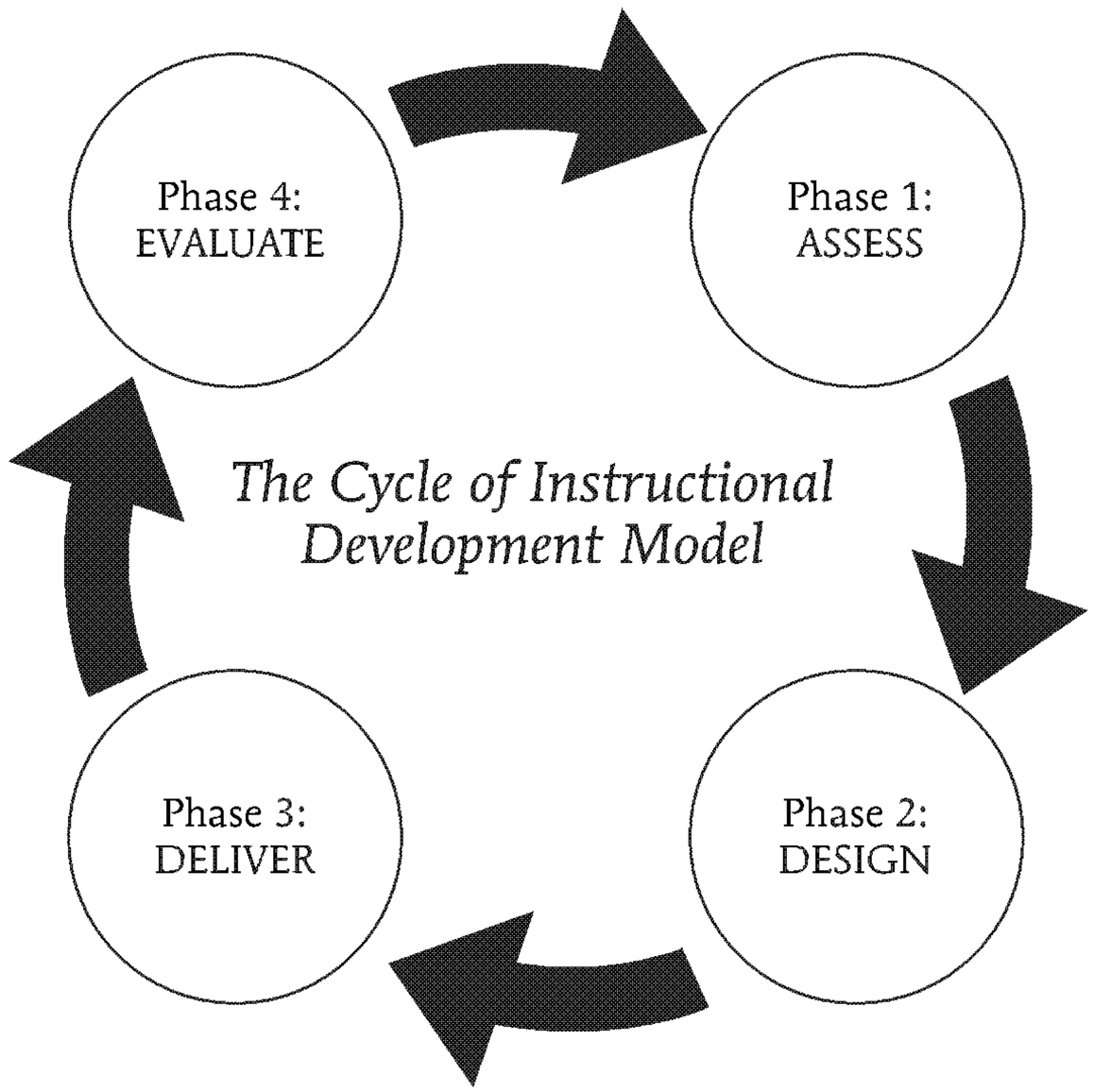
Phase 2: Design

Phase 3: Deliver

Phase 4: Evaluate

All formal learning experiences that are intended to support professional development can, and should, incorporate all four phases. As the NAEYC Principles of Effective Professional Development state, "professional development experiences are most effective when...structured as a coherent and systematic program."* Using this model in the development of training, coursework, coaching/mentoring sessions or other types of focused learning experiences will enable your work to meet that standard of excellence.

* See pg. 9 for a complete list of principles and source citation.



Phase 1: Assess

- Identify needs of learners and sponsor
- Identify limitations and resources
- Clarify expectations

Phase 2: Design

- Identify CKC content area, knowledge base and competencies to address
- Select the most appropriate instructional strategies and learning activities
- Create a comprehensive instructional plan

Phase 3: Deliver

- Identify key characteristics of participants and environment that may influence the effectiveness of your instructional plan
- Minimize limitations; optimize advantages
- Make adjustments necessary to meet learning goals

Phase 4: Evaluate

- Assess participants' learning and experience
- Evaluate the effectiveness of instruction
- Determine the satisfaction of the sponsor
- Evaluate the quality of the experience as a professional development activity

Phase Elements

In the remaining pages of Part 2, you will find each phase explained in much greater detail. You will also find several elements within the discussion of each phase.

Key Questions
That should be answered during the phase

Decisions and Actions
That will help you answer the key questions

Wisdom from the Field
Helpful suggestions from seasoned professional development specialists

The CKC Connection
Strategies for incorporating the CKC into your decisions and plans

Tools to Help
A handy list of the tools and resources for the phase found mainly in Part 3

Tips
Additional ideas and suggestions specific to the phase

Notes
Space for you to write your own ideas, tips, reminders, etc.

Introduction

As soon as the opportunity arises to conduct a training, you will begin assessing the needs and expectations of the sponsor who is requesting it, the needs of the intended audience of learners, and the parameters that you would need to work within. It's in this phase of the process that you are gathering the information you need to decide the goodness of fit between the various needs and your ability to meet them.

Key Questions

WHY is this learning experience needed?

HOW has the need been determined?

WHO are the intended learners?

WHAT are the sponsor's expectations or objectives?

WHAT limitations would affect the design or delivery of the instruction?

HOW well-suited am I to provide this learning experience?

Decisions and Actions

Consider these suggestions when you are gathering information to make the right decisions in the assessment phase.

Identifying Needs and Expectations

- Ask the person or agency who is requesting the instruction – the sponsor – detailed questions about their needs and expectations (which may be different than those of the participants).
- Identify all requirements that the sponsor expects to be satisfied through this experience. Know the source of those requirements.
- If the sponsor is unsure or vague about the needs of the potential learners, consider:
  - conducting a needs assessment with the intended learners; this can be done formally or informally
  - viewing and discussing the learners' Professional Development Plans, if available, to identify common areas of growth
  - using the CKC with the sponsor to discuss and identify specific competencies that need to be strengthened
- Find out as much as you can about the intended audience of learners, including: the setting in which they work, their role(s) and the scope of their work, their level of specialized education/training, and, if possible, their Career Pathways (see Glossary) level, which will help you identify the level of competencies to address (see pg. 5 of the CKC for further clarification).

Identifying Constraints

- Before you go any further, review your *CKC Instructor Profile* (pgs. 9-10) or complete it, if you've not done so. It will help you determine the fit between you as an instructor and the needs of the learners and sponsor.

Continued on next page

Identifying Constraints continued

- Be sure to identify factors that will affect the design, delivery, or feasibility of a training that would succeed in meeting the needs of the learners and the sponsors. Common considerations are: time limitations, costs, number of anticipated participants, range of competency of learners, facilities and resources.
- When considering your ability to meet the needs of the intended audience, consider your cultural competency, too – your ability to recognize differences due to culture, race, language, etc., and to respond to diversity positively and constructively.

The CKC Connection

If you are creating a new training, a good general knowledge of the CKC can be especially helpful during the assessment phase. When you understand how the target knowledge and competencies of this experience fit into the broader scope of professional knowledge and practice you can:

- effectively communicate its value to participants and
- encourage administrators, funders and learners to think of professional development more systematically.

If you will be using an existing training plan, be sure to identify the knowledge and competencies from the CKC that are covered and make any changes needed to ensure that the learning experience is meaningful and appropriate in light of a comprehensive view of professional development.

Wisdom from the Field

"Know yourself! Be brutally honest with yourself about your own capabilities, your level of knowledge and competency in each of the six areas of the CKC, and your strengths and weaknesses as an adult educator. Respect the sacrifice of valuable time that participants have made to be there and make sure every moment is worth their while. When I've felt unsure about my own level of expertise in a topic, I've called on another colleague who does have the knowledge and we work as a team. Not only do participants get the benefit of our pooled knowledge, but it's also more interesting to have two different personalities, two different teaching styles, and twice as many stories!"

– Kim, 17 years experience

Tips

- Be as familiar as possible with the professional development requirements of the most common programs, initiatives and agencies that you are likely to encounter. Be prepared to clear up confusion or misinformation that sponsors or participants might have and know where to send them to find out more information.
- Be realistic as you consider how many topics you can cover, and how deeply, given any constraints. Better to cover less and do it well than to overwhelm the learners!
- If this is a group of learners that you have worked with before, or the training will cover similar content to an earlier training, be sure and use your previous evaluations and assessment results to inform your decisions, not only as you consider the learners' needs but also in design and delivery decisions.

Tools to Help

- The CKC Instructor Profile, pgs. 9-10
- The Learning Styles Inventory, pg. 32

Notes

Introduction

Designing a great learning experience – one that satisfies sponsor, participants, and you – is the process of finding the best match between:

1. the identified needs of the learners and sponsor;
2. the most relevant Core Knowledge & Competencies; and
3. the most appropriate and effective teaching strategies.

Key Questions

WHICH of the six content areas will the training focus on?

WHAT level of competencies will be most appropriate?

WHAT instructional method(s) will best support the learners' application of the content?

HOW detailed and in-depth should the learning experience be?

WHICH instructional format is most appropriate?

Decisions and Actions

Designing a high quality learning experience involves many decisions. The following considerations can help you work through the design process and answer all of the design questions.

Selecting the Content

- Based on information gathered during the assessment phase, narrow the focus to one primary CKC content area. This may be challenging, since professional practice as it occurs in "real life" is rarely neatly compartmentalized. But focusing primarily on competencies within one content area will encourage more in-depth, substantial learning that connects research to knowledge to practice. It will also help those in the early childhood community to think about professional development in a more systematic way as we adopt the framework and language of Core Knowledge & Competencies.
- Based on the assessment information and on your professional knowledge, select a number of competencies appropriate to the length of the learning session. It's especially beneficial to the learner if you select competencies that are closely related and tie in easily to one or two of the statements in the knowledge base of the CKC content area.

Selecting the Instructional Strategies

- Use the chart, *Aligning Competency Levels, Learning Objectives, & Teaching Strategies* (pg. 37), to identify related skills within the appropriate competency level and instructional strategies that will help build those skills. Then use those that you have selected to write your learning objectives.
- Learners need the opportunity to: 1) first recognize a concept or principle in practice; 2) think about it more deeply in a theoretical way that doesn't depend on the context; and 3) apply the expanded understanding to real life again. So when designing the flow of learning activities, consider starting with a focus on the action-based competency, then tie it to a corresponding theory-based knowledge statement, and finally bring the focus back to action-based application of the competency.

Continued on next page

Selecting the Instructional Strategies continued

- When choosing instructional strategies, consider that you will very likely have a variety of preferred learning styles represented among the participants. Be sure to have a balanced variety of learning activities and formats to meet the needs of most learners.
- Other factors that should influence design decisions are: length & number of sessions, group size, and room set-up.
- As you look through your options of instructional strategies, return often to the specific competencies that you intend to address and consider all of the ways that you can feasibly maximize the likelihood that most learners will be more competent in that aspect of practice as a result of having participated in the experience.
- Don't forget to use previous evaluations of similar trainings – they are an important component in improving your professional skills.

The CKC Connection

One of the most useful aspects of the CKC is that competencies in each content area are spelled out across three levels of mastery. As the professional preparation and development community begins using the leveled framework to design educational opportunities, we can expect to see:

- greater effort made to offer early childhood professionals a "full menu" of professional development opportunities covering all six content areas at all three levels of competency;
- early childhood professionals choosing professional development opportunities based on their developmental level as well as on interest and topic; and
- a better match between learners' expectations and instructors' planned learning experiences.

So do your part to get us there by incorporating the CKC framework and its language into every aspect of your work in supporting the development of early childhood professionals.

Wisdom from the Field

"Stay focused on the topic. My most successful trainings have been those that I created that were focused on one or two areas rather than on broad content."

– Denise, 16 years experience

"I created outlines for my presentations when I first started. This really helped me to make sure that those early presentations were well organized."

– Brenda, 25 years experience

"As I design workshops, I try to choose strategies that best match the audience even though I may be more comfortable with other ways of presenting. I really try to blend a combination of what I am comfortable with along with what works best for the audience."

– Tom, 10 years experience

Tips

- As much as it depends on you, be sure that any advertising of the training gives potential participants an accurate picture of what they can expect. Keeping participants engaged can be challenging enough without creating frustration by being unclear or misleading in the description of the session.
- Don't forget that many of the things we believe to be true about the way children learn is also true for us as adults!
- Use a standardized format, such as the *Sample Content Plan* on pg. 38, to plan and document content area, knowledge base, competencies, learner objectives, and instructional strategies.

Tools to Help

- Learning Styles Inventory, pg. 32
- Aligning Learning Activities & Media with Learning Preferences, pg. 34
- Guiding Questions for Selecting a Delivery Strategy, pg. 35
- Aligning Competency Levels, Learning Objectives, & Teaching Strategies, pg. 37
- Sample Content Plan, pg. 38

Notes

Introduction

Teaching does not result in learning until the person being exposed to new knowledge – new facts, concepts, procedures, theories – makes the connection with how she/he has previously believed and acted, integrates the new knowledge into her/his thinking, and uses that new knowledge in action. The more of that learning process that the instructor can facilitate during a learning session or over multiple sessions, the more likely it is that the participant will use that new knowledge in future decisions and actions. Because effective instruction is an interactive process, it involves a great deal of assessing and adapting in the moment.

Key Questions

WHERE are the learners in their understanding of the topic?

HOW well are the learners grasping the concepts and connecting concepts to practice?

WHAT adjustments do I need to make?

WHO needs special attention?

HOW can I optimize the expertise within the group?

HOW can I keep everyone engaged and minimize "derailments?"

Decisions and Actions

Making decisions in the moment can be very challenging! But the following suggestions can help you be better equipped to answer the questions that inevitably arise during training.

Establishing a Foundation for Optimal Learning

- Very early on, check participants' assessment of their own level of knowledge, skill and/or confidence in the knowledge and competencies that you will be covering. This can be done in a variety of ways, from quick and straightforward to creative and interactive. Although it's not an objective rating, it can act as a gauge to determine how close to the mark your planning will be. It can also help you quickly identify which participants may have expertise you can draw on and who may need additional support.
- Make mental note of such things as: who are the most talkative and social and who are the most reserved; participants' physical needs (e.g., tired/energetic, comfortable/uncomfortable, etc.); established relationships (co-workers, friends, etc.); attitudes about being there, about being in a formal learning environment, or toward you; the presence of anyone with physical disabilities, language barriers, or other special needs

Making the Most of What You Hear and See

- Take the mental and emotional "temperature" of the participants often. Pay attention to body language, eye contact, and facial expression. Although you can't always engage everyone all the time, do make adjustments in things like pacing, language level, duration of activities, or type of activity when you see several signs of disengagement.
- As you learn more about participants' experiences, perspectives and current knowledge/beliefs, incorporate them into the knowledge-building dialogue and activities. Explicitly link a participant's positive practice with a key concept or theory – often people don't know why they do what they do, even when it's a very positive practice!

Continued on next page

Making the Most of What You Hear and See continued

- Avert a difficult situation before it happens. Turn a potential challenge into a strength. For example, if you sense that a participant has more expertise than most others and is in danger of being bored, place them in an active role, either as a group leader or to help facilitate discussion with the group
- Do a quick evaluation of all of the hands-on activities you've planned, including icebreakers, transitions, etc.: Are they the best use of participants' valuable time? Will they be familiar and relevant to the daily practice of all of your participants? Will the activity challenge them to apply new knowledge to a familiar problem or situation? Are they necessary for participants to achieve the learning objectives? Make adjustments as you are able so that you maximize the value of every minute for participants.
- Respect the knowledge that participants bring and encourage them to take ownership of their own learning during the session. Provide opportunities for problem-solving or evaluating solutions in a systematic way, applying the new concepts you've presented.

The CKC Connection

One of the most valuable skills of seasoned instructors is the fine art of asking great questions. But in order for a question to be "just right," it needs to tap into the learners' level of competency. In Part 3 of the Guide, "Resources, and Tools," you'll find a great tool for asking appropriate questions: Aligning the CKC with Bloom's *Taxonomy of Educational Objectives*. The final row on the chart gives some sample questions that are at just the right level of knowledge- and skill-building to foster learning.

Wisdom from the Field

"One of the most challenging things about training is figuring out how to meet the needs of learners that are at vastly different levels of knowledge and competency. I try to incorporate activities that allow for small group work so that there is a variety of levels of experience and expertise in each group. This way the more veteran participants can help scaffold the learning for the less experienced."

– Jeanne, 10 years experience

"Instructors really need to be prepared for anything! Settings for the sessions may vary greatly. I have learned over the years to arrive at least 45 minutes ahead of schedule just so that I can check A/V and make room changes as needed."

– Susan, 22 years experience

Tips

- Don't be constrained by your instructional plan! Stay focused on the underlying objectives and make whatever adjustments are needed so that the most participants will meet them.
- Make sure you do all that you can to create an atmosphere in which learners can feel safe in honestly examining, reflecting on, and evaluating their own practice. Mutual respect, a ban on judgmental comments, and an attitude of "listening to learn" are all must-have values to communicate and model.

Tools to Help

- Principles of Adult Learning, pg. 40
- Aligning Competency Levels, Learning Objectives, & Teaching Strategies, pg. 37

Notes

Introduction

By its broadest definition, to evaluate is to determine the worth of something. The value of an educational experience will be judged differently, depending upon who is asked and upon the criteria that they use in their judgment. Obviously you'll want to hear from participants. But the questions you ask should closely match the learning objectives that you created from the CKC that were the focus of the learning experience. More objective assessments of learning should also be implemented when feasible. Other useful points of view are: participants' evaluation of how well their own learning goals were met; your evaluation of the experience; and the sponsors' or funders' evaluation of how well their needs and expectations were met.

Key Questions

WHAT types of feedback/evaluation will be useful?

HOW can feedback be gathered?

HOW can evaluation be used to improve future professional development opportunities?

HOW can learning be assessed and documented?

WHO needs to know evaluation results?

Decisions and Actions

The Learner's Point of View

- Evaluative feedback can be gained from participants before the session even ends. In fact, guiding them through a self-reflection activity can be valuable not only for future training, but also for participants as they think about and take ownership of their own learning.
- Use a charting activity to learn the opinions of participants about what worked during the session, what didn't, and what might have worked better. Providing the public forum generates discussion which may encourage reflection and add more depth to the feedback.
- The pre/post testing of knowledge/skills can be a valuable strategy for identifying the extent of knowledge and skills gained.
- Evaluation after the training allows participants to provide immediate feedback. Some participants may be more willing to share their thoughts on paper rather than by verbal means.
- Post evaluation that is sent to participants several weeks after sessions allows for the participants to reflect on their experiences and also to help ascertain whether knowledge has been put in to practice. Instructors can also plan post-session follow ups for participants to come back together to discuss, reflect and share their findings and experiences.

Your Point of View

- Instructors can gather feedback from several sources including post-session evaluations, verbal feedback from participants, follow-up evaluations, and their own self-reflections and observations.
- Changes made immediately to the content and or delivery strategies can help instructors use the information from the evaluations to inform delivery for the next offering of the session.
- Instructors should consider feedback that covers all areas of delivery, including content, flow of the delivery, handouts and activities.

Continued on next page

Decisions and Actions continued

The Sponsor's/Funder's Point of View

- Ask the sponsor to not only evaluate how well his/her expectations were met, but to also evaluate his/her expectations. Sponsors can then determine if the expectations were realistic and timely. This will help determine a true assessment of the session as well to help guide decisions for future requests.
- Provide the sponsor with your assessment of the participants' needs, particularly in light of the CKC. This will help assist in the creation or revision of a professional development strategy or plan.
- Observations can be conducted in early childhood settings to target competencies that were identified in the goals and objectives for the session. This will serve to illustrate whether the knowledge gained had been put in to practice.
- When possible, incorporate more formal assessments into your evaluation plan to document application of new knowledge and skills. This is an especially important component of an intensive learning experience that will occur over several sessions, in which the sponsor will likely have invested relatively more funding and resources.

The CKC Connection

Post evaluation should include some element that will illustrate whether the objectives have been met. The tool itself should either ask generally if the objectives have been met or it can specifically identify the objectives and ask how well each was met.

Application of knowledge should also be measured, whenever possible, to determine whether the content delivered was then used by the learner to change practice. This can be done by post survey, observations in the classroom, or a post-session follow up with the instructor.

Identification of Core Knowledge area, level, and specific competencies will ensure that attainment of skills has been successful. This can be done on a content plan that includes Core Knowledge areas and competencies. Use the *Sample Content Plan* on pg. 38.

Wisdom from the Field

"You will have people who, regardless of what you say, will like you. Others, regardless of what you say, may not! You often have to take a look at what 'the middle' is telling you when considering evaluation results."

– Denise, 16 years experience

"Instructors should gift themselves with the time for self-reflection. Take a few minutes at the end of the session to think about what went well, what did not, and what changes they would like to make. It will be more powerful when done right away rather than waiting months later when the session rolls out again."

– Brenda, 25 years experience

Tips

- Creating a truly useful evaluation brings to mind the old computer adage, "garbage in – garbage out!" The quality of the responses can only be as good as the quality of the questions. Consider attending a workshop or buying a resource on creating and conducting simple but high quality evaluations.
- Sharing with the sponsor your evaluation results, as well as your informal reflections of the participants' needs, attitudes, etc., can be an opportunity for you to encourage him/her to align his/her perception of training needs with a more comprehensive, long-term view of professional development.

Tools to Help

- Training Feedback Form, pg. 43
- Facilitator Self-Assessment, pgs. 45-46
- Sample Content Plan, pg. 38

Notes

Notes

Part 3

Resources and tools

Every good instructor has an ever-expanding supply of resources and tools to enhance each training and to continually build his or her own knowledge and skill as an adult educator. This section could easily be a book in itself, but because it is intended to be user-friendly and not overwhelming, a few of the most useful tools for each of the four phases of the Cycle of Instructional Development have been chosen by seasoned instructors to include as samples. Many of these tools have been formatted for reproduction. Please feel free to make copies for your own use.

Recognizing that college instructors have some considerations that are unique to their learning environment and role, we asked veteran professionals with much experience in that role to provide specific suggestions for using the Core Knowledge & Competencies in formal education settings.

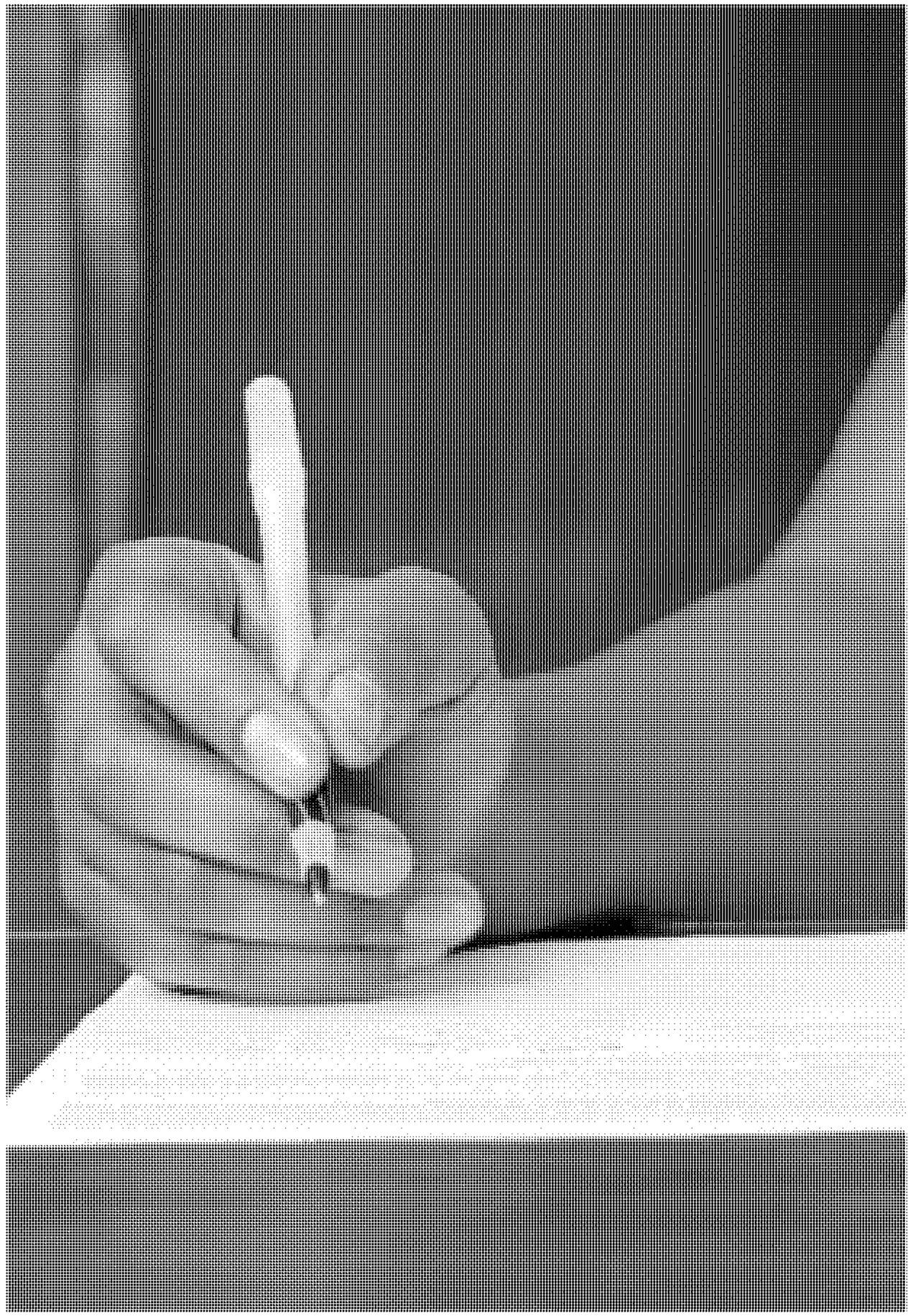
A glossary is also included that provides more information about the many agencies, initiatives, organizations and networks in Ohio that are closely connected to early childhood professional development. A list of additional resources and references has been included as well, including several that are aimed at building skills and providing creative ideas for instructors.

Finally, acknowledging that Ohio's early care and education system is always growing and changing, the Ohio Professional Development Network has created a companion website of relevant links, resources, and information to keep you up-to-date and well-equipped. The website, found at http://www.ohpdnetwork.org, also includes resources that were deemed useful but too lengthy to include in the printed Instructor Guide. As resources and tools are identified or developed, they will be added to the site, so bookmark it for easy reference.

As the section on the assessment phase of the Cycle of Instruction made clear, the wise instructor gathers as much information as possible before the design of a specific training ever begins.

Learning Styles Inventory

The chart on pg. 32 can be used to assess your own learning style, an important factor that often influences your preferences in instructional strategies. It can also be a helpful tool during the Design and Delivery phases. Use it to spark ideas for planning activities and presentation styles during a training session to cover all three learning styles. And, if you have time at the beginning of a training session, create an activity based on the chart to assess the learning styles of your audience.



Learning Styles Inventory

One of the most helpful concepts for adult educators is the understanding that people vary in the ways that they learn most readily. The concept of individual learning styles can be especially helpful for understanding your own instructional preferences as well as the learning preferences of your audience. Experts have suggested varying numbers of categories, but visual, auditory and kinesthetic/tactile are the most widely recognized. Note: Although a person's answers to the questions will probably fall across all three learning style categories, one column will likely dominate, indicating the person's primary learning style.

What Type of Learner Are You? Check the Response in each Row that Is MOST Like You			
When You Spell...	___ Do you try to see the word?	___ Do you sound out the word or use a phonetic approach?	___ Do you write the word down to find if it feels right?
When You Talk...	___ Do you dislike listening for too long? Do you favor words such as *see, picture,* and *imagine?*	___ Do you enjoy listening but are impatient to talk? Do you use words such as *hear, tune,* and *think?*	___ Do you gesture and use expressive movements? Do you use words such as *feel, touch,* and *hold?*
When You Concentrate...	___ Do you become distracted by untidiness or movement?	___ Do you become distracted by sounds or noises?	___ Do you become distracted by activity around you?
When You Meet Someone Again...	___ Do you forget names but remember faces or remember where you met?	___ Do you forget faces but remember names or remember what you talked about?	___ Do you remember best what you did together?
When You Contact People on Business...	___ Do you prefer direct, face-to-face, personal meetings?	___ Do you prefer the telephone?	___ Do you talk with them while walking or participating in an activity?
When You Read...	___ Do you like descriptive scenes or pause to imagine the actions?	___ Do you enjoy sections of dialog and conversation or do you imagine how the characters' voices sound?	___ Do you prefer action stories or find it hard to sit still long enough to read?
When You Do Something New at Work...	___ Do you like to see demonstrations, diagrams, slides, or posters?	___ Do you prefer verbal instructions or talking about it with someone else?	___ Do you prefer to jump right in and try it?
When You Put Something Together...	___ Do you look at the directions and the picture?	___ Do you read the directions out loud or ask someone to read them to you?	___ Do you ignore the directions and figure it out as you go along?
When You Need Help with a Computer Application...	___ Do you seek out pictures or diagrams?	___ Do you call the help desk, ask a neighbor or talk out loud to yourself?	___ Do you keep trying to do it or try it on another computer?
TOTAL CHECKS IN EACH COLUMN:	VISUAL LEARNER ____	AUDITORY LEARNER ____	KINESTHETIC/TACTILE LEARNER ____

Retrieved 4/9/08 from http://www.chaminade.org/inspire/learnstl.htm

Many resources are available to provide instructors with research-based teaching practices, creative ideas for learning activities, and suggestions for designing the most meaningful educational experience for a given situation and audience. Several are listed under *References and Recommended Resources* on pgs. 54-55. Four especially helpful tools are included here in full text to help you plan the most appropriate learning experience for the situation.

Aligning Learning Activities and Media with Learning Preferences

This builds on the concept of three primary learning styles or preferences introduced in the earlier *Learning Styles Inventory* and offers activities and media for each of the three learning styles.

Guiding Questions for Selecting a Delivery Strategy

There are three frequently used ways of presenting new information: lecture, demonstration, and discussion. This tool will help guide you through the process of deciding which will be most appropriate for the knowledge or information that you want to convey in your learning session.

Aligning Competency Levels, Learning Objectives & Teaching Strategies

Based on Bloom's widely recognized *Taxonomy of Educational Objectives*, the chart on pg. 37 provides practical help as you design a learning experience for participants at a specific level of competency.

Sample Content Plan

As the official planning form for Ohio's resource and referral network, this tool is widely used and recognized across the state. A sample of a completed *Content Plan* can be found online at www.ohpdnetwork.org.

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Aligning Learning Activities and Media with Learning Preferences

These activities and media are especially appropriate and appealing for each of the three learning styles. This can be especially helpful when you are considering how to design a training that will have "something for everyone."

Learning Preference: Kinesthetic	*Learning Preference: Auditory*	*Learning Preference: Visual*
• Supervised practice on the job	• Lectures	• Reading
• Simulations	• Discussions	• Diagramming
• Paper-and-pencil tests	• Demonstrations	• Creating charts and graphs
• Physical analogies	• Brainstorming	• Observing demonstrations
• Note taking	• Q&A sessions	• Training manuals
• Flowcharting	• Coaching	• Handouts
• Group projects	• Panel discussions	• Flowcharts
• Role playing	• Group or individual presentations	• Flipcharts
• Physical demonstrations	• Group projects	• Wallboards and posters
• Hands-on activities	• Small group work	• Whiteboards
• Building things	• Rhymes	• Reference materials
• Writing on flip charts or wall charts	• Acronyms	• Lists of parts or definitions
• Puzzles	• Mnemonics	• Films
• Charades	• Metaphors	• Maps
• Whiteboards	• Definitions	• Color and graphics
• Tools	• Music; songs & lyrics	• Art works
• Props	• Films	• Slides, photos & Powerpoint presentations
• Toys	• Audiovisuals	• Interactive computer simulations
• Job aids	• "War stories"	
• Interactive computer similations	• Interactive computer simulations	

Guiding Questions for Selecting a Delivery Strategy

Although there are many strategies for presenting information to learners, three of the most frequently used strategies are lecture, demonstration, and discussion. The following resource provides a number of questions to ask yourself that will help you think through the factors that will determine the most appropriate strategy for a particular learning opportunity.

Choosing a Lecture

The purpose of a lecture is to **clarify a small amount of information to a large group in a short period of time.** Lectures require a great deal of preparation time and need to be supported by various audio-visuals. The following questions will help to determine the appropriateness of a lecture:

- What knowledge, skill, or attitude needs to be learned?
- How many students need the content?
- Do all or most of the students need the content now?
- How much preparation time is available?
- Are you aware of nonverbal cues (yours or the learners')?
- Can you develop interest in the lecture?
- Are there appropriate audio-visual support systems?
- Would a handout work just as well?
- Can you devise means to ensure that more than one sense is used by students?
- Are there natural divisions that equate to 20 minutes or less?
- Would a videotape work just as well?
- Do your impromptu lectures last 5 minutes or less?
- Could you provide an outline of important parts of the lecture?
- What portion of your teaching time do you spend lecturing?
- Would a text assignment work just as well?
- Do you summarize regularly in the lecture?
- Do you pose questions in your lectures?
- Have you evaluated your lecture style by viewing/listening to a recording of yourself?

Choosing a Demonstration

The purpose of the demonstration is to **transmit process ("how-to") information to a relatively small group of students in a short period of time.** Demonstrations usually require a lot of preparation time and must be supported with various audio-visuals. Demonstrations are particularly useful in teaching skills. There are several variations of demonstrations: projects, peer tutoring, field trips, on-the-job training, simulated experiences, and videotapes, for example. The following questions should assist you in determining the appropriateness of a demonstration:

- Does the learner need to see the process?
- How many students need the content? How many need it now?
- How much preparation time is available?
- Can you tell and show the content?
- Can you appeal to other senses?
- Do you want the students to imitate you?
- Is there technical support available?
- Will the demonstration last more than 20 minutes?
- Could you use a videotape just as well?
- Can you ask questions during the demonstration?
- Can the students take notes?
- Will there be practice time for the students?
- Can the student easily identify the steps?
- Will you permit the students to ask questions?
- Is there only one right way?
- Will you support the demonstration with handouts?
- Have you evaluated your demonstration style by viewing/listening to a recording of yourself?

Choosing a Discussion

The purpose of a discussion is to **engage students in dialogic inquiry – clarifying and building knowledge through dialogue.** Discussions are limited to small groups and require considerable time. This method is particularly useful in an affective area. It promotes understanding and clarification of concepts, ideas, and feelings. There are numerous variations: role playing, debate, panel discussion, reviews, brainstorming, show-and-tell, and interviews are examples. The following questions will assist you in determining the appropriateness of a discussion:

- Do you need active involvement from the student?
- How many students need to be involved?
- Must you hear everything being said?
- How much time is available?
- Is divergent thinking a desirable end?
- Could you just as well tell them?
- Can there be more than one right answer?
- Is there time to clarify differences?
- How much control do you need?
- Can you accept the students' views?
- Can interest be aroused and maintained?
- Is there time to draw conclusions?
- Is there time to follow up?
- What needs to be tested?
- Is two-way communication necessary?
- Are checks and balances available to prevent certain students from dominating?
- Are there means to keep on topic?
- Have you evaluated your discussion facilitating style by viewing/listening to a recording of yourself?

This resource was adapted from information on the Teaching Tips section of the online resources for faculty at Honolulu Community College. http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/delivery.htm

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Aligning Competency Levels, Learning Objectives & Teaching Strategies

Not only will this chart help you write appropriate learning objectives, it will also help you select appropriate instructional strategies and give you suggestions for suitable discussion questions.

Competency Level 1		*Competency Level 2*		*Competency Level 3*	
Knowledge/ Remembering Remember, recall, or recognize information.	**Comprehension/ Understanding** Explain ideas or concepts.	**Application/Applying** Take knowledge and understanding and apply it in a new situation. Use facts, rules and principles.	**Analysis/Analyzing** Take something apart and look at it. Categorize information.	**Synthesis/Evaluating** Bring together knowledge to form a new idea and/or solve a problem.	**Evaluation/Creating** Generate new ideas or ways of looking at things.
Verbs to Consider When Writing Learner Objectives Based on Bloom's Taxonomy of Educational Objectives					
define describe identify label list name quote recall recognize record repeat reproduce select state write	defend describe discuss distinguish explain express extend generalize give examples identify paraphrase predict recognize restate rewrite summarize	apply change classify demonstrate discover examine illustrate interpret modify practice prepare produce show solve translate use	analyze arrange combine compare contrast design develop differentiate distinguish experiment illustrate outline relate select separate utilize	arrange categorize collect combine construct create design manage modify organize plan prepare rearrange reorganize revise summarize	assess choose compare conclude contrast determine estimate evaluate interpret judge justify measure revise select support
Some Types of Instructional Strategies to Consider					
analogies audio examples illustrations lecture visuals video	discussion learner presentations questions reports review writing	demonstrations exercises practice projects sketches simulations role play	case studies critical incidents discussion exercises problems questions	case studies develop plans problems projects simulations	case studies critiques exercises projects simulations
Types of Questions to Stimulate Participants' Thinking					
Who, what, where, when, how...? Describe...	Describe in your own words... How are these ideas different? Explain what happened next.	Demonstrate the way to... What would you change? How is...an example of...? How is ... related to...? Why is ... significant?	What are the parts or features of...? How does... compare or contrast with...? What evidence can you list for...? What patterns/trends do you see?	What ideas can you add to...? What solutions would you suggest for...? What do think the outcome/solution should be and why? How might...affect...? What are the exceptions?	What is the most important...and why? What criteria would you use to assess...? How would you create or design a new...? What are other interpretations? Why are there exceptions?

Sample Content Plan | Title of Presentation

Although many formats will work as a tool for writing a comprehensive instructional plan for a training, class, or coaching session, as the official planning form for Ohio's resource and referral network, this tool is widely used and recognized across the state. To see a sample of a completed *Content Plan*, visit www.ohpdnetwork.org.

Learner Objectives	*Alignment to Core Knowledge*	*Outline of Content*	*Timeframe*	*Teaching Method*
List 3 objectives for the session participants using **measurable, behavioral terms** (e.g. describe, discuss, list, demonstrate, state, explain, identify, plan, utilize, etc.) These should state knowledge or skills the participant would be able to demonstrate. You should be able to start your objective with the phrase **"At the end of this session the participant will be able to"** and have it make sense.	List the competency or competencies from the Ohio Core Knowledge & Competencies document (see the document on the **www.ohpdnetwork.org** website) that best align to the learner objective described. Cite the Core Knowledge area, sub-category, and competency number. (It is expected that 1-3 competencies might be addressed per session.)	Provide an outline of the content to be presented for each objective. Restatement of the objective is not acceptable as content.	State the number of minutes per objective. **Note: Must add up to the total minutes for the session**	Describe the teaching method and learner assessment methods to be used for each. (For example: lecture, demonstration, small group activity)

Please indicate the type of evaluation method or tool you will use for evaluation of the presentation (e.g. agency supplied evaluation form, conference evaluation form, pre-post test, participant presentation, etc.).

Being able to create a productive and positive learning experience for early childhood professionals – whether in a group or individually – requires a keen understanding of how we all learn and the ability to blend all the right "ingredients" together. Providing engaging and exciting opportunities for learners in a one-time workshop or semester-long class is an important part of the process. As a facilitator of others' learning, a key skill you need is the ability to assess where learners are in their knowledge and competence, provide a situation in which the application of new concepts or skills is just challenging enough, and give the appropriate type and amount of support to help them succeed.

Principles of Adult Learning

In this resource, 12 Principles of Adult Learning are described that are good to keep in mind as you are evaluating the level of engagement of participants in the moment.

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Principles of Adult Learning

If things just don't seem to be working during a training, run through these principles in your mind and see if there's one that provides the key to making an effective adjustment. Note: The author of the original material used the term "facilitator" and "facilitation" to connote the role of the instructor/trainer.

Readiness to Learn	Without learner readiness, there's resistance, and learning doesn't take place. The facilitator should encourage the participant to discuss his or her resistance openly. Once the nature of the resistance is understood, it can be addressed.
Active Involvement in Learning	Adults learn best when they are active participants in the learning process rather than passive recipients. People learn by doing. Allow participants to practice the skills being taught; maximize the time spent in practice and application through role play, case studies, demonstration and practice, participant presentations, and so forth.
Self-Directed Learning	Adult learners are responsible for their own learning and are capable of self-direction. The facilitator must engage the learners in a process of inquiry and decision-making and not just give information or knowledge to them.
Trial & Error	Making mistakes is another way adults learn. Success motivates adults and makes them want to learn more, but they tend to remember mistakes and want to know how to correct them. As a facilitator, allow participants to make mistakes and to learn from them. Create a safe environment for trial and error while ensuring that the successes are reinforced and the learners capture those lessons learned.
Building on Experience	Adults learn by connecting new information with what they already know, moving from the known to the unknown. Some techniques to understand the audience's knowledge and experience include pretests, icebreakers (exercise or activities that bring everyone to a common understanding), participants profiles, and soliciting pre-course information by having participants respond to the course objectives.
Sensory Learning	Although adult learners use all their senses, individuals usually have a dominant or preferred sense on which they rely for learning new things. Facilitation usually addresses the senses of sight (visual learning), hearing (auditory learning) and touch (kinesthetic learning). Visual learners must see what they're learning – for example, via graphics, printed materials, PowerPoint slides, posters, and such. Auditory learners must interact with and apply content through listening and speaking – for instance, via discussions, music, oral presentations, acronyms, and so on. Kinesthetic learners interact with and apply content in a physical way. That need can be met through hands-on practice, such as taking notes, drawing pictures, building objects, and creating flipcharts.

Less is More	Effective facilitators take complex or new material and organize it in a simple way so participants can easily understand and apply the new information and skills. To manage the amount of material, content should directly align with specific learning objectives; content that doesn't fit those objectives should not be included. This allows time for skill practice and reinforcement.
Building on Theory	Helping participants understand why the learning is important and putting it in context make the learning easier. Adults want theory presented in the context of applicability to the job and to real-life situations. Facilitators need to make clear the course's relevance to the learners' situations. They must be able to link the course objectives and content to the adult learners' need to know.
Practice	Adults want to learn things that will help them solve a problem, do a task, or prepare for a position. Therefore, a key learning ingredient is practice, which not only increases proficiency but also increases the probability of retention.
"First Crack"	Training must be facilitated so that learners can get "first crack" at discovering the content as much as possible. If they know at least something about the content, then a discussion or activity is appropriate – not a lecture during which they remain passive.
Feedback	Adults want and need feedback. Facilitators can give it through knowledge testing, skill practice checklists, role play, and case studies. Peer learners and you as facilitator can provide feedback on participants' comments as they are made or during debriefing activities.
Individual Differences	Every participant brings a unique background, perspective, and set of personal biases, and each one learns differently. In addition, every adult learns at his or her own pace. Your job is to bring the slower learners along while challenging the faster learners. Individual differences become greater with age and experience, including differences in learning style, time and place of learning, and depth of knowledge and expertise. Facilitators must accommodate different learning styles and depth of knowledge.

Reprinted with permission, *Facilitation Skills Training*, McCain & Tobey, 2007.

Many great evaluation forms and tools are available to use. Here we include two complete evaluations that you may reproduce and use in your own work.

Training Feedback Form

This is a fairly standard form that would be used for a learning experience that followed a workshop format. Feel free to adapt it to your own needs. And remember, the better the questions, the more helpful the feedback.

Facilitator Self-Assessment

This rating scale is a tool for you to use to assess yourself on six skills that every good instructor, trainer, or coach/mentor must possess: credibility, creating a learning environment/climate, communication, presentation/facilitation, use of instructional/learning strategies, and use of media. Honestly assess your skills regularly and make a plan for improving those skills that are weak.

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Training Feedback Form

Name

Address

City State Zip

Email Phone

Instructor

Date

Organization

Location of Training

1. Please rate the content of the training by circling the number that is most appropriate.

	Definitely Not				Definitely So
The material is interesting.	1	2	3	4	5
It's relevant to my work.	1	2	3	4	5
It has benefited me personally.	1	2	3	4	5
It will benefit my work.	1	2	3	4	5

2. Please rate the instructor by circling the number that is most appropriate.

	Definitely Not				Definitely So
The instructor was prepared.	1	2	3	4	5
She/he maintained my interest.	1	2	3	4	5
She/he showed mastery of the material.	1	2	3	4	5
She/he encouraged my participation.	1	2	3	4	5
She/he changed my perspective.	1	2	3	4	5

3. Other comments:

4. Suggestions for improving the learning experience:

Notes

Facilitator Self-Assessment

Instructions: The following is a list of behaviors involved in effective facilitation skills. Given your level of experience in each of these skill areas, rate your ability to demonstrate these behaviors by circling the number that is most appropriate.

1– Very Little or No Ability: I have never done this and I know nothing about it.
2– Average Ability: I have done this once or twice but feel that I have a lot to learn.
3– Above-Average Ability: I have done this several times; I understand the principles behind it and do it well.
4– Great Deal of Ability: I am so good at this that I could teach others.

Credibility

1. I demonstrate appropriate personal and professional behavior.	1	2	3	4
2. I demonstrate subject content knowledge (depth and breadth).	1	2	3	4
3. I make linkages to organizational realities.	1	2	3	4

Learning Environment and Climate

4. I involve participants in establishing and maintaining the learning environment.	1	2	3	4
5. I use opening (warm-up) activities to gain participant involvement.	1	2	3	4
6. I manage group interaction, draw in quiet participants, and manage participants who try to monopolize the interaction.	1	2	3	4
7. I integrate adult learning principles into the course delivery.	1	2	3	4

Communication Skills

8. I use appropriate verbal and nonverbal communication methodology.	1	2	3	4
9. I use examples that are familiar to participants.	1	2	3	4
10. I provide complete and timely feedback to participants.	1	2	3	4
11. I provide time for participants to structure/frame and ask question and voice concerns or issues.	1	2	3	4

Presentation/Facilitation Skills

12. I effectively use my voice (tone, projection, inflection), gestures and eye contact.	1	2	3	4
13. I effectively use examples, such as stories and personal experiences, as well as humor.	1	2	3	4
14. I effectively use various questioning techniques.	1	2	3	4

Continued on next page

Facilitator Self-Assessment continued

15.	I effectively paraphrase or restate participants' questions, comments and observations in an effort to make sure I (and the other learners) understand.	1	2	3	4
16.	I promote participant discussion and involvement.	1	2	3	4
17.	I keep discussions on topic and activities focused on outcomes.	1	2	3	4
	Instructional/Learning Strategies				
18.	I implement a variety of instructional or learning strategies (such as guided discussions, case studies, role play, small group work with feedback, and assessments).	1	2	3	4
19.	I plan and facilitate debriefs so that all learning is processed.	1	2	3	4
20.	I adjust activities, time, pace, content, and sequencing to accommodate specific learners' needs.	1	2	3	4
	Media				
21.	I effectively use media (video, overheads, computer projection,wallboards, props, and flipcharts) as needed.	1	2	3	4
22.	I demonstrate an ability to substitute, change, or add media as needed.	1	2	3	4

In this final section of resources, we've included general information that we hope you'll find helpful.

Tips for College Instructors

We've asked two veteran college faculty who have taken the initiative to implement the CKC in their early childhood teacher preparation programs to share strategies and tips for their higher education colleagues.

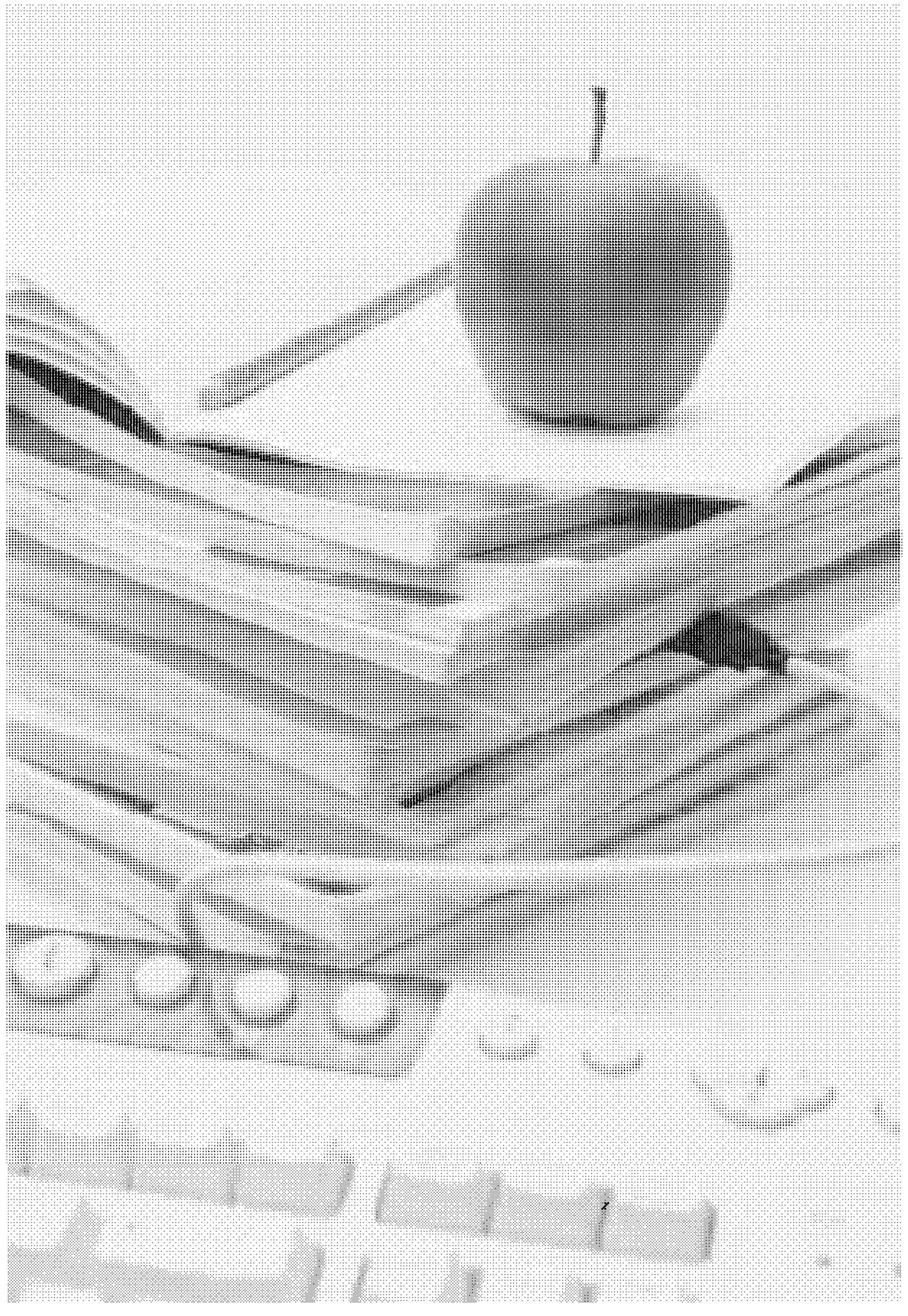
Glossary

Acronyms and program brand names abound in Ohio's early childhood professional development landscape. This glossary includes descriptions of many of the most common acronyms and brand names currently in use, including state and national agencies and organizations, statewide programs, assessment instruments, and related resources.

References and Recommended Resources

Two lists have been provided by the professional development experts who made up the writing teams that developed the CKC Instructors' Guide:

- references used in the compilation of the Guide; and
- resources recommended for trainers and other professional development specialists.



Tips for College Instructors

Institutions of higher learning in Ohio play a crucial role in the preparation of an early childhood professional workforce that is knowledgeable and competent in all areas of practice. As a framework and source of common language for viewing early childhood professional practice, *Ohio's Early Childhood Core Knowledge & Competencies* is a document that can serve the community of 2- and 4-year early childhood teacher educators in many ways. The following suggestions were provided by faculty who teach early childhood education students in Ohio colleges and who have discovered valuable ways to incorporate the CKC into their work. We share them with you as ideas that we hope will inspire your own use of the CKC and will encourage discussions among colleagues, within and outside of higher education, about better serving the educational needs of the early childhood professional community.

At the Course Level:

- Use the CKC to write learner objectives and outcomes, matching the level of the competencies to the level of the course within the degree program.
- Develop student assessments based on CKC competencies, whether written, observation-based, or portfolio-based.
- Use the competencies to design relevant field experiences, assignments and assessments.
- Informally assess students' competency level at the beginning of a course to determine the need to adjust instruction.
- For courses in program administration, use the CKC competencies in developing staff job descriptions and performance evaluations.
- For beginning courses, introduce the concept of early childhood professional dispositions (pg. 4, CKC).

At the Program Level:

- Use the CKC to evaluate your current courses to ensure that all content areas are adequately addressed and at all levels of competency appropriate to the degree(s) offered.
- Use the CKC as a self-assessment tool for faculty to identify their own strengths and areas of expertise and to identify content areas that should be emphasized when recruiting new faculty.
- Use the CKC framework to develop new courses to fill any gaps identified in the evaluation process.
- Use Appendix D in the CKC (pgs. 51-57) to inform faculty and administrators of the alignment of the six content areas with NAEYC Professional Preparation Standards for degree programs, as well as NAEYC accreditation standards for early childhood programs and DEC recommended practices.
- Use the Professional Development content area in the CKC to identify strategies for encouraging a sense of professionalism among all ECE students (e.g., requiring membership in a professional organization or supporting a student chapter of a professional organization).
- Use the CKC to develop a student assessment that would track each student's progress from entry into the program to graduation.

At the System Level:

- Use the CKC as a tool to facilitate discussions regarding articulation:
  - between programs offering the same degree level;
  - from 2-year to 4-year programs; and
  - of non-credit professional development.
- Use the CKC as a recruitment tool, to inform potential students of demands of the profession and of the nature of professional preparation.

Glossary

The following list includes terms, titles and acronyms that you are likely to encounter in working within various sectors of Ohio's Early Care and Education community. It is intended to be useful and informative but not all-inclusive. We've also included a link to each entry's website, as applicable, so that you can find out more information and access further resources.

Ages and Stages Questionnaire (ASQ) - ASQ is a low-cost, reliable tool for screening children for developmental delays during the crucial first 5 years of life. Parents complete the simple questionnaires, and the results alert professionals when a child needs more in-depth assessment. http://www.agesandstages.com

Career Pathways Model - The Career Pathways model uses one framework to integrate the pathways of formal education, training, experience, and specialized credentials and certifications for all early childhood professionals. Early childhood professionals accumulate "Points" along each of four pathways -- formal education; inservice training and continuing education; experience; and credentials and certifications. Total points assign the early childhood professional to one of 6 professional designations. **The Professional Development Registry** serves as the common tool that allows professionals in the early childhood field to document and quantify their professional growth and accomplishments, and by doing so to define and advance the profession. In addition, it will allow Ohio to have an up to the minute picture of the early childhood workforce. Information will be provided to professionals, through the registry, that assists them with advancing on the career pathways. Note: The six professional levels of the Career Pathways Model are the basis for the CKC competency levels. See page 5 of the CKC document for further explanation. http://www.ohpdnetwork.org/?wid=1

CDA - The Child Development Associate is a national credentialing program administered by the Council for Early Childhood Professional Recognition in Washington, DC that is designed to enhance the quality of child care. The CDA Credential is awarded to individuals who have completed the national CDA requirements and who have proven their competence to work with young children and their families through a process of on-the-job performance evaluations, review by other early childhood professionals, and successful completion of an assessment by the national Council for Early Childhood Recognition. http://www.ndchildcare.org/training/cda.htm

[Ohio's Early Childhood] Core Knowledge & Competencies - Developed by the Ohio Professional Development Network (OPDN), The Ohio Core Knowledge & Competencies for Early Childhood Professionals is based on the understanding that there are critical areas of knowledge and skills that are necessary for early childhood professionals to have if young children are to thrive under their care and strives to clearly communicate the nature of these critical areas of professional practice. http://www.occrra.org/core_knowledge/CoreKnowledge.pdf

The Devereux Early Childhood Assessment (DECA) - Is a nationally normed assessment of within-child protective factors in preschool children aged two to five. Based on resilience theory, this comprehensive system is made up of a 5-step system designed to support early childhood teachers, mental health professionals, and parents in their goal of helping children develop healthy social/emotional skills and reduce challenging behaviors. http://www.devereux.org/site/PageServer?pagename=deci_preschool

Early Childhood Quality Network (ECQ-Net) - Located at The Ohio State University and housed within a center in the College of Education. Q-Net staff and consultants are drawn from several previous Federal and state funded projects that provided training and technical assistance to Head Start grantees and early childhood programs. Their services include Consulting Services and Technology Services to early childhood organizations and agencies at the state, regional, and national levels. http://www.ecqnet.org/ecq/res.cfm

Glossary

[Ohio] Early Learning Content Standards (OELCS) - Provide the guidance required to help all of Ohio's youngest children enter kindergarten ready for success. These standards describe the knowledge and skills that can serve as a foundation for meaningful early learning experiences. They are aligned with kindergarten through grade 12 and thus provide a from preschool grade connections, teaching strategies and transaction practices. In December 2003, the State Board of Education adopted these standards, an important step in the creation of seamless P-12 education system. http://www.ode.state.oh.us

[Ohio] Early Learning Program Guidelines - The guidelines were developed to provide a framework for all programs funded through ODE to better meet the educational needs of children whom they serve. The guidelines delineate the desired outcomes, goals and indicators of early learning programs. http://www.ode.state.oh.us/GD/DocumentManagement/DocumentDownload.aspx?DocumentID=748

Early Learning Initiative (ELI) - A collaboration between the Ohio Department of Education (ODE) and The Ohio Department of Job and Family Services (ODJFS) that is designed to provide children, often identified as at risk of school failure, with educational experiences that will help them enter kindergarten ready for success.http://jfs.ohio.gov/cdc/docs/earlylearninginitiative.pdf

Environment Rating Scales - There are four environment rating scales, each designed for a different segment of the early childhood field.

- Each one of the scales has items to evaluate: Physical Environment; Basic Care; Curriculum; Interaction; Schedule and Program Structure; and Parent and Staff Education.
- The scales are suitable for use in evaluating inclusive and culturally diverse programs.
- The scales have proven reliability and validity.

The scales are designed to assess process quality in an early childhood or school age care group. Process quality consists of the various interactions that go on in a classroom between staff and children, staff, parents, and other adults, among the children themselves, and the interactions children have with the many materials and activities in the environment, as well as those features, such as space, schedule and materials that support these interactions. Process quality is assessed primarily through observation and has been found to be more predictive of child outcomes than structural indicators such as staff to child ratio, group size, cost of care, and even type of care, for example child care center or family child care home (Whitebook, Howes & Phillips, 1995). http://www.fpg.unc.edu/~ecers/

- **Infant/ Toddler Environment Rating Scale (ITERS)** Designed to assess group programs for children from birth to 2½ years of age
- **Early Childhood Environment Rating Scale (ECERS)** Designed to assess group programs for children of preschool through kindergarten age, 2½ through 5.
- **Family Day Care Environment Rating Scale (FDCERS) –** Designed to assess family child care programs conducted in a provider's home for children from infancy through school-age.
- **School Age Care Environment Rating Scale (SACERS)** Designed to assess group-care programs for children of school age 5 to 12.

First Steps - Ohio's Infant/Toddler Initiative, consists of twenty-four infant/toddler specialists who are housed in the resource and referral agencies around the state. All of the infant/toddler specialists were trained in and receive ongoing support to maintain rater reliability on the Infant Toddler Environment Rating Scales (ITERS) assessment tool. Specialists are also certified as trainers in the Program for Infant Toddler Caregivers. http://www.occrra.org/firststeps.htm

Glossary

Get It Got It Go! (GGG) - An assessment tool for measuring the developmental growth of young children and determine if intervention is necessary. This tool communicates and collaborates about a child's progress over time and about intervention plans to improve child outcomes. Get it Got it Go! is part of the Center for Early Education Development in the College of Education and Human Development at the University of Minnesota. Get it Got it Go! is funded by the U.S. Department of Education. http://cehd.umn.edu/ceed/projects/ggg/default.html

Head Start - The Head Start program provides comprehensive developmental services for America's low-income, preschool children ages three to five and social services for their families. Head Start provides diverse services consistent with goals for: education, health, parent involvement and social services. Also includes American Indian Head Start, Migrant Head Start, and Early Head Start, which expands the benefits of early childhood development to low-income families with children under three and to pregnant women. Grants to conduct Head Start programs are awarded to local public or private not-for-profit, or for-profit agencies. The Head Start Bureau, ACF is responsible for administering this program. http://www.acf.dhhs.gov/programs/hsb

Help Me Grow (HMG) - HMG is Ohio's birth to 3 systems that provides state and federal funds to county Family and Children First Councils to be used in conjunction with state, local and other federal fund to implement and maintain a coordinated, community-based infrastructure that promotes trans-disciplinary, family-centered services for expectant parents, newborns, infants and toddlers and their families. The Ohio Department of Health, Bureau of Early Intervention Services is the lead agency administering the Help Me Grow program in Ohio. http://www.ohiohelpmegrow.org

[Ohio's] Infant and Toddler Guidelines - The Infant and Toddler Guidelines provide knowledge of how young children progress through three distinct ages of infancy and where they stand developmentally The guidelines are designed to be utilized for three broad yet critically important constituencies: parents, providers and policy makers, and are intended to strengthen our ability to provide responsive, reciprocal and respectful care. http://www.occrra.org/inf-todd/Files/InfantToddlerGuides.pdf

KRA-L - The Ohio Department of Education (ODE) has developed a brief assessment tool, the Kindergarten Readiness Assessment – Literacy (KRA-L) that will help teachers identify early reading skills. The KRA-L is required of all children entering kindergarten in public schools for the first time. It is not required for children being retained in kindergarten. The assessment measures skill areas important to becoming a successful reader. It also helps teachers plan for experiences and lessons that encourage reading. http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEDetail.aspx?page=3&TopicRelationID=1366&ContentID=3930&Content=38077

National AfterSchool Association (NAA) - National AfterSchool Association is the only national professional association for the afterschool field. With over 9,000 members and 36 state affiliate organizations, NAA represents the voice of the afterschool field in the areas of professional development, program quality, public policy and current issues affecting children and youth in their out of school time. NAA's membership includes practitioners, policy makers, researchers, and administrators representing all public, private, faith-based, school-based and community-based sectors. NAA's members work in school age child care programs, 21st Century Community Learning Centers, Boys and Girls Clubs, YMCA's, 4H, Parks and Recreation Departments, and other before school, after school and summer programs. http://www.naaweb.org/

National Association for the Education of Young Children (NAEYC) The National Association for the Education of Young Children is dedicated to improving the well-being of all young children, with particular focus on the quality of educational and developmental services for all children from birth through age 8. NAEYC is committed to becoming an increasingly high performing and inclusive organization. Founded in 1926, NAEYC is the world's largest organization working on behalf of young children with nearly 100,000 members, a national network of over 300 local, state, and regional Affiliates, and a growing global alliance of like-minded organizations. Membership is open to all individuals who share a desire to serve and act on behalf of the needs and rights of all young children. http://www.naeyc.org.

Glossary

National Association for Family Child Care (NAFCC) - The National Association for Family Child Care is a non-profit organization dedicated to quality child care by strengthening the profession of family child care. NAFCC is dedicated to advocating for the family child care profession by collaborating with other local, state and national organizations who contribute to the family child care field to increase awareness about and improve the quality of family child care. http://www.nafcc.org/include/default.asp

National Child Care Information and Technical Assistance Center (NCCIC) - Is a service of the Child Care Bureau, Office of Family Assistance, that serves as a national clearinghouse and technical assistance center that links parents, providers, policy-makers, researchers, and the public to early care and education information. http://www.nccic.org/statepro.html

Ohio Afterschool Network (OAN) - Serves as a vehicle to positively impact the afterschool environment in by bringing together a number of systems and stakeholders, including policymakers, educators, parents and service providers in communities to advocate with a unified voice for sustainable investments in safe, healthy, nurturing afterschool learning experiences. http://www.ohioafterschoolnetwork.org

The Ohio Association for the Education of Young Children (Ohio AEYC) - The state affiliate of NAEYC, Ohio AEYC has nearly 4,000 members. Ohio AEYC is a statewide organization of early care and education professionals, with 15 local affiliates around the state, whose mission is to advocate for the early childhood workforce, quality care and education for young children and families; and provide leadership and professional development opportunities for the early care and education community. http://www.oaeyc.org

The Ohio Child Care Resource & Referral Association (OCCRRA) - Is a statewide association for child care resource and referral agencies (CCR&Rs). OCCRRA's membership consists of community-based child care resource & referral agencies providing services to families, early childhood professionals, and communities throughout Ohio. Along with direct services to over 40,000 Ohio families each year, Ohio CCR&Rs are involved in community activities which improve child care for all children. This includes efforts to improve laws, regulations, policies and funding. http://www.occrra.org/index.html

Ohio Family and Children First (OFCF) - Is a partnership of state and local government, communities and families that enhances the well-being of Ohio's children and families by building community capacity, coordinating systems with internal and external communication that promotes the existence and work of the FCFCs as well as implementation strategies for county initiatives utilizing media literacy, media advocacy, and social marketing to engage and empower families. http://www.ohiofcf.org

The Ohio Head Start Association, Inc. (OHSAI) - As a professional organization, OHSAI is dedicated to advocacy, training and providing support which enhances and fosters growth of individual members, member agencies, partners and others who impact the lives of children and families. http://www.acf.hhs.gov/programs/hsb/index.html

The Ohio Professional Development Network (OPDN) - Provides a forum for input and involvement of early childhood and afterschool advocacy and professional organizations, and their public and private partners to examine early childhood professional development initiatives. This collaborative partnership continues its efforts to strengthen and build a system that provides support for the continued growth, learning, and advancement of early childhood professionals in Ohio. http://www.ohpdnetwork.org

Program Administration Scales (PAS) - The PAS is designed to measure the quality of leadership and management practices of center-based early childhood programs in ten areas: human resources development, personnel cost and allocation, center operations, child assessment, fiscal management, program planning and evaluation, family partnerships, marketing and public relations, technology, and staff qualifications. The profile generated by completing the PAS provides a snapshot of the current quality of a program from an organizational perspective as well as clear guidelines for incrementally improving administrative practices. The tool was developed by McCormick Tribune Center for Early Childhood http://cecl.nl.edu/training/pas.htm#option5

Glossary

Ready to Learn - Ohio Ready to Learn is a service provided by all of Ohio's eight public television stations. In addition to children's programming specially designed to meet the educational needs of preschool and school-age children, Ready to Learn also offers professional development workshops, seminars and resource materials particularly designed for Family Child Care professionals. These professional development opportunities are funded by ODJFS and are offered at no cost to participants. http://www.oets.org

Research Connections - Research Connections is a unique resource that promotes high quality research and the use of that research in policymaking. Through a free, easy to use website, one can quickly search the full text of thousands of resources relevant to the field of child care and early education. Interactive tools allow users to refine their searches, download full text documents, build customized tables on state policies, compare state demographics, and analyze research data online. This comprehensive and unbiased collection includes scholarly research, policy briefs, government reports, data, and instruments from a wide range of disciplines and sources, including multiple federal agencies. Research Connections compiles and distributes bibliographies, develops issue briefs, and synthesizes research on key topics. http://www.researchconnections.org

Resource and Referral Agencies (R&R) - A statewide network of child care resource and referral agencies that provide services to families, child care providers, employers, and the community. http://www.occrra.org/index.html

Standards of Care & Teaching for Ohio's Infant & Toddlers This document identifies what is foundational and essential for programs in supporting the development and learning of infants and toddlers. It is one of three resources focused on infant and toddler caregiving. The first, *Ohio's Infant & Toddler Guidelines*, focuses on care and learning from the perspective of the child. The third resource to be developed will be Ohio's Standards for Professional Practice, will address the care and learning of infants and toddlers from the perspective of the early childhood professional.

State Support Teams (ODE) - The 16 State Support Teams are responsible for the regional delivery of school improvement, literacy, special education compliance, and early learning and school readiness services to districts using the Tri-Tier Model, a differentiated technical assistance structure of support based upon need. Note: The State Support Teams are undergoing restructuring at the time this writing. Please visit the website and/or contact your local SST for updated information about available services. http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEPrimary.aspx?Page=2&TopicRelationID=624

Step Up To Quality (SUTQ) - Ohio's voluntary Three-Star Quality Rating System that recognizes and promotes early care and education programs that meet quality benchmarks over and above minimum health and safety licensing standards. The steps are based on national research identifying the key benchmarks that lead to improved outcomes for children. These benchmarks include low child to staff ratios, group size, accreditation, staff education, specialized training, improved workplace characteristics and early learning standards. http://www.stepuptoquality.org

21st Century Community of Learning Programs - This program supports the creation of community learning centers that provide academic enrichment opportunities during non-school hours for children, particularly students who attend high-poverty and low-performing schools. The program helps students meet state and local student standards in core academic subjects, such as reading and math; offers students a broad array of enrichment activities that can complement their regular academic programs; and offers literacy and other educational services to the families of participating children. http://www.ed.gov/programs/21stcclc/index.html

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This list of references was used by the professional experts on the writing team to develop the Instructor Guide. References in bold are comprehensive resources for instructors.

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Recommended Resources for Instructors

These resources are recommended for trainers and other professional development experts by the Instructor Guide writing teams.

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Visit the Ohio Professional Development Network website for additional resources, forms, tools, and much more!! http://www.ohpdnetwork.org/

The Writing Teams

Many committed, talented and knowledgeable people contributed their time and expertise to the development of this resource. As with the Core Knowledge & Competencies document, writing teams made up of a cross-section of professional development experts worked diligently to ensure that this document would be relevant, current, and useful to Ohio's early childhood professional development community.
A special thank you for the hard work of the following writing team members (leaders' and facilitators' names are bolded).

Rita Brinkman	Sidney City Schools	Betsy Loeb	Action for Children
Zoe Brown	HS Region V TA Network	**Danette Lund**	**Early Childhood Resource Center**
Cheryl Buecker	Edison State Community College	**Jackie Messinger**	**Action for Children**
Marie Economos	OSU Extension	Mary Ellen Monroe	Child Care Connection
Wendy Grove	**ODH/Help Me Grow**	Gail Nelson	Starting Point
Lea Ann Hall	OSU Child Care Center	Sandy Owen	Cincinnati State Tech./Comm. College
Kathy Hills	ODJFS	Marie Pashi	Cincinnati-Hamilton Co. CAA
Jerri Helmreich	**Consultant**	Pam Perrino	Raymond John Wean Foundation
Christy Johnson	Akron Area AEYC	Sam Sprinkle	Ohio Dept. of MR/DD
Janet Keller	4C	Julie Stone	OHSAI
Roxanne Lange	Child Care Connections	Katrice Wright	Action for Children

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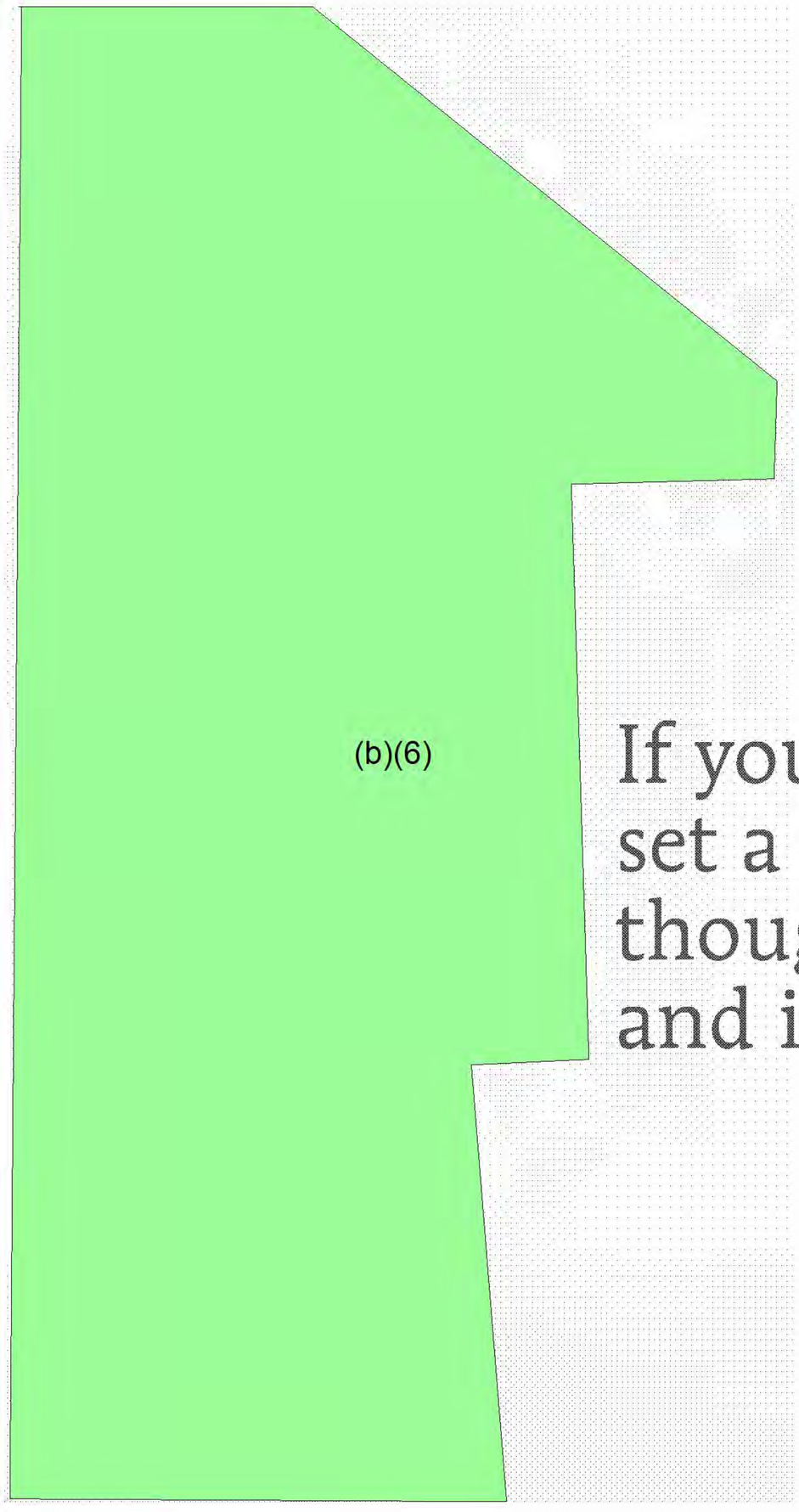

If you want to be happy,
set a goal that commands your
thoughts, liberates your energy
and inspires your hopes.

– ANDREW CARNEGIE

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877.547.6978 | www.ohpdnetwork.org

Ohio Professional Development Network

Career resources for early childhood & afterschool professionals

Attachment E: Measuring Outcomes and Progress

E1

Kindergarten Readiness Assessment-Literacy (KRA-L) Summary of State Results

Rationale: Supportive Evidence for Section IV(A)(1) and (E)(1). The document summarizes six years of data from Ohio's existing Kindergarten Entry Assessment (KRA-L) for all Ohio students statewide as well as disaggregated KRA-L results for kindergarten students with high needs.

Referenced in:

IV(A)(1) and (E)(1)

Kindergarten Readiness Assessment Literacy (KRAL)
Summary of State Results
Office of Early Learning & School Readiness
Ohio Department of Education

The Kindergarten Readiness Assessment-Literacy (KRAL) is designed to assist educators in the evaluation of young children's literacy skills at the beginning of the kindergarten year. The KRAL measures six elements or essential indicators of success: answering questions, sentence repetition, rhyming identification and rhyming production, letter identification and initial sounds. The KRAL may not be used to determine entrance or placement in kindergarten. Students receive a composite score (on a scale from 0-29) which is reported to ODE. The composite scores may fall within three score bands. Each of the score bands has been designed to guide decisions about further assessment and instruction for individual children and groups of children. The composite score band definitions are below.

Table: Summary of State Level Results for Kindergarten Readiness Assessment Literacy (KRAL)

Test Administration Year	Number of K Children with Valid KRAL Score	Mean Composite Score	Percentage and Number of K Children within each KRAL Composite Score Band		
			Band 1 (Composite Scores 0-13)	Band 2 (Composite Scores 14-23)	Band 3 (Composite Scores 24-29)
Fall 2005 (FY2006)	124,862	19.60	21.59% (26,959)	41.56% (51,886)	36.85% (46,017)
Fall 2006 (FY2007)	123,880	19.60	22.22% (27,524)	40.91% (50,686)	36.87% (45,670)
Fall 2007 (FY2008)	122,786	19.73	21.82% (26,789)	40.61% (49,869)	37.57% (46,128)
Fall 2008 (FY2009)	124,133	20.19	19.87% (24,661)	39.38% (48,878)	40.76% (50,594)
Fall 2009 (FY2010)	125,179	20.34	19.24% (24,083)	39.04% (48,867)	41.72% (52.229)
Fall 2010 (FY2011)	124,518	20.30	19.40% (24,158)	39.62% (49,335)	40.98% (51,025)

Band Definitions

Each of the bands guides decisions about further assessment and instruction.
Band 1 – Assess broadly for intense instruction
Band 2 – Assess for targeted instruction
Band 3 – Assess for enriched instruction

Student Scores by Year on the Ohio Kindergarten Readiness Assessment for Literacy (KRA-L) Average and Percent by Band with Demographics

Fiscal Year		Students with Disabilities	Students without Disabilities	English Language Learners	Not Identified as English Language Learners	Economically Disadvantaged	Non-Economically Disadvantaged
FY2006	N	9,790	115,044	2,995	121,839	43,240	81,594
	$\bar{x}$	14.4	20.1	12.5	19.9	16.9	21.2
	Band 1	48.1%	19.3%	57.3%	20.7%	34.7%	14.6%
	Band 2	38.7%	41.8%	31.7%	41.8%	44.1%	40.2%
	Band 3	13.3%	38.9%	11.1%	37.5%	21.2%	45.1%
FY2007	**N**	9,862	113,987	3,231	120,618	42,636	81,213
	$\bar{x}$	13.8	20.1	12.1	19.8	16.8	21.1
	Band 1	51.5%	19.7%	58.3%	21.2%	35.3%	15.4%
	Band 2	36.6%	41.3%	32.9%	41.1%	43.9%	39.4%
	Band 3	12.0%	39.0%	8.7%	37.6%	20.8%	45.3%
FY2008	**N**	10,393	112,480	3,468	119,305	46,986	75,787
	$\bar{x}$	14.0	20.3	12.3	19.9	16.9	21.5
	Band 1	50.7%	19.5%	59.2%	20.7%	34.4%	14.0%
	Band 2	37.2%	40.9%	31.5%	40.9%	44.2%	38.4%
	Band 3	12.1%	39.9%	9.4%	38.4%	21.4%	47.6%
FY2009	**N**	11,329	112,804	3,581	120,552	55,255	68,878
	$\bar{x}$	14.2	20.8	12.8	20.4	17.8	22.1
	Band 1	49.3%	16.9%	55.4%	18.8%	30.2%	11.6%
	Band 2	37.1%	39.6%	33.7%	39.5%	43.5%	36.1%
	Band 3	13.6%	43.5%	10.9%	41.6%	26.3%	52.4%
FY2010	**N**	8,498	116,681	3,571	121,608	49,551	75,628
	$\bar{x}$	14.7	20.8	12.4	20.6	17.9	21.9
	Band 1	45.9%	17.3%	58.0%	18.1%	29.5%	12.5%
	Band 2	37.8%	39.1%	32.3%	39.2%	43.7%	36.0%
	Band 3	16.3%	43.6%	9.6%	42.7%	26.9%	51.4%
FY2011	**N**	8,684	115,834	4,064	120,454	51,241	73,277
	$\bar{x}$	14.6	20.7	12.6	20.5	17.7	22.1
	Band 1	46.0%	17.4%	56.8%	18.1%	30.2%	11.9%
	Band 2	38.7%	39.7%	33.8%	39.8%	44.5%	36.2%
	Band 3	15.3%	42.9%	9.4%	42.0%	25.3%	51.9%

Note: N=Number of Kindergarten Students; $\bar{x}$ = Mean

E2

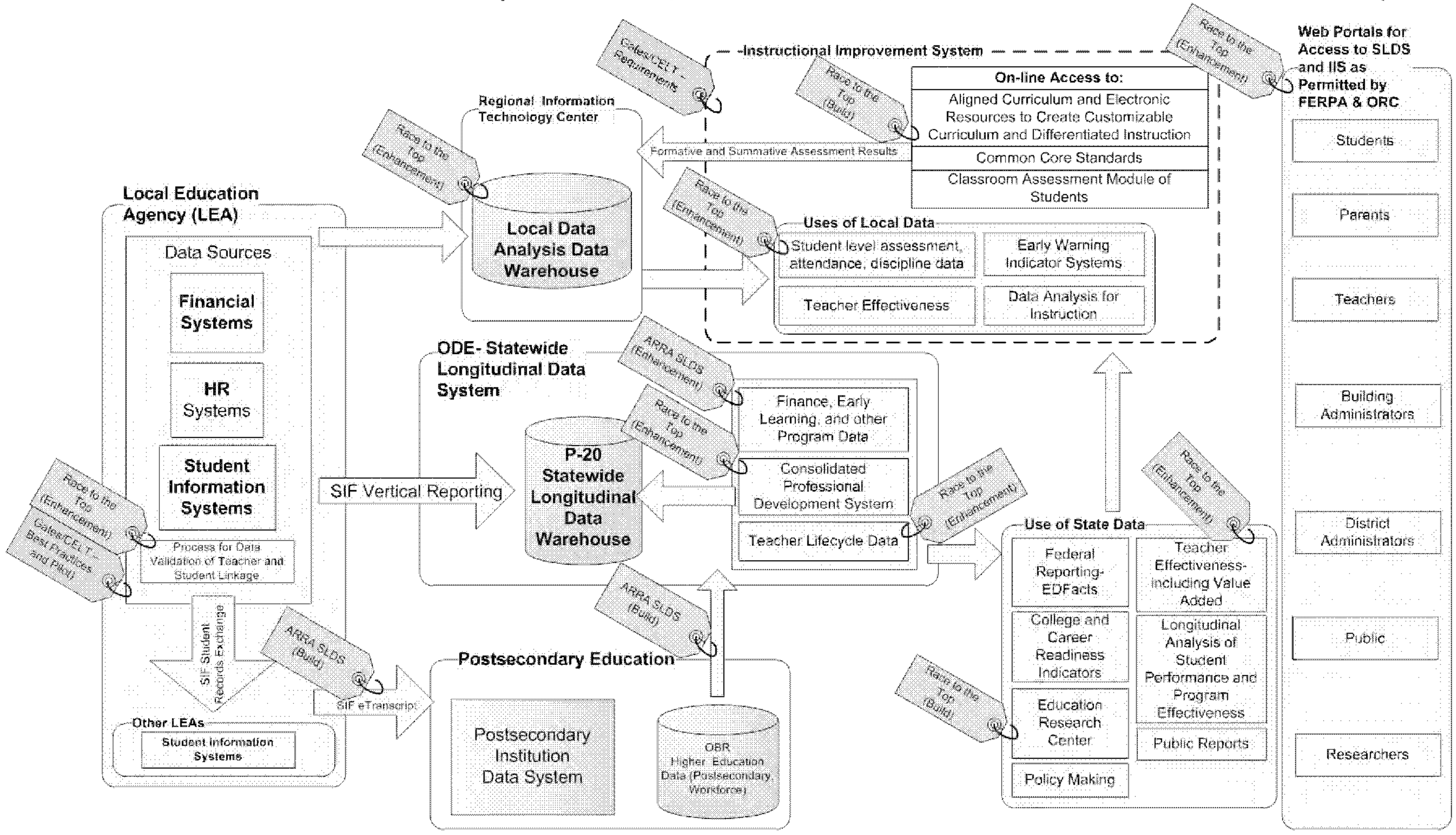
Ohio's State Longitudinal Data System

Rationale: Supportive Evidence for Section IV(E)(2). The document provides a diagram and overview of the components and investments for Ohio's State Longitudinal Data System P-20 which will be interoperable with the early learning data systems.

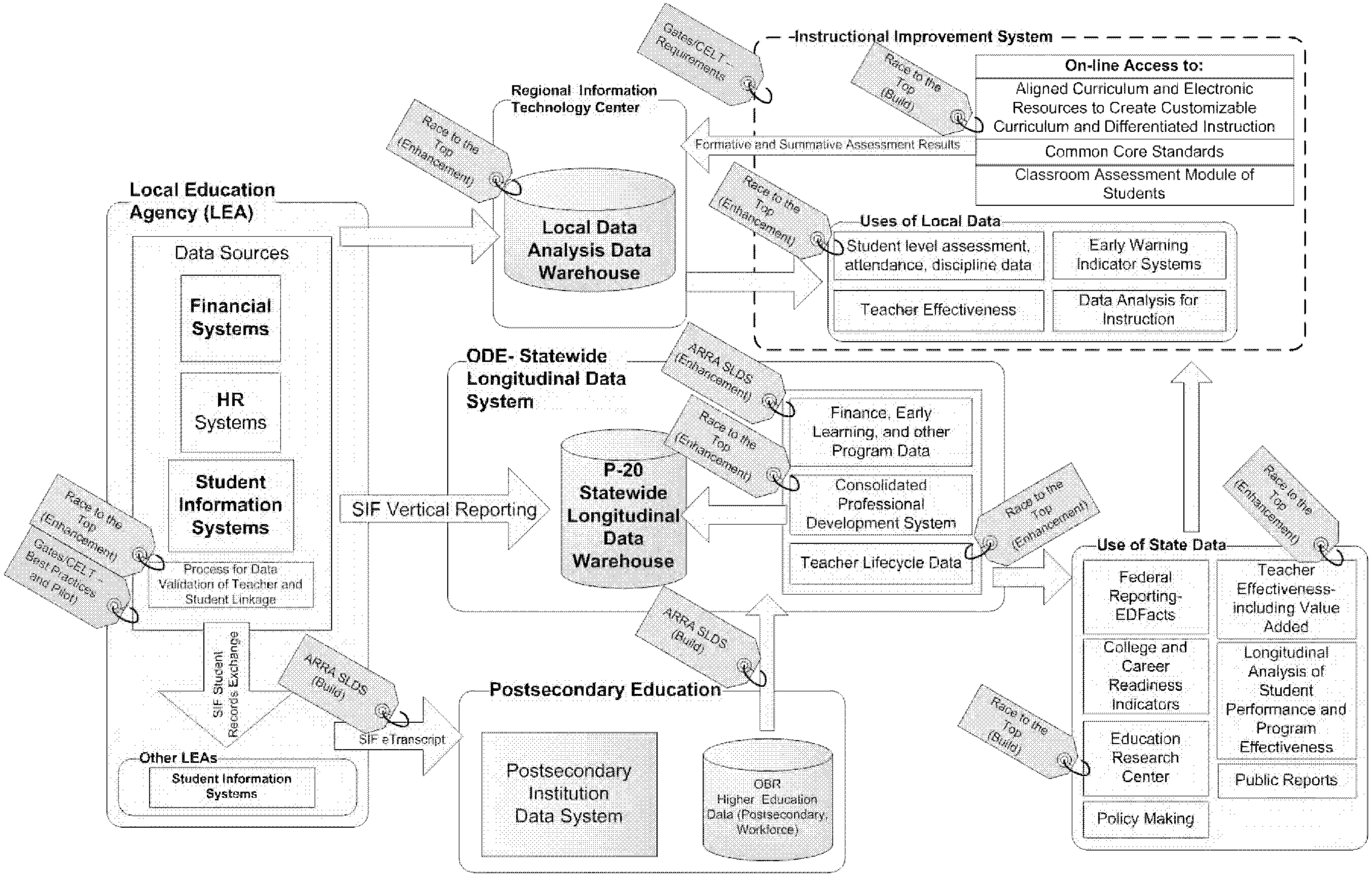
Referenced in:

IV(E)(2)

Investments for Ohio's SLDS – Includes work funded by ARRA SLDS Grant, Gates Momentum Grant, Gates Teacher Student Data Link Grant and Race to the Top Grant



Investments for Ohio's SLDS – Includes work funded by ARRA SLDS Grant, Gates Momentum Grant, Gates Teacher Student Data Link Grant and Race to the Top Grant



E3

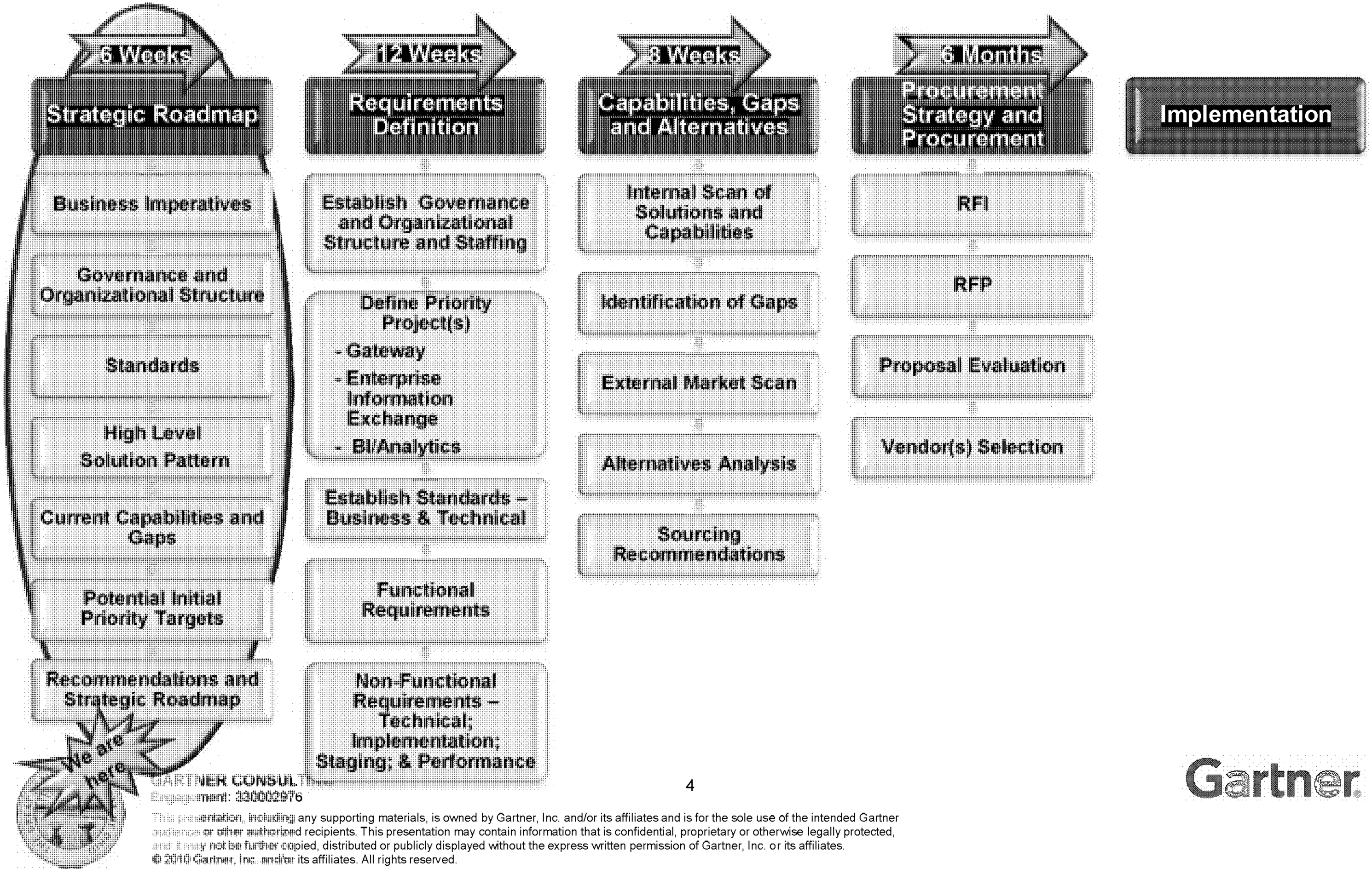
Gartner Final Report

Rationale: Supportive Evidence for IV(E)(2). The document provides an overview of the Ohio Enterprise Decision Support (OEDS) project, which will be leveraged in support of the Early Childhood Data integration project and will integrate and exchange information, while enforcing data confidentiality, across state agencies and programs to improve access, quality, and outcomes of the state's programs and services related to health.

Referenced in:

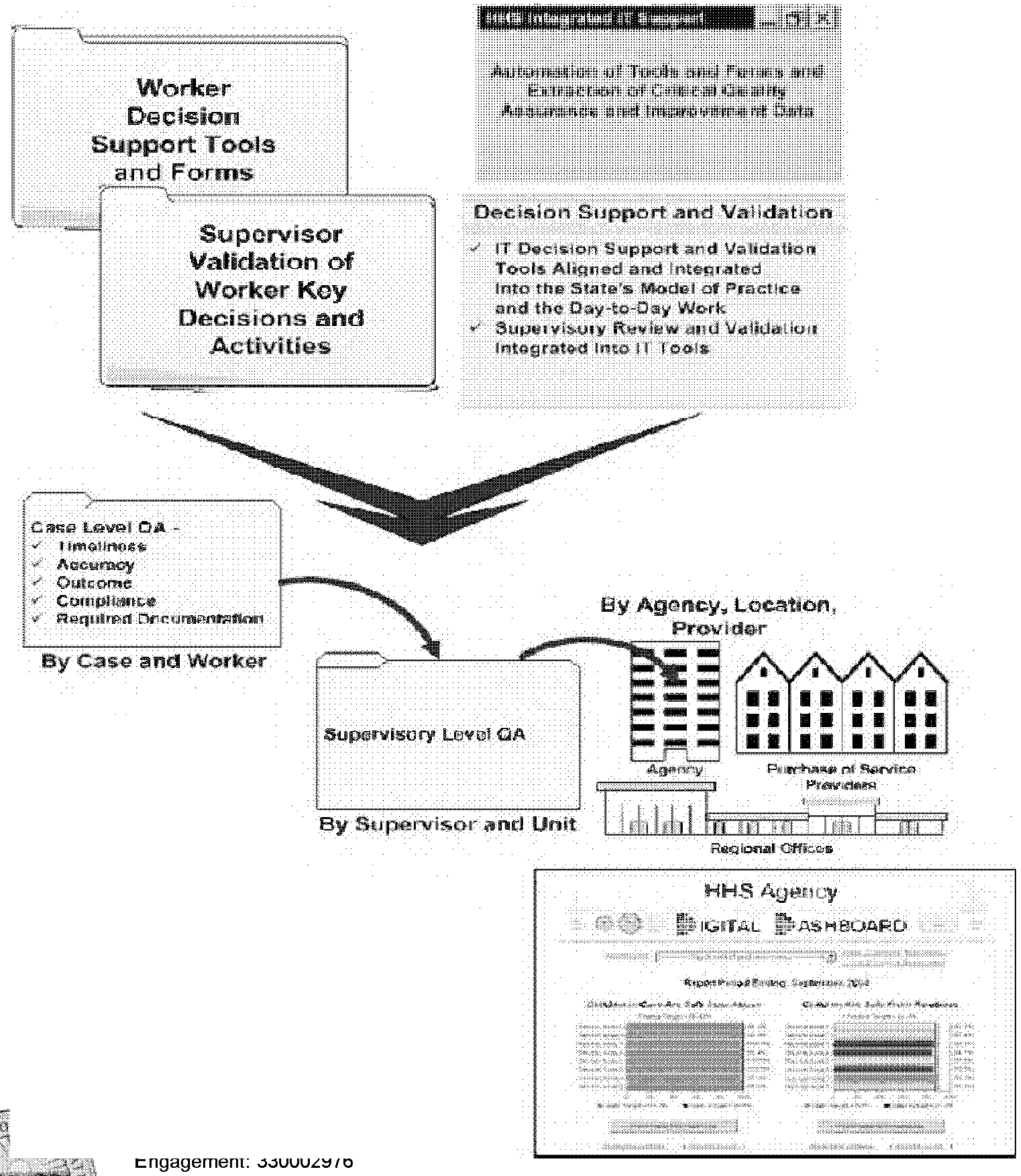
IV(E)(2)

Introduction
Project Approach



Executive Summary

Best Practice Decision Support – Integrated into Model of Practice and Activities



- Not an add-on to the work of staff
- Leverages available data
- Integration of IT decision support and validation tools
- Provides "real time" information at all levels
  - Worker
  - Supervisor
  - Managers
  - Executives

Executive Summary
Current vs. Future Decision Support Capabilities

User Profile	Description Current Capabilities	Current Analytical Approaches	Envisioned Future Capacity	Future Analytical Approaches
Front Line Worker	■ Supports routine reporting needs ■ Uses reports to inform operational processes	■ Fixed Reports ■ Parameterized Reports ■ Alerts, Ticklers	■ Supports worker planning, activities and decision making ■ Uses reports to inform operational processes	■ Fixed Reports ■ Predictive Model Examples to Support Practice ■ Parameterized Reports ■ Alerts, Ticklers ■ Operational Dashboard
Supervisor	■ Program specific planning and analysis ■ Supports routine reporting needs	■ Fixed Reports ■ Ad Hoc Query ■ Alerts and Ticklers	■ Enhance capacity for complex analyses focused on program and/or service delivery targeting, planning, and other forward looking activities ■ Aligns within agency / program and across continuum of HHS programs and services (as appropriate or needed)	■ Ad Hoc Query ■ Multi-dimensional Analysis ■ Work Teams Dashboard

E4

Statewide Student Identifier Background

Rationale: Supporting evidence for VI(E)(2). The document provides information on the background and use of Ohio's Statewide Student Identification Number which is used currently for all children P-20 for public district preschool programs, early intervention, K-12 , and post-secondary public institutions and will be used for all children in publicly funded early learning and development programs including child care and subsidized child care.

Referenced in:

VI(E)(2)

The Statewide Student Identifier (SSID) system is defined within the Ohio Revised Code § 3301.0714. The SSID system was designed to create, disseminate to districts, and to identify, store and assign a unique student identifier code to each student. The end result of successful implementation and integration with the Education Management Information System (EMIS) is the ability to track personally unidentifiable student progress across time and schools, and to determine the impacts of Ohio public school programs on student success.

The Student Identifier (SID) provides the opportunity for the Ohio Department of Education (ODE) to collect student level data without jeopardizing student privacy. The SSID System assigns a unique identifier to student receiving services from Ohio's public schools. This code "follows" students as they move within and between Ohio districts, enabling studies of student progress and performance trends over time. Implementation of the SSID System was completed during the 2002-03 school year. The system has the following functions:

- Prevents the identification of actual student names, social security numbers, or other personal data that could breach individual confidentiality.
- Stores matching data and associated student identifier codes throughout the course of each child's education.
- Facilitates assignment of individual SIDs or mass assignment of SIDs through batch processing or an online, web service.
- Implementation considers the burden on districts and intends to provide added value to districts.

The Statewide Student Identifier is assigned to a child by a contract vendor retained by ODE. Data is submitted via secure transfer to the vendor, validated as to content, cross checked for duplication with prior submissions and assigned a SSID if none has been previously assigned. The data is then returned via secure transfer to the originating system.

The SSID System does not replace a district's student software, nor is it the entirety of the student level EMIS. It is a complement to both the district's student software and the student level EMIS database maintained by ODE. It works in conjunction with these information systems to provide the linkage for student level data from districts to ODE so that student privacy is not compromised.

The SID is the "key" for student records stored at ODE. This means that each student record will be identified with an SID. Each student will have only one record in the ODE database, which will facilitate longitudinal tracking for analysis of performance and program trends. The SID is the mechanism by which ODE can collect student level data and still protect the individual privacy rights of students.

The 9 Mandatory Elements for a student include:

- Legal Last Name
- Legal First Name
- Date of Birth
- Gender
- Legal Middle Name
- Birth Place City
- Language
- Ethnicity
- Admission Reason

During Fiscal Year 2010 ODE procured a contracted resource to work with the Ohio Department of Health (ODH) to implement interface between ODH's Help Me Grow program (AKA: Early Track) and ODE's SSID system. The procured resource possessed extensive experience in Microsoft SQL Server Database Administration utilizing SQL Server Integration Services, data integration and file transfer utilizing automated transfer mechanisms. Design, development, testing, documentation and implementation of the ODH SSID integration consisted of 600 hours of effort on behalf of the contracted resource in addition to 166 hours of estimated State resource staff effort.

E5

Section 1347.15 of the Ohio Revised Code

Rationale: Supportive evidence for VI(E)(2). This document provides information regarding Ohio's current state law regarding compliance with and appropriate treatment of confidential personal information related to data system oversight requirements.

Referenced in:

VI(E)(2)

1347.15 Access rules for confidential personal information.

(A) As used in this section:

(1) "Confidential personal information" means personal information that is not a public record for purposes of section 149.43 of the Revised Code.

(2) "State agency" does not include the courts or any judicial agency, any state-assisted institution of higher education, or any local agency.

(B) Each state agency shall adopt rules under Chapter 119. of the Revised Code regulating access to the confidential personal information the agency keeps, whether electronically or on paper. The rules shall include all the following:

(1) Criteria for determining which employees of the state agency may access, and which supervisory employees of the state agency may authorize those employees to access, confidential personal information;

(2) A list of the valid reasons, directly related to the state agency's exercise of its powers or duties, for which only employees of the state agency may access confidential personal information;

(3) References to the applicable federal or state statutes or administrative rules that make the confidential personal information confidential;

(4) A procedure that requires the state agency to do all of the following:

(a) Provide that any upgrades to an existing computer system, or the acquisition of any new computer system, that stores, manages, or contains confidential personal information include a mechanism for recording specific access by employees of the state agency to confidential personal information;

(b) Until an upgrade or new acquisition of the type described in division (B)(4)(a) of this section occurs, except as otherwise provided in division (C)(1) of this section, keep a log that records specific access by employees of the state agency to confidential personal information;

(5) A procedure that requires the state agency to comply with a written request from an individual for a list of confidential personal information about the individual that the state agency keeps, unless the confidential personal information relates to an investigation about the individual based upon specific statutory authority by the state agency;

(6) A procedure that requires the state agency to notify each person whose confidential personal information has been accessed for an invalid reason by employees of the state agency of that specific access;

(7) A requirement that the director of the state agency designate an employee of the state agency to serve as the data privacy point of contact within the state agency to work with the chief privacy officer within the office of information technology to ensure that confidential personal information is properly protected and that the state agency complies with this section and rules adopted thereunder;

(8) A requirement that the data privacy point of contact for the state agency complete a privacy impact assessment form; and

(9) A requirement that a password or other authentication measure be used to access confidential personal information that is kept electronically.

(C)(1) A procedure adopted pursuant to division (B)(4) of this section shall not require a state agency to record in the log it keeps under division (B)(4)(b) of this section any specific access by any employee of the agency to confidential personal information in any of the following circumstances:

(a) The access occurs as a result of research performed for official agency purposes, routine office procedures, or incidental contact with the information, unless the conduct resulting in the access is specifically directed toward a specifically named individual or a group of specifially named individuals.

(b) The access is to confidential personal information about an individual, and the access occurs as a result of a request by that individual for confidential personal information about that individual.

(2) Each state agency shall establish a training program for all employees of the state agency described in division (B)(1) of this section so that these employees are made aware of all applicable statutes, rules, and policies governing their access to confidential personal information.

The office of information technology shall develop the privacy impact assessment form and post the form on its internet web site by the first day of December each year. The form shall assist each state agency in complying with the rules it adopted under this section, in assessing the risks and effects of collecting, maintaining, and disseminating confidential personal information, and in adopting privacy protection processes designed to mitigate potential risks to privacy.

(D) Each state agency shall distribute the policies included in the rules adopted under division (B) of this section to each employee of the agency described in division (B)(1) of this section and shall require that the employee acknowledge receipt of the copy of the policies. The state agency shall create a poster that describes these policies and post it in a conspicuous place in the main office of the state agency and in all locations where the state agency has branch offices. The state agency shall post the policies on the internet web site of the agency if it maintains such an internet web site. A state agency that has established a manual or handbook of its general policies and procedures shall include these policies in the manual or handbook.

(E) No collective bargaining agreement entered into under Chapter 4117. of the Revised Code on or after the effective date of this section shall prohibit disciplinary action against or termination of an employee of a state agency who is found to have accessed, disclosed, or used personal confidential information in violation of a rule adopted under division (B) of this section or as otherwise prohibited by law.

(F) The auditor of state shall obtain evidence that state agencies adopted the required procedures and policies in a rule under division (B) of this section, shall obtain evidence supporting whether the state agency is complying with those policies and procedures, and may include citations or recommendations relating to this section in any audit report issued under section 117.11 of the Revised Code.

(G) A person who is harmed by a violation of a rule of a state agency described in division (B) of this section may bring an action in the court of claims, as described in division (F) of section 2743.02 of the Revised Code, against any person who directly and proximately caused the harm.

(H)(1) No person shall knowingly access confidential personal information in violation of a rule of a state agency described in division (B) of this section.

(2) No person shall knowingly use or disclose confidential personal information in a manner prohibited by law.

(3) No state agency shall employ a person who has been convicted of or pleaded guilty to a violation of division (H)(1) or (2) of this section.

(4) A violation of division (H)(1) or (2) of this section is a violation of a state statute for purposes of division (A) of section 124.341 of the Revised Code.

Effective Date: 2008 HB648 04-07-2009

E6

State of Ohio Information Technology Standards

Rationale: Supportive evidence for VI(E)(2). This document provides the Ohio Information Technology standard on the Enterprise Security Controls Framework which is used by all Ohio agencies to address information security risks and threats, internal controls, inventorying of elements, and other security controls.

Referenced in:

VI(E)(2)

State of Ohio IT Standard

Standard Number: **ITS-SEC-02**	**Title:** **Enterprise Security Controls Framework**
Effective Date: 4/18/2011	**Issued By:** Stuart R. Davis, Assistant Director/State CIO Office of Information Technology Department of Administrative Services
Version Identifier: 1.0	**Published By:** Office of Information Security & Privacy

1.0 Purpose

This state IT standard specifies the minimum requirements for information security in all ***agencies*** and identifies the National Institute of Standards and Technology (NIST) Special Publication 800-53, revision 3 (NIST 800-53) as the framework for information security controls implementation for the state.

2.0 Scope

Pursuant to Ohio IT Policy ITP-A.1, "Authority of the State Chief Information Officer to Establish Policy Regarding the Acquisition and Use of Computer and Telecommunications Products and Services," this state IT standard is applicable to every organized body, office, or agency established by the laws of the state for the exercise of any function of state government except for those specifically exempted. Non-participating agencies are encouraged to comply with this standard as well as all enterprise policies, standards and guidelines.

3.0 Background

Ohio established the Chief Information Security Officer (CISO) Leadership Subcommittee under the auspices of the Multi-Agency CIO Advisory Council (MAC) in 2010. One of their first tasks was to evaluate available options for establishing an information security controls framework for the state. They chose NIST 800-53 to be that framework. After review by the MAC, adoption of this framework was recommended to the State Chief Information Officer.

Adoption of this common framework of information security controls for the state offers several advantages.

- Agencies can share a common vocabulary and common set of concepts related to information security controls, which will improve communication and understanding of this topic within and among the agencies.

- Agencies will be able to share expertise, documentation, training materials, and processes, which will allow for more cross-agency collaboration.

- A common standard can be established for auditing and common methods established for compliance monitoring.

- When everyone is using the same information security controls framework, greater insight into the overall security posture of the state can be available, which can help determine the most efficient and effective deployment of security resources.

- Using NIST 800-53 as its security controls framework allows the state to leverage research already performed and implementation guidance already produced by the federal government and provides the opportunity for better alignment between state and federal security requirements.

The complexity involved in securing agency systems can be enormous and focus is necessary to ensure that limited resources are prioritized and applied to the areas of the highest risk. Significant work has been done to address this concept and the result is the Consensus Audit Guidelines or CAG, published by the SANS Institute. The CAG is a subset of security controls in NIST 800-53. The controls identified in the CAG address the highest threat areas for the enterprise environment. The CAG has emerged as a prioritized baseline or high water mark "to address the attacks occurring today as well as those anticipated in the near future." It is recommended by the authors of CAG that these controls be "assessed as the baseline set of 'Common Controls'…as defined by NIST."

Given the effort involved with implementing NIST 800-53, Ohio felt it was critical to ensure that high risk, high priority IT security threats were addressed immediately. Therefore, the State CIO, CISO and the CISO Leadership Committee identified a set of ***enterprise controls***.

In the interest of securing against the most imminent and likely threats, Ohio is requiring that agencies make the implementation of the enterprise controls a top priority. (Refer to Section 8.0 for more detail regarding implementation expectations.)

4.0 Standard

State agencies shall use the NIST 800-53, as the basis for selecting information security controls. The selection of individual controls must be based upon ***system classification*** and an overall understanding of risks posed to that system.

The implementation of the controls within the NIST framework will vary to some degree across the enterprise based upon system classification and risks posed to those systems.

In order to establish an information security baseline across all state agencies and address the currently known high-priority attacks agencies are required to implement the enterprise controls listed below.

4.1 Enterprise Controls

4.1.1 Program Management

All agencies must develop an information security program consistent with the requirements outlined in the PM family of controls in NIST 800-53.

4.1.2 Inventory of Authorized and Unauthorized Devices

Agencies must implement a method to create and maintain an inventory of authorized and unauthorized devices connected to the agency's network consistent with guidance in the CAG.

4.1.3 Inventory of Authorized and Unauthorized Software

Agencies must implement a method to create and maintain an inventory of authorized and unauthorized software deployed throughout the agency consistent with guidance in the CAG.

4.1.4 Secure Configurations for Hardware and Software on Laptops, Workstations and Servers

Agencies must adopt common configurations with documented security configurations consistent with guidance in the CAG.

4.1.5 Secure Configurations for Network Devices such as Firewalls, Routers and Switches

Agencies must adopt and document standard secure configurations for all network devices deployed within the agency consistent with guidance in the CAG.

4.1.6 Boundary Defense

Agencies must implement boundary defenses consistent with the guidance in the CAG.

4.1.7 Maintenance, Monitoring and Analysis of Security Audit Logs

Agencies must implement auditing and logging capabilities consistent with guidance in the CAG and the AU family of controls within NIST 800-53.

4.1.8 Application Software Security

Agencies must implement application security controls consistent with the guidance in the CAG.

4.1.9 Controlled Use of Administrative Privileges

Agencies must implement controls around administrative privileges consistent with the guidance in the CAG.

4.1.10 Controlled Access Based on Need-to-Know and Least Privilege

Agencies must implement access controls based upon the principles of need-to-know and least privilege consistent with guidance in the CAG and the AC family of controls in NIST 800-53.

4.1.11 Continuous Vulnerability Assessment and Remediation

Agencies must develop continuous vulnerability assessment and remediation capabilities, policies and procedures consistent with guidance in the CAG and in the RA family of controls in NIST 800-53.

4.1.12 Account Monitoring and Control

Agencies must implement controls to monitor and control system and user accounts consistent with the guidance in the CAG.

4.1.13 Malware Defenses

Agencies must implement anti-malware technologies and configure them consistent with the guidance in the CAG. For the purposes of this control mobile devices do not include smartphones however; agencies are strongly encouraged to evaluate the need for anti malware technologies for smartphones and other handheld devices to the extent that they are in use within the agency.

4.1.14 Limitation and Control of Network Ports, Protocols and Services

Agencies must implement controls to limit the use of network ports and services to only those that have a business purpose. Further, agencies should periodically review existing ports and services to ensure that the need remains.

4.1.15 Wireless Device Control

Agencies must implement controls to protect wireless devices which are consistent with the guidance in the CAG.

4.1.16 Data Loss Prevention

Agencies must evaluate the need for data loss prevention technologies within their environments. Agencies that handle, store or process sensitive, confidential or other information that is required to be protected by law, regulation or Executive Order must implement data loss prevention technologies consistent with the guidance in the CAG.

4.1.17 Secure Network Engineering

Agencies must follow secure network engineering/architecture standards which are consistent with guidance in the CAG.

4.1.18 Penetration Tests and Red Team Exercises

Agencies must perform penetration testing on a periodic basis to ensure the effectiveness of the implemented controls. Additionally, agencies should consider having external teams perform exercises to further assess the efficacy of their defenses consistent with guidance in the CAG.

4.1.19 Incident Response Capability

Agencies must establish incident response capabilities consistent with the guidance in the CAG including but not limited to developing policies and procedures for how incidents will be handled. Because of the sensitive nature of incident response and investigation, agencies should involve their Chief Legal Counsel as well as Human Resources in this

development. Additionally, agencies should test their incident response procedures periodically to ensure they remain viable.

4.1.20 Data Recovery Capability

Agencies must develop and implement data recovery capabilities consistent with guidance in the CAG.

4.1.21 Security Skills Assessment and Appropriate Training to Fill Gaps

Agencies must develop and implement security education and training capabilities consistent with guidance in the CAG and in the AT family of controls in NIST 800-53.

4.2 Revisions to this Standard

The Office of Information Security and Privacy shall ensure that this standard is regularly reviewed and updated as needed. The current version of NIST 800-53 is Revision 3 (August 2009). Future revisions to NIST 800-53 will be considered for inclusion after final publication.

4.3 Exceptions to this Standard

In general, there are no exceptions to this state IT standard. However, agencies do have the latitude to make risk-based decisions on controls listed within the NIST 800-53 baselines. The decision not to implement a specific control or control enhancement must be documented and approved by agency leadership.

5.0 References

5.1 Ohio IT Policy ITP-A.1, *Authority of the State Chief Information Officer to Establish Policy Regarding the Acquisition and Use of Computer and Telecommunications Products and Services,* defines the authority of the state CIO to establish State of Ohio IT standards as they relate to the acquisition and use of information technology by state agencies, including, but not limited to, hardware, software, technology services and security.

5.2 NIST Special Publication 800-53 (Rev 3), *Recommended Security Controls for Federal Information Systems and Organizations*, provides guidelines for selecting and specifying security controls for information systems supporting the executive agencies of the federal government.

5.3 *Twenty Critical controls for Effective Cyber Defense: Consensus Audit Guidelines*, defines the consensus of security professionals, law enforcement, and CIOs for both the public and private sectors on baseline security controls that have been effective in blocking currently known high-priority attacks. This document provides a "first step towards providing specific guidelines that CISOs, CIOs, IGs and various Computer Emergency Response Teams can adopt…to ensure that their systems have the most critical baseline security controls in place."

5.4 Cyber Security Evaluation Tool (CSET), is an IT security assessment tool developed by the Department of Homeland Security (DHS) National Cyber Security Division (NCSD). This desktop software tool guides users through a step-by-step process to collect facility-specific control system information that addresses topics such as hardware, software, administrative policies, and user obligations. It then compares that information to relevant security standards and regulations, assesses overall compliance, and provides appropriate

recommendations for improving the system's cyber security posture. (Copies of this software have been provided by DHS and are available from the Office of Information Security and Privacy.)

6.0 Definitions

Agency or Agencies	Every organized body, office, or agency established by the laws of the state for the exercise of any function of state government, other than any state-supported institution of higher education, the office of the auditor of state, treasurer of state, secretary of state, or attorney general, the adjutant general's department, the bureau of workers' compensation, the industrial commission, the public employees retirement system, the Ohio police and fire pension fund, the state teachers retirement system, the school employees retirement system, the state highway patrol retirement system, the general assembly or any legislative agency, or the courts or any judicial agency.
Enterprise Controls	IT security controls that were selected by the State CIO, CISO, and the CISO Leadership Committee. The controls are a representation of all of the top 20 CAG controls and select NIST Special Publication 800-53 controls. While the long-term goal for agencies is the implementation of the full NIST Special Publication 800-53 framework, implementation of the selected enterprise controls should be the short-term, immediate focus for agencies.
System Classification	Refers to the process of assessing the potential impact to confidentiality, integrity and availability of the evaluated system. In the NIST 800-53 publication they refer to FIPS-199 which is the Federal guidelines for assessing and classifying information systems. The Office of Information Security and Privacy will be developing further guidance around system classification but agencies can utilize the FIPS-199 publication until further guidance is released.

7.0 Related Resources

Document Name
FIPS Publication 199: Standards for Security Categorization of Federal Information and Information Systems is available at the following location: http://csrc.nist.gov/publications/fips/fips199/FIPS-PUB-199-final.pdf
NIST Special Publication 800-53 Revision 3 and other NIST Special Publications of interest to the information security community can be found at the following location: http://csrc.nist.gov/publications/PubsSPs.html
The *"Twenty Critical Controls for Effective Cyber Defense: Consensus Audit Guidelines"* is available from the SANS Institute at the following location: http://www.sans.org/critical-security-controls/guidelines.php
Copies of related resources will also be available on the Ohio Privacy & Security Information Center: http://www.infosec.ohio.gov

8.0 Implementation

Implementing or retrofitting an information security architecture is not something that is done overnight. Other states have adopted the NIST framework and have taken several years to reach full implementation. For this reason Ohio has adopted the following implementation roadmap as a starting point and guide for agencies to follow in implementing this architecture within their respective environments.

The first step in the process should be to perform a gap analysis to determine alignment of current controls with the NIST framework. One way to accomplish this is by utilizing the CSET tool provided by the US Department of Homeland Security. The results of this evaluation should provide a starting point for prioritizing. It is highly suggested that agencies utilize the enterprise assessment as opposed to the NIST Special Publication 800-53 assessment to start. The NIST Special Publication 800-53 assessment is a system based assessment and best utilized to evaluate compliance in a single system.

8.1 Agencies are expected to work towards implementation of the NIST framework as quickly as feasible.

8.1.1 In new systems, the control baselines in NIST 800-53 shall immediately become requirements for the system.

8.1.2 For existing systems and systems that have moved beyond the requirements phase, control decisions must be made and documented based upon a gap analysis between the appropriate NIST 800-53 baseline and the existing controls within the system.

8.1.3 Agencies shall utilize the information security program plan and the plan of action and milestones process required in the NIST 800-53 PM family of controls to document progress made in implementing this standard as well as documenting how the agency will address any gaps.

8.1.3.1 The Information Security and Privacy Office will release additional guidance about the format and required information to be included in the information security program plan. The combination of the information security program plan and the plan of actions and milestones will serve as the strategic plan required in ORC 125.18 (C) (1).

8.1.4 Agencies shall also consider guidance within NIST 800-53 Section 3.3 in working with external providers to ensure that externally hosted systems are protected to an acceptable level.

8.2 The implementation of the enterprise controls listed within section 4.1 of this standard is expected within 18 months of the effective date of this standard.

8.3 Agencies are encouraged to evaluate the need for hiring a security professional to assist them in building their information security program. The Office of Information Security and Privacy is also available to assist agencies in selecting and implementing security controls.

9.0 Revision History

Revision Date	Description of Changes
04/18/2011	Version 1.0, original standard

10.0 Inquiries

For information regarding this state IT standard or the NIST Special Publication 800-53 security controls framework, please contact:

Office of Information Security & Privacy
Office of Information Technology
Ohio Department of Administrative Services
30 East Broad Street, Suite 4083
Columbus, Ohio 43215

Telephone: 614.644.9391
Email: state.isp@oit.ohio.gov
Web: infosec.ohio.gov

State of Ohio IT Standards can be found online at: www.ohio.gov/itp

11.0 Attachments

None.

E7

Data Stewardship Policy

Rationale: Supportive evidence for VI(E)(2). This documents provides the Ohio Department of Health Data Stewardship policy to address proper treatment of data, data access, and data security.

Referenced in:

VI(E)(2)

ODH Directive 24A
DATA STEWARDSHIP

Subject: **Data Stewardship**

1. Purpose. The purpose of this policy is to:

A. Assure data are treated as an asset and utilized to the fullest extent within the limits of existing statutes, rules, federal requirements, Department policies, and relevant ethical principles;

B. Assure a consistent process for handling requests for data access and release;

C. Provide guidance for data access and release;

D. Assure that data are managed to protect confidentiality and security;

E. Assure that data resources include sufficient documentation to allow appropriate use and interpretation; and

F. Establish roles and responsibilities associated with the implementation of this policy.

This directive supersedes any past practice, previously issued directive or previously issued policy and will remain in effect until canceled or superseded. The Office of the General Counsel is responsible for this directive.

2. Discussion. Data are essential to the mission and purpose of the Ohio Department of Health (Department). Data collected by organizational units or individuals within the Department are collected under the authority of the Department. The stewardship and use of those data are ultimately the responsibility of the Department. All Department employees and contracted individuals working for an organizational unit within the Department must protect the confidentiality of the data and are subject to ODH Directive 7: Use and Security of Agency IT Resources.

The missions and purposes of organizational units within the Department often complement each other and sharing data helps the Department to accomplish its overall mission. In order to help the programs meet their goals, the Department supports data sharing between its organizational units whenever that sharing supports legitimate public health purposes.

Organizational units and their data stewards are responsible to ensure the best and proper use of data under their stewardship. They should facilitate and

promote the sharing of data as an asset to support legitimate public health purposes. For data sharing within the Department, written policies, protocols, and agreements are encouraged for tracking purposes and for clarifying appropriate uses of data. Data sharing agreements or a memorandum of understanding are generally needed when sharing data with state agencies or other governmental or non-governmental parties outside the Department. ODH Institutional Review Board approval is generally needed when sharing data with entities external to the Department.

Data stewards may limit access to data when necessary to exercise appropriate stewardship of those data (e.g., preventing inappropriate disclosure of confidential data). However, the exercise of data stewardship includes the support of internal data sharing and does not include arbitrarily restricting access to data resources.

3. **Definitions.** Several terms are explained for the purpose of creating a common understanding of the issues covered by this policy.

A. **Data Stewardship:** The responsibility carried out on behalf of a larger group, institution, or the public in general to safeguard, protect, and optimize the use of the data resources. Data stewardship in the Ohio Department of Health relates to the data collected by an organizational unit under the authority of the Department. Protecting the Department's data resources includes, and is subject to, all the statutes and rules that pertain to the data. A data steward does not have the right to conceal or hold protected health data for personal benefit, disclose protected health data without proper authorization, or arbitrarily limit access to the data.

B. **Health Data:** Any data relating to the health status of people, living or dead; all forms of data relating to health including data on the extent and nature of the illness, disability and other aspects of well being, environmental, social and other health hazards; determinants of health.

C. **Disclosure:** Definition: "Disclosure" or "disclose" means the communication of health data to any individual or organization outside the department.

D. **Institutional Review Board (IRB):** An official Department body whose mission is to review for approval research projects involving human subjects. Certain statutes and rules define bona fide research approved by an IRB as one criterion for release of identifiable health data. Thus, IRB review and approval is required for certain uses of health data.

E. **Protected Health Information:** In formation, in any form, including oral, written, electronic, visual, pictorial, or physical that describes an individual's past, present, or future physical or mental health status or condition, receipt of

treatment or care, or purchase of health products, if either of the following applies:

(1) The information reveals the identity of the individual who is the subject of the information; or

(2) The information could be used to reveal the identity of the individual who is the subject of the information, either by using the information alone or with other information that is available to predictable recipients of the information.

4. **Responsibilities.**

A. **General Responsibilities.** All individuals in the Department must adhere to ODH Directive 7: Use and Security of Agency IT Resources. All individuals in the Department who use health data have responsibilities that include:

(1) Protecting the confidentiality of data within the limits of existing statutes, rules, federal requirements, Department policies, and relevant ethical principals; and

(2) Referring requests for data to the appropriate data steward.

B. **Data Steward Responsibilities.** In addition to the general responsibilities of employees described under paragraph 3.A above, each data steward shall, for all data under stewardship:

(1) Work with the Office of the General Counsel and the Institutional Review Board to determine whether data are public or non-public and to develop data access and release policies and procedures for sharing of non-public individual level and tabulated health data among Departmental Programs and to Parties Outside the Department to include the development of Data Sharing Agreements;

(2) Develop a schedule with the Office of the General Counsel for regular and routine review of the policies and procedures adopted;

(3) Facilitate access to data to the extent allowed by existing statutes, rules, federal requirements, Department policies, and relevant ethical principles; comply with the terms of applicable legal agreements and contracts regarding release of data; and implement data sharing agreements where appropriate;

(4) Maintain a log of all data requests and releases;

(5) Assure that Institutional Review Board review occurs as appropriate for access and release of all individual level data;

(6) Assure that all data requests, particularly denials of public record requests, are coordinated with the Office of the General Counsel in accordance with the procedures developed pursuant to this policy;

(7) Update and maintain relevant portions of the Department's Guide to Selected ODH Databases on ODHNet, including contact information for the data steward;

(8) Work with the Office of Management Information Systems (OMIS) to create and maintain data access, security and management plans for electronic data sets that are accessed only by authorized individuals and for authorized purposes;

(9) Perform an annual review with supervisors and OMIS to insure appropriate user's data access rights;

(10) Tracking of searches of any of the Department's databases is required and shall be tracked pursuant to Ohio Revised Code sections 1347.99, 121347.15, 5703.211, and 1347.15; and

(11) Respond to requests for data only as allowed by this policy, other Department policy, or state or federal law.

C. **Division/Office Responsibilities.** Each Division / Office Chief whose organizational units / programs collect or hold data shall:

(1) Assure that a data steward is assigned to each data resource in their respective Divisional Office;

(2) Assure that data steward assignments and responsibilities are incorporated into job descriptions for named individuals;

(3) Assure that supervisors of data stewards support the functions and responsibilities of named individuals;

(4) Assure the development of data access and release policies and procedures for data resources in their respective Division / Office;

(5) Seek resolution from the Office of the General Counsel for non-routine requests for data access and release; and

(6) Assure timely response to requests for data access and release.

D. **Office of the General Counsel Responsibilities.** To bring consistency in data stewardship performance, the Office of the General Counsel shall:

(1) Advise on the development of access policies and procedures that assure appropriate protection of both confidentiality / privacy and the public trust under which those data are collected;

(2) Approve access policies and procedures prior to implementation by data steward;

(3) Review non-routine data sharing requests and provide advice to the appropriate data steward;

(4) Document opinions and advice, where appropriate; and

(5) Orient and update data stewards on new state laws that may impact data confidentiality and release.

E. Institutional Review Board Responsibilities. The ODH IRB will approve, in conjunction with the ODH Office of General Counsel, access policies and procedures prior to implementation by a data steward. In addition, an ODH IRB review must occur as a requirement for access and release of individual level data sets. Before recommending release of individual level health data sets, the IRB shall be satisfied of the following:

(1) There exists a compelling need or absolute necessity for the requested data set;

(2) The data set need cannot be met with public individual level data;

(3) The data set is the minimum appropriate to meet the data need;

(4) The need for this data set justifies the risk of disclosure;

(5) The data set will be used for legitimate purposes;

(6) The data set will be restricted for the stated purposes it is requested;

(7) The data will be safeguarded and protected; and

(8) The data set will be properly disposed of at the end of the study period.

All requests for Individual Level Data Sets shall be reviewed on a regular schedule.

F. Office of Management Information Systems. OMIS shall assure the creation and maintenance of data access, security and management plans for electronic data sets available through the Department's secure warehouse including measures to assure that electronic data sets available through the Department's secure warehouse are accessed only by authorized individuals.

5. Procedures for Individual Level Health Data. The following procedures shall be followed for the sharing or release of individual level health data:

A. Sharing Between Department Programs. Data sharing between the Departments organizational units and their programs and systems is both supported and encouraged. The source data steward(s) shall document the data sharing decisions in a data sharing log that includes the party or parties, with whom data are shared; the nature type of the data shared, the intended uses of the data, and the frequency of the exchange of data. Documented policies, procedures, and protocols that clarify appropriate uses of data are required.

B. Release to Parties Outside the Department. All requests for access to individual level health data, made by any outside organization or individual, shall be directed to the appropriate data steward. Requests must be in writing and must include a completed ODH Institutional Review Board Application. The Bureau or Division Chief whose organizational unit / program collects or holds the requested data must acknowledge such requests prior to IRB review. Data sharing agreements are required whenever personal health information is shared.

6. Data Sharing Agreements. Data sharing agreements must be used when releasing personal health information data to parties outside the Department, and may be required, when sharing personal health information data to parties inside the Department. Data sharing agreements must be developed in coordination with the Office of the General Counsel and the Institutional Review Board. The data sharing agreement must include at a minimum:

A. Party, or parties with whom data will be shared;

B. Time period of the agreement;

C. Nature/type of the data requested;

D. Intended uses of the data, including linkages with other data;

E. Frequency of the exchange of data;

F. Requirement that the requestor will protect completely the confidentiality of the data provided;

G. Requirement that the requestor will not disclose or release the identifiable health data without specific written permission from the Department;

H. Requirement that the requestor will report immediately the loss or theft of any identifiable data or related confidential materials to the appropriate Data Steward;

I. How the requestor will maintain the confidentiality and the security of the data;

J. A statement that the Department is either the owner or has rights to control the use and dissemination of the data;

K. Provision describing how the data will be disposed of at the conclusion of the agreement;

L. Assurances that the requestor will obey all state and federal laws regarding the use of the data;

M. Specification of rights for audit of data use practices;

N. Provisions regarding secondary release of the data;

O. A provision that the recipient will hold the Department harmless from all liability arising from the recipients use or disclosure of the data; and

P. Consequences of violation of the agreement.

Data sharing agreements may change through time and may be modified to meet specific needs.

7. **Disclosure of Non-Identifying Individual Level Data.** the Ohio Department of Health ("ODH") will routinely provide summary, statistical, or aggregate information that does not reasonably identify an individual. When in the best interest of the public's health, ODH may disclose non-identifying individual level data to the public according to law and as set out in this policy. Recognizing that an informed population is more likely to protect itself against health threats, ODH seeks to balance this interest with a fundamental respect for the privacy of individuals in determining the time, place, manner, and type of information ODH will disclose. Accordingly, ODH will utilize the following guidelines:

A. When disclosure of individual level data is in the best interest of the public's health, ODH will disclose only the age, gender, and county of residence.

B. ODH will not disclose additional information unless disclosing the information would have strong public health significance such as may be necessary to prevent, mitigate, or abate a public health threat.

C. To the extent practical and where it is appropriate, ODH will consult with its staff, its public health partners, and/or the individual or the individual's family prior to any disclosure.

D. The current or present condition or prognosis of the individual does not affect nor diminish the privacy concerns and rights of the individual. The privacy of this information is supported by Ohio law and by the United States Health Insurance Portability and Accountability.

8. **Unresolved Issues/Policy Implementation.** Any issues remaining unresolved upon implementations of this policy or questions regarding implementation or interpretation are to be brought to the attention of the Office of the General Counsel.

9. **Applicability.** This policy applies to all ODH employees. The policy pertains to datasets and to tabulations of datasets that do not meet the Department's disclosure limitation standard for public release.

10. **Authority.** This directive is promulgated by the Director of Health pursuant to Ohio Revised Code sections 121.02, 121.07, 124.134, 3701.03 and 3701.04 which authorize the Director to create, promulgate and enforce rules for the safe, efficient, economic and proper operation of the agency.

Approved: _____ Date: 6-30-2009
Alvin Jackson, M.D.
Director

Table of Effective Changes

Version	Effective Date	Superseded/Modified	Significant Changes
24	11/30/2007	NA	First issuance
24A	06/30/2009	Directive 601 Directive 1202 24	Consolidation of similar policies and revisions in accordance with new O.R.C. (predominately 1347), OIT and ODH policy updates

Competitive Priorities

P5-1

Ohio Business Roundtable Member List

Rationale: Demonstrates the representation of business leaders who are committed to working with policymakers to help in the formulation, evaluation and advocacy for public policy.

Referenced in:

VII, Priority 5

OHIO BUSINESS ROUNDTABLE

The Ohio Business Roundtable is a partnership of the chief executives of the state's major businesses who represent all sectors of the economy and are committed to working with public leaders to build a better Ohio. Established in 1992, the BRT was created in the belief that business leaders in a pluralistic society should have an active and effective role in the formulation and evaluation of public policy. The principal strength of the Roundtable is the extent of participation of the CEOs of the member firms – working together on specific issues where their business experience and judgment can make a significant contribution in stimulating change. In an effort to provide a broad base of information for the decision-making process, membership is diversified by industry sector and geographic location. Thus the CEOs, representing some eighty companies in all fields, can present a cross-section of thinking on critical statewide issues. The Roundtable is highly selective in the issues it addresses. The chief executives are committed to advocating public policies that foster vigorous, sustained economic growth and an improved standard of living for all Ohioans.

Accenture – James Struntz
Akron Children's Hospital – William Considine
AK Steel – James L. Wainscott
American Electric Power – Michael G. Morris *
American Financial Corporation – Carl H. Lindner
The Andersons – Michael Anderson
Aultman Health Foundation – Ed Roth
Battelle – Jeff Wadsworth
Bob Evans Farms – Steve Davis
Bricker & Eckler LLP – Kurt Tunnell
Cardinal Health – George Barrett
The Castellini Group of Companies – Robert Castellini
Canton Mercy Hospital – Tom Cecconi
Catholic Health Partners – Michael Connelly
Cincinnati Bell – Phillip Cox *
Cincinnati Children's Hospital – Michael Fisher
Cintas Corporation – Scott D. Farmer
Cleveland Clinic Foundation – Delos M. Cosgrove MD *
Columbia Gas of Ohio – John W. Partridge Jr
Convergys Corporation – Jeff Fox
Crane Group – Tanny Crane
Deloitte & Touche LLP – John McEwan
Diebold, Incorporated – Thomas Swidarski
Dispatch Printing Company – John F. Wolfe
Duke Energy – Julie Janson
Eaton Corporation – Alexander M. Cutler
Ernst & Young LLP – Craig Marshall
Fifth Third Bancorp – Kevin Kabat *
FirstEnergy Corp. – Anthony J. Alexander
Forest City Enterprises – Albert Ratner
Frisch's Restaurants – Craig F. Maier
General Electric – David Joyce
Honda of America Mfg., Inc. – Hidenobu Iwata
Huntington Bancshares Incorporated – Steve Steinour
Invacare – A. Malachi Mixon III
The J. M. Smucker Company – Timothy P. Smucker
Jones Day – Lyle Ganske
KeyCorp – Beth Mooney
Kokosing Construction Co., Inc. – Wm. Brian Burgett
KPMG, LLP – Phillip R. Smith
LexisNexis – Kurt Sanford
Limited Brands – Leslie H. Wexner *
Longaberger Company – Tami Longaberger
Macy's – Thomas G. Cody
Marathon Petroleum – Gary Heminger
McKinsey & Company – John Warner *
Medical Mutual of Ohio – Rick Chiricosta
Nationwide –Steve Rasmussen
Nationwide Children's Hospital – Steve Allen
New Albany Company – John W. Kessler
North American Properties – Thomas Williams *
OhioHealth – David P. Blom
The Ohio State University – E. Gordon Gee
Owens Corning – Michael Thaman *
Owens Illinois – Albert Stroucken
PNC Financial Services Group – S. Kay Geiger
PolyOne Corporation – Steven Newlin
Porter, Wright, Morris and Arthur – Robert W. Trafford
Premier Health Partners – Jim Pancoast
PricewaterhouseCoopers – Michael Petrecca
The Procter & Gamble Company – Bob McDonald
ProMedica – Randy Oostra
Rockwell Automation – Steve Eisenbrown
RPM International, Inc. – Frank C. Sullivan *
Scotts Miracle-Gro – James Hagedorn
Sherwin-Williams – Christopher Connor
Soin International – Rajesh K. Soin
Squire Sanders & Dempsey – Alex Shumate
State Farm Insurance – Ed Rust and Debra Boblitt
STERIS Corporation – Walter Roseborough
Time Warner – Terry O'Connell
The Timken Company – Ward J. Timken, Jr. *
TriHealth – John Prout
United Heatlh – Rob Falkenberg
University Hospitals Health System – Thomas Zenty
Vorys, Sater, Seymour and Pease – Russell Gertmenian
Wellpoint-Anthem – Erin Hoeflinger
Western & Southern Financial Group – John F. Barrett *

** Member of the Executive Committee*

Ohio Business Roundtable Inc • 41 South High Street • Suite 2240 • Columbus Ohio 43215 • 614-469-1044
Phillip R. Cox, Co-Chairman • Michael H. Thaman, Co-Chairman • Richard A. Stoff, President and CEO

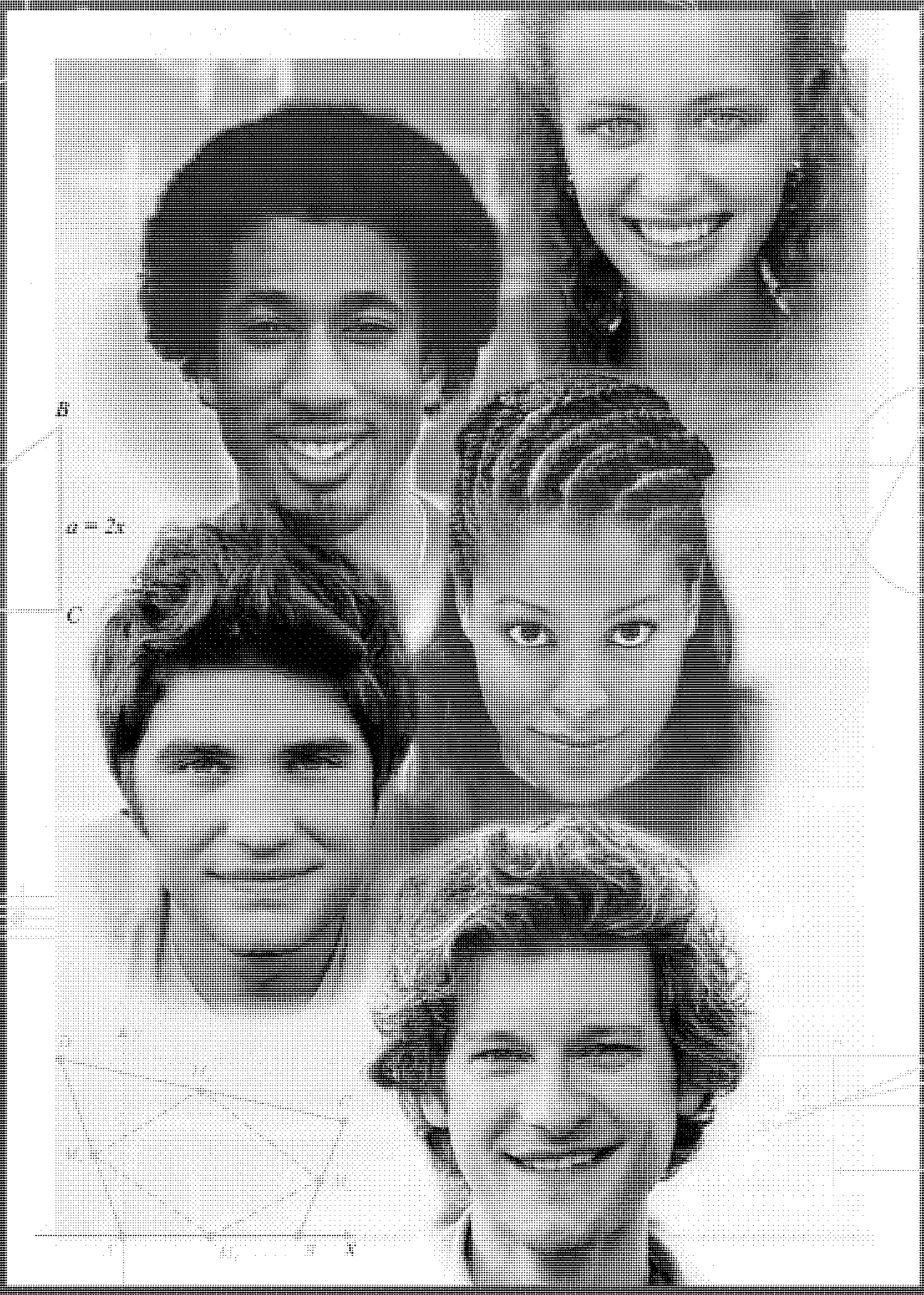
P5-2

The Talent Challenge: What Ohio Must Do to Thrive, Not Merely Survive, in a Flat World

Rationale: Demonstration of successful business advocacy in education policy; Document prepared by the Ohio Business Roundtable to advocate for a more rigorous curriculum in high school to better prepare children for college or work in a knowledge-based economy.

Referenced in:

VII, Priority 5



The Talent Challenge:

What Ohio Must Do to Thrive, Not Merely Survive, in a Flat World

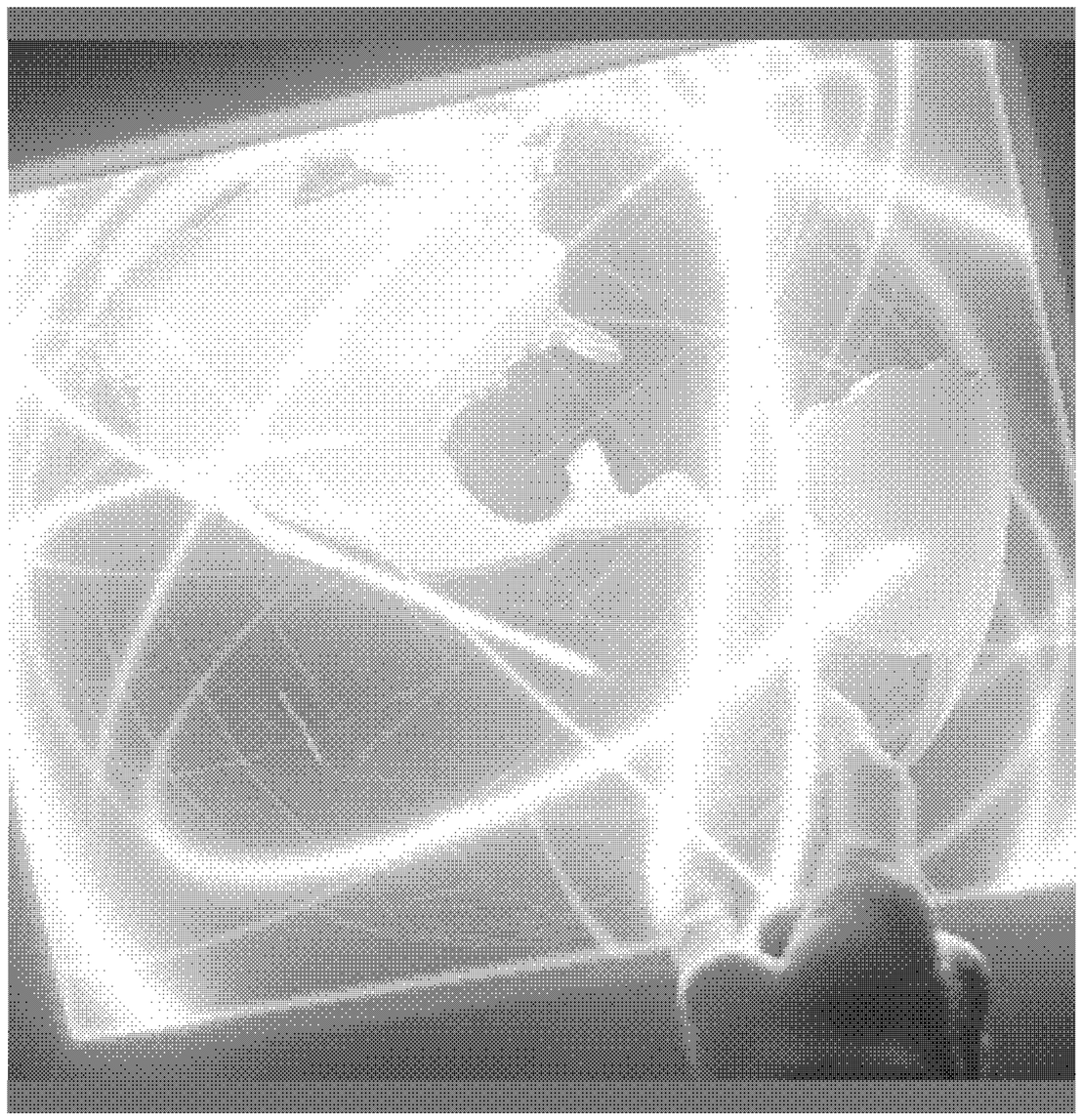
Acknowledgments

The Ohio Business Roundtable and its affiliate, the Ohio Business Alliance for Higher Education and the Economy gratefully acknowledge the support and encouragement of the Ohio Council of Retail Merchants and The Ohio Manufacturers' Association in preparing this booklet.

We appreciate the cooperation of Achieve, Inc., in granting permission to reprint certain sections of *Ready or Not: Creating a High School Diploma That Counts*, a product of The American Diploma Project, a partnership of Achieve, Inc., The Education Trust and The Thomas B. Fordham Foundation.

We also acknowledge the leadership of many other organizations, most notably Business Roundtable and its *Tapping America's Potential* campaign, that have spearheaded the national movement for academic rigor and mathematics and science improvement upon which this publication builds.

The Ohio Business Alliance for Higher Education and the Economy is supported in part by a General Operating Grant from the Bill & Melinda Gates Foundation.



The Talent Challenge:

What Ohio Must Do to Thrive, Not Merely Survive, in a Flat World

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A Direct Appeal to Ohio Policy Makers

Today's innovation economy functions in a world that has been "flattened" by globalization. And the game is on. Positioning Ohio to be globally competitive requires action on multiple fronts. We need increased investment in research and development. We need a focused commitment to expanding our technological expertise and strength. We need both physical and policy infrastructures that promote knowledge creation, innovation and productivity improvements.

Most important, we need to nurture and grow our talent – i.e., skilled, knowledgeable citizens ready to compete, ready for success in college and the workplace, and ready to thrive as lifelong learners in a "flat" world where competition for jobs, investment and opportunity is global – and fierce.

This is no small challenge. And the clock is ticking.

As a state, we've made good progress in preparing Ohioans to compete successfully in the 21st century – but not nearly enough. In 1998, the Ohio Business Roundtable, in partnership with ACT, conducted a "skill gap analysis" for entry-level jobs in five high-growth career clusters and determined that just one of every 14 high school seniors in Ohio – or just 7 percent – was leaving high school prepared to succeed in Ohio's then-emerging innovation economy. [1] That was nearly ten years ago. Today, evidence suggests that the gap between workplace *readiness* and workplace *requirements* remains substantial. And rapid technological advances threaten to widen the gap even further.

Much is at stake, for Ohio and for the nation. Our future economic prosperity – and, increasingly, our future national security – depend on our efforts to develop world-class talent, especially in science, technology, engineering and mathematics (the STEM disciplines). Consider this perspective from a coalition of leading national business organizations:

> "One of the pillars of American economic prosperity – our scientific and technological superiority – is beginning to atrophy as other nations are developing their own human capital. . . .
>
> "Today . . . as the U.S. economy becomes even more reliant on workers with greater knowledge and technological expertise, the domestic supply of qualified workers is not keeping up with the skill demands. Employers are increasingly interested in hiring people who not only can execute well but also can create the next wave of innovation."[2]

Why the focus on innovation? Because innovation is the key to competitiveness, which in turn is the key to economic growth and prosperity. In fact, economists estimate that innovation generated the productivity improvements that have accounted for half of all U.S. Gross Domestic Product Growth in the last 50 years.[3]

In the past, the foundations for economic success were natural resources, labor and capital. Today, the main drivers of sustained economic growth are knowledge creation and innovation. States, regions and nations hoping to prosper in such a world must develop, on the largest scale possible, individuals and enterprises with the capacity for continuous innovation.

This publication, *The Talent Challenge,* speaks in the voice of Ohio's business leaders. We appeal directly to state policy makers on two vital points:

- ***Innovation depends on a solid foundational knowledge base in mathematics and science.*** So developing Ohio's talent base, particularly in the science, technology, engineering and mathematics disciplines, must be ***priority one.***
- ***A major transformation has taken place in the workplace, "a transformation that wipes out age-old ideas about minimum skills."*** [4] So requiring all high school students in Ohio to take more rigorous and challenging courses, whether they intend to go on to college or to enter the workforce directly from high school, must be ***strategy one.***

The Talent Challenge explores both of these points in considerable, data-driven detail. But we encourage you also to consider the challenge before us on a more personal level by asking, "Are your children and your grandchildren receiving the education they are going to need to succeed in a future where the competition for talent and opportunity is a fierce, global enterprise, and where the expectations and standards for success are higher than they have ever been before?"

Preparing our children to succeed is not just an education imperative, nor is it just an economic competitiveness imperative. It's a moral imperative.

Developing Ohio's talent base, particularily in the science, technology, engineering and mathematics disciplines, must be ***priority one.***

Requiring all high school students to take more rigorous and challenging courses must be ***strategy one.***

Sizing Up The Talent Challenge:
A Five-Point Rationale for Increased Rigor

A wealth of data and other empirical evidence exist to make the case that nurturing world-class talent should be Ohio's top policy priority. But here's the argument in a nutshell:

The global perspective:

Globalization is dramatically changing the marketplace for jobs, talent and investment. Innovation is the key to competitiveness, which is necessary for economic growth and prosperity. Science and mathematics are the foundations of innovation. The problem? U.S. leadership in science, mathematics, engineering and technology is facing its stiffest challenge ever. Other nations are demonstrating a stronger commitment to building their "brain power" than we are. And the bottom line is, business investment, jobs and opportunity will go where the talent is.

Why this is relevant to Ohio:

Too many of our young people are graduating from high school unprepared for what will be required of them to succeed in college and in the workplace. Employers and colleges report that roughly 4 of every 10 high school graduates are unprepared and need training or remedial coursework, respectively. Think of this as "the expectation gap." The gap is evident in general employability skills, in teamwork and problem-solving skills, and especially in mathematics and science areas so crucial to our future competitiveness as a state and nation.

Two-thirds of all new jobs that will be created in the next ten years will require postsecondary education – yet Ohio ranks well below the national average for college participation and degree attainment. Expectations for entry-level workers are rising well beyond what was true a generation ago. However, just 47 percent of Ohio citizens have completed some college, compared to 53 percent for the nation. And Ohio ranks 40th among all states for percentage of the state's population with a bachelor's degree or higher – just 21.9 percent.

Taking challenging courses in high school, including upper-level courses in mathematics and science, is the gateway to success in college and careers. Students who take a rigorous high school curriculum have more options and opportunities, are more successful in college and careers, and make more money over the course of their lifetimes than students who do *not* take rigorous courses. Taking challenging courses also *cuts in half* the gap in college completion rates between white students and African American and Latino students. In other words, narrowing the *expectation* gap helps to narrow the *achievement* gap.

Whether high school graduates plan to go on to college or directly into the workforce, they need the same common, rigorous set of skills. There is a high degree of correlation between the expectations employers have for entry-level workers and the expectations college instructors have for entering freshmen. In today's world, the skills that high school graduates need to succeed in college *are the same* as those required for good, well-paying jobs with opportunities for advancement. In both cases, the expectations are higher than they ever have been.

Responding – decisively and with purpose – to the challenge thus outlined is what Ohio must do to thrive, not merely survive, in a flat world.

The Wake-Up Call of Globalization

(b)(6)

We are living in a global economy. Ohioans are no longer competing only with workers from neighboring cities or states for good jobs and economic opportunity. We are now competing with China, India, Korea and Europe.

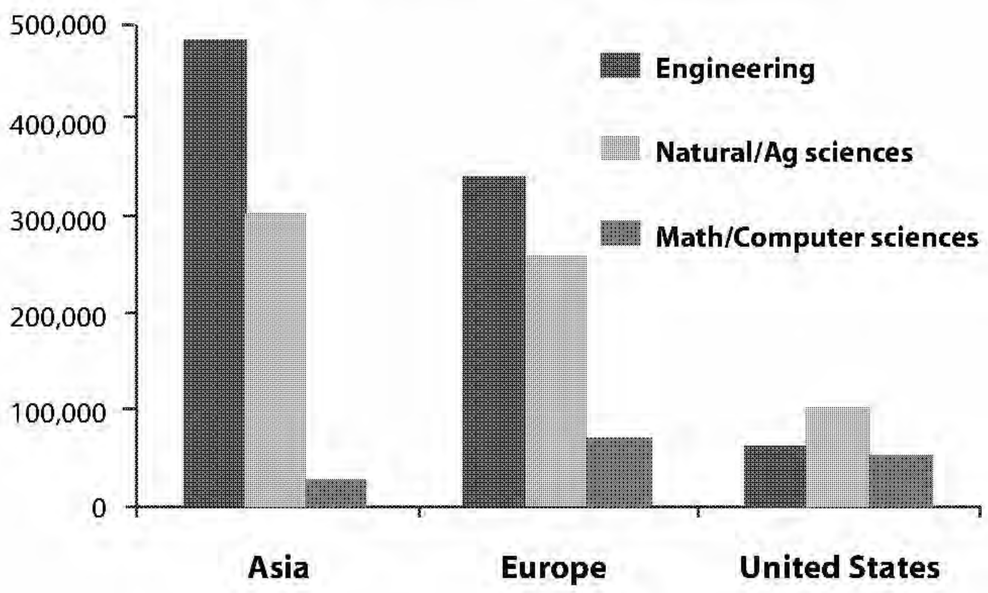
Chief among the assets these international competitors have to offer is ***the ready availability of a highly-qualified workforce – specifically, scientists and engineers*** – as well as research universities churning out a growing supply of promising young college graduates in science and engineering fields. Add to that reality the lagging math and science proficiency of U.S. high schools students and the decline in the number of U.S. college graduates in the STEM disciplines, and you have a vivd – and sobering – picture of traditional U.S. superiority in science and technology at risk.

Other countries are demonstrating a stronger commitment to building their scientific and technological capabilities:

- In 1970, half of the people in the world who held science and engineering doctorates were Americans. It is projected that by 2010 that figure will drop to 15 percent. ("Increasing America's Competitiveness, U.S. Department of Education Web site, January 2006)
- In 2000, just 11 percent of all bachelor's degrees in the United States were in natural science or engineering. The world average was 23 percent, and for China the number was 50 percent. (*Investing in U.S. Innovation,* Council on Competitiveness, December 2005)

First University Science and Engineering Degrees in Asia, Europe, and the United States, 2000*

*Data from the year 2000 or the most recent year available.



Source: National Science Foundation, *2004 Science and Engineering Indicators*

- In 2004, colleges in India produced 350,000 engineering graduates, while U.S. colleges produced 70,000. ("Increasing America's Competitiveness," U.S. Department of Education Web site, January 2006)
- Twenty years ago the United States, Japan and China graduated a similar number of engineers, ranging from 73,000 to 80,000 annually, while Korea produced just 28,000 engineering graduates. By 2000:
    - Chinese engineering graduates had increased 161 percent to 207,500.
    - Japanese engineering graduates had increased 42 percent to 103,200.
    - Korean engineering graduates had increased 140 percent to 56,500.
    - U.S. engineering graduates had ***declined*** 20 percent to 59,500.

  (National Science Foundation, *Science and Engineering Indicators, 2004)*
- Just under 6 percent of the 1.1 million high schools seniors in the United States who took a college entrance exam in 2002 indicated they plan to pursue an engineering degree – a nearly 33 percent decrease from the previous decade. In comparison, 37 percent of China's college-going students plan to pursue engineering degrees. (*Tapping America's Potential: The Education for Innovation Initiative,* Business Roundtable, July 2005)

The impact on research and innovation is beginning to show, and the picture is not reassuring:

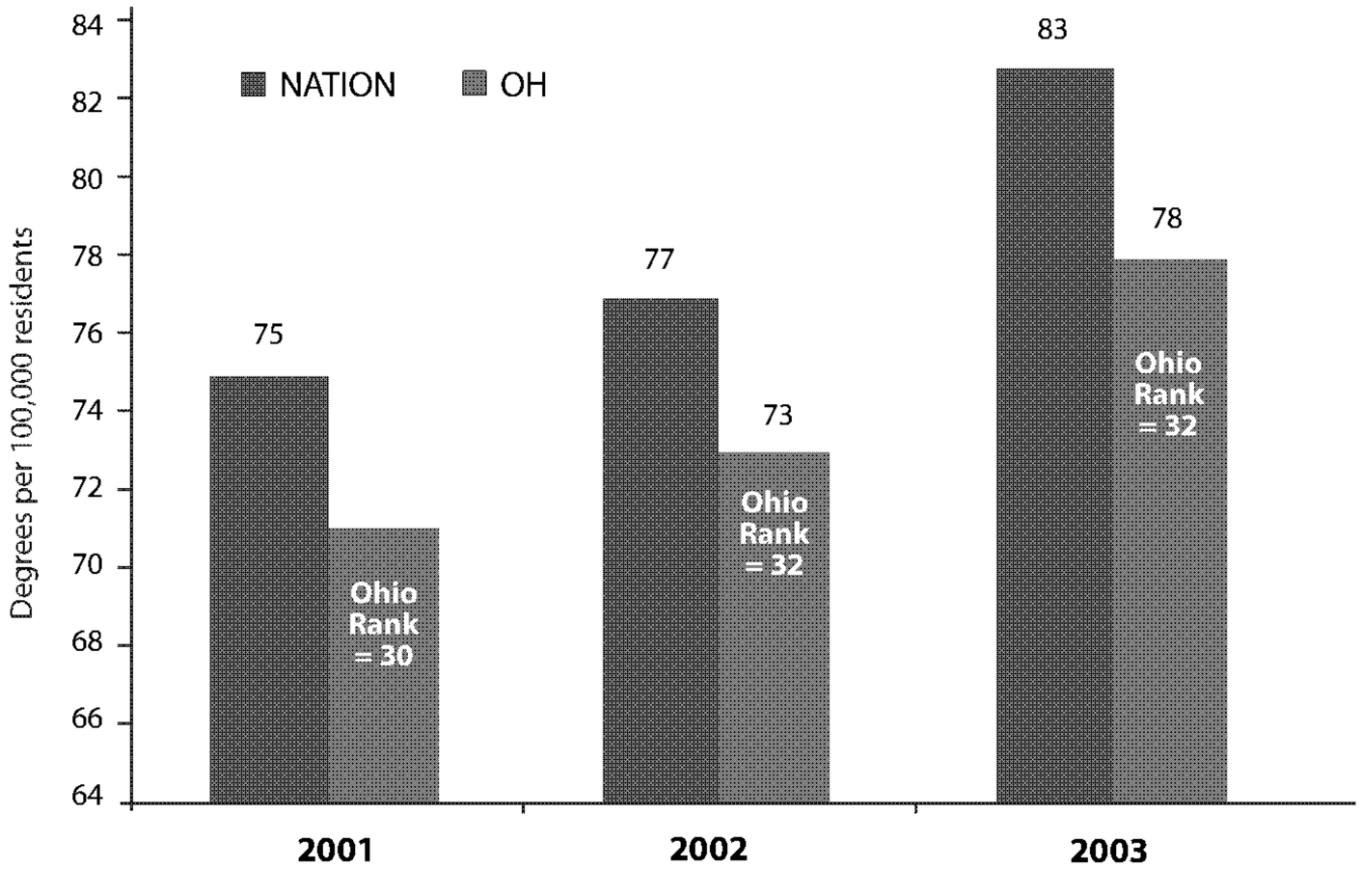
- Foreign-owned companies and foreign-born investors now account for nearly half of all U.S. patents, with Japan, Korea and Taiwan accounting for more than one-fourth. (Organization for Economic Co-operation and Development (OECD), *Patent Database,* May 2003)
- In 2003, China overtook the United States as the top global recipient of foreign direct investment. (OECD, *Trends and Recent Developments in Foreign Direct Investment,* 2003)
- Only 6 of the world's 25 most competitive IT companies are based in the United States. Fourteen are based in Asia. ("The Information Technology 100 Scoreboard," *BusinessWeek,* June 21, 2004)

Warning signs and worrisome trends begin to emerge long before U.S. students reach college:

- U.S. students currently are performing below their international peers on mathematics and science assessments. For example, just 7 percent of U.S. fourth-graders and eighth-graders performed at an advanced level on the 2003 Trends in International Mathematics and Science Study (TIMMS) test. In comparison, 38 percent of fourth-graders and 44 percent of eighth-graders from Singapore achieved advanced level. ("Expanding the Advanced Placement Incentives Program," U.S. Department of Education Web site, February 2006)
- American 15-year-olds performed below the international average in mathematics literacy and problem-solving on the most recent Program for International Student Assessment (PISA), ranking the United States 24th out of 29 developed nations. ("Expanding the Advanced Placement Incentives Program," U.S. Department of Education Web site, February 2006)

- In international competition, U.S. twelfth-graders score near the bottom, and dead last, in mathematics and science, respectively. ("Increasing America's Competitiveness," U.S. Department of Education Web site, January 2006)
- Eleven nations outperformed the United States in a 15-nation assessment of students' skills in advanced mathematics. Four nations scored similar to the United States, and no nation scored significantly lower than us. (*Investing in U.S. Innovation,* Council on Competitiveness, December 2005)

Bachelor's Degrees Awarded
in Science, Technology, Engineering and Mathematics
per 100,000 Residents



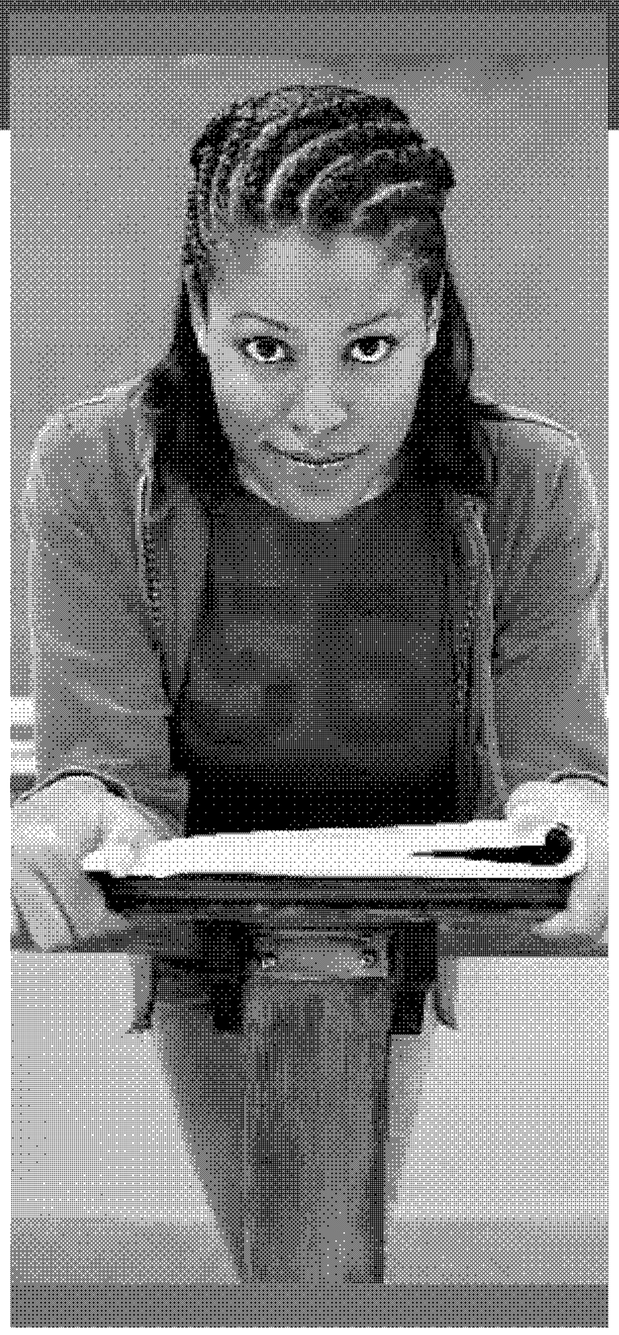
Source: Ohio Board of Regents, *The ISSUE*, November 2005

As the authors of *Tapping America's Potential* put it, "Other countries are demonstrating a bigger commitment to building their brainpower." [5] A dramatic transformation is occurring across the landscape of global scientific and technology leadership, and the United States simply cannot afford to continue to maintain its dangerously complacent posture.

It is within this context of a global economy, a global market for talent, and intense global competition in the marketplace of ideas that Ohio must chart a course to secure a prosperous future for our state. That future must begin with preparing our children to succeed in such a world.

For state policy makers, the obvious and reasonable next questions are, "What, in practical terms, are the true dimensions of the challenge we face?" and "What policy actions will have the most positive impact?"

The Reality of Higher Expectations



The fact is, it is no longer possible to get a good job without a strong education. Unfortunately, too many of our high school graduates lack the basic employability skills, the thinking and problem-solving skills, and the higher levels of mathematics and science skills required in today's jobs – even at the entry level. Too few of our young people aspire to obtain the higher levels of education that will open doors to opportunity and prosperity. And for those who *do* go on to college, too many are not adequately prepared to succeed and complete their degree.

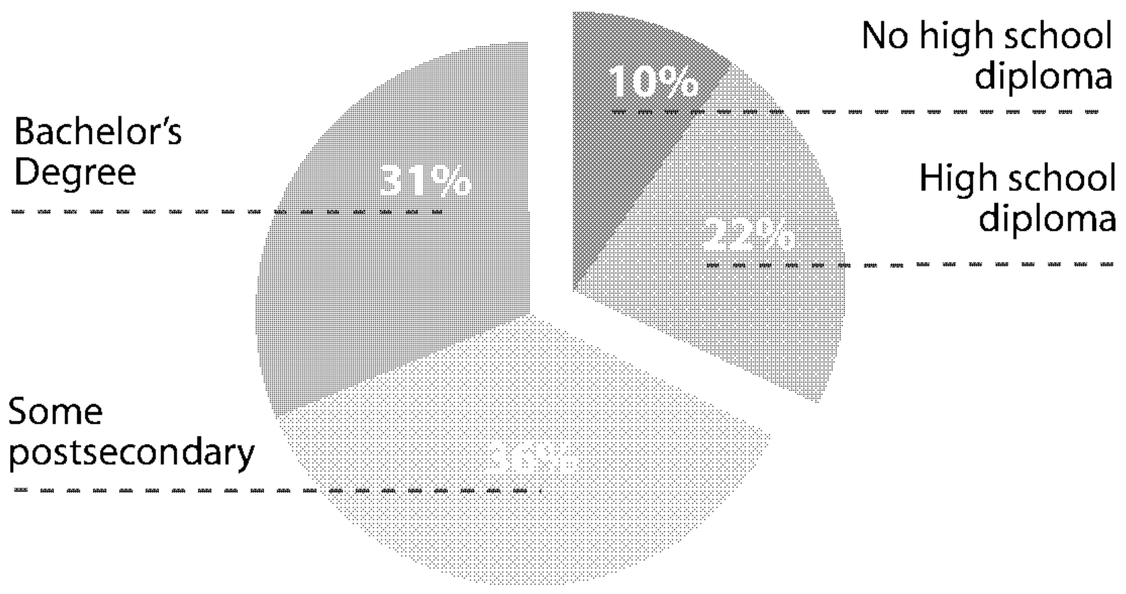
How serious is the problem? One way to answer that question is to try to quantify the scope of the expectations, the gaps in preparation, and the disconnect in our decision-making.

First, the expectations . . .

- 90 percent of the fastest-growing occupations require some education beyond high school. ("Expanding the Advanced Placement Incentive Program," U.S. Department of Education Web site, February 2006)
- By 2010, the number of jobs requiring at least a bachelor's degree is expected to increase 21.6 percent, and the number of jobs requiring at least an associate's degree is expected to rise 32 percent. (*Occupation Outlook Survey, 2002-2003,* U.S. Department of Labor, Bureau of Labor Statistics)

More Than Two-Thirds of New Jobs Require Some Postsecondary Education

Source: *Closing the Expectations Gap 2006,* Achieve, Inc., February 2006

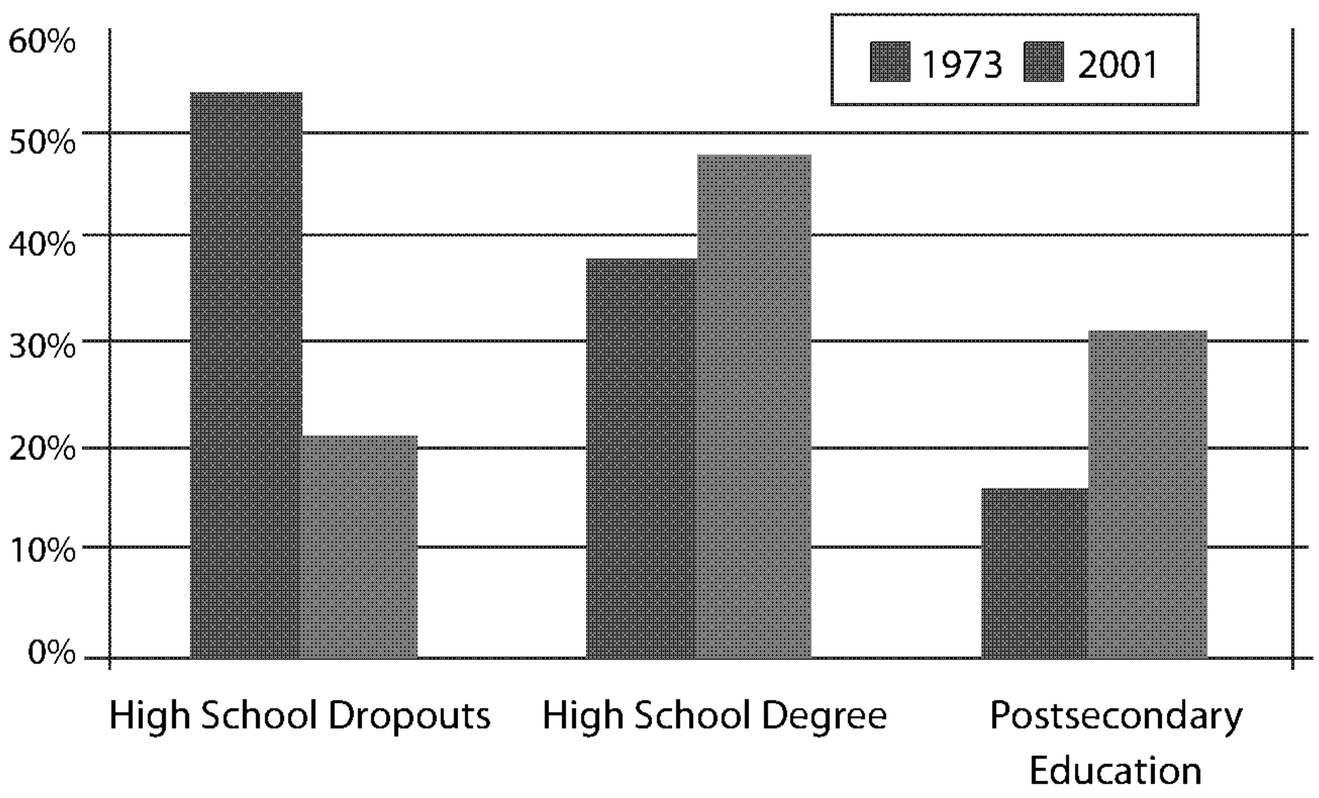


- Jobs requiring science, engineering or technical training will increase 24 percent between 2004 and 2014 ("Strengthening Education: Meeting the Challenge of a Changing World," U.S. Department of Education Web site)
- More than 50 percent of the current science and engineering workforce is approaching retirement. (*Tapping America's Potential: The Education for Innovation Initiative,* Business Roundtable, July 2005)

- If current trends continue, more than 40 percent of manufacturing jobs will require postsecondary education by 2012. Thirty years ago, more than half of U.S. manufacturing workers did not even have a high school diploma. (*The Looming Workforce Crisis: Preparing American Workers for the 21st Century Competition,* National Association of Manufacturers, Labor Day Report 2005)

- 732 Ohio manufacturers responding to a September 2004 workforce survey indicated that they will need to fill 45,500 jobs over the next three years, including 28,000 entry-level positions. If these numbers are extrapolated to project total job creation for ***all*** Ohio manufacturers, we can predict that Ohio's manufacturing sector will need to fill more than 400,000 jobs through 2006, with more than 250,000 of those jobs being entry-level positions. (*AdvanceOhio: Manufacturing Workforce Survey Project,* The Ohio Manufacturers' Association and the Ohio Department of Development)

Distribution of Manufacturing Jobs by Education



Source: Educational Testing Service, *Standards for What?* 2003

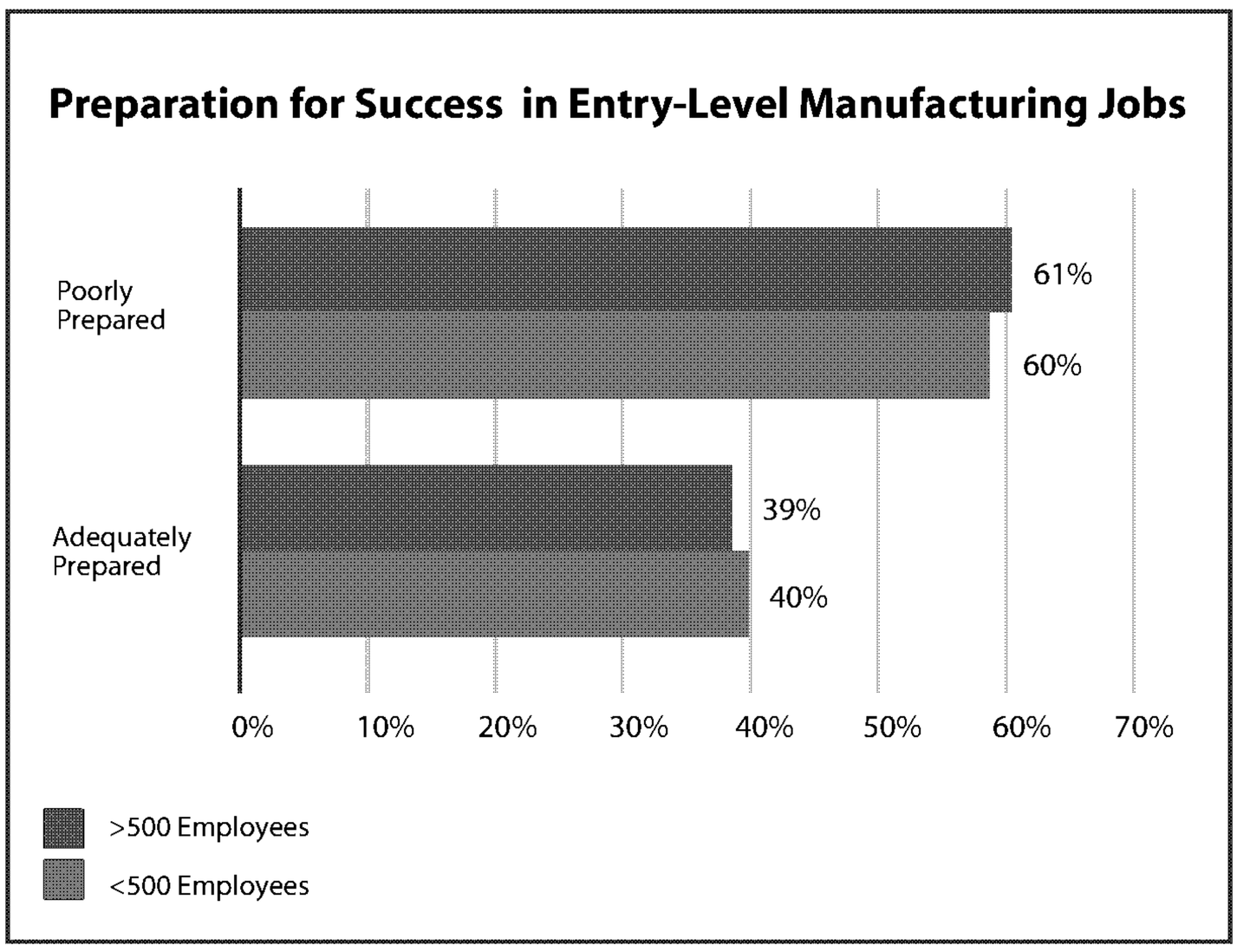
Next, the gaps in preparation . . .

- By the year 2010, the United States will face a shortage of 12 million qualified workers for the fastest-growing sectors of the economy. (U.S. Department of Labor, Bureau of Labor Statistics, 2001)

- Ohio manufacturers expect difficulty in filling more than 60 percent of 35,000 planned and 400,000 projected high-skill manufacturing jobs during the next three years. (*AdvanceOhio: Manufacturing Workforce Survey Project,* The Ohio Manufacturers' Association and the Ohio Department of Development)

- In a 2005 survey of 800 U.S. manufacturing companies, more than 80 percent indicated they are experiencing an overall shortage of qualified workers, a gap that cuts across industry sectors. More specifically:
    - 90 percent reported a moderate to severe shortage of qualified skilled production employees, including machinists, operators, craft workers, distributors and technicians.
    - 65 percent reported a moderate to severe shortage of engineers and scientists.
    - 83 percent said these shortage are currently affecting their ability to meet customer demands; 56 percent indicated difficulty in achieving necessary production levels; and 43 percent reported difficulties increasing productivity.
    - 60 percent said high school graduates are "poorly prepared for a typical entry-level job."

(*2005 Skills Gap Report – A Survey of the American Manufacturing Workforce*, National Association of Manufacturers, The Manufacturing Institute, and Deloitte Consulting LLP, November 2005)

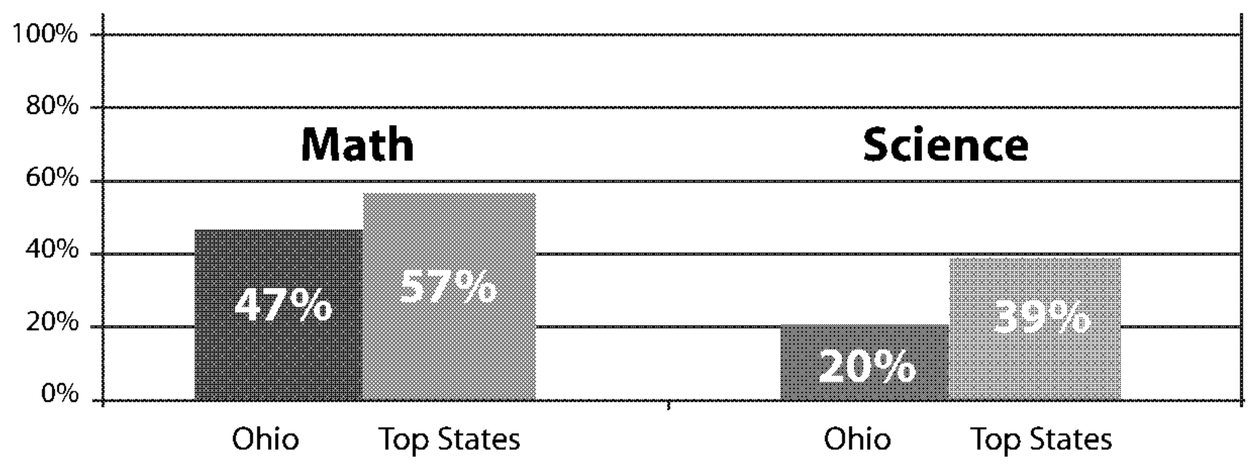


Source: *2005 Skills Gap Report – A Survey of the American Manufacturing Workforce*, National Association of Manufacturers, The Manufacturing Institute, and Deloitte Consulting LLP, November 2005

Finally, the disconnect . . .

- Recent research from the testing company ACT indicates that taking certain courses, such as Biology, Chemistry, Physics and mathematics courses including Algebra II and beyond, "substantially increases students' readiness for college-level work as well as their readiness for workforce training programs." ("Benefits of a High School Core Curriculum in Ohio," ACT, 2006) And yet, far too few Ohio high school students are taking those challenging, upper-level courses, as the following chart shows.

Percentage of Ohio High School Students Taking Upper-Level Science and Mathematics Courses Compared to Top-Performing States



Source: National Center for Public Policy and Higher Education, *Measuring Up 2002: The State-by-State Report Card for Higher Education*

- The Ohio Board of Regents projects that 40 percent of first-time college freshmen who completed a *minimum* core curriculum in high school will earn a college degree. For students who took a *complete* core curriculum, the success rate jumps to 69 percent. And yet, just 24 percent of Ohio high school students take a rigorous core curriculum. (*Making the Transition from High School to College in Ohio*, Ohio Board of Regents, December 2005)

- 86 percent of Ohioans believe getting a college education is as important as getting a high school diploma used to be. (*Ohio Education Matters: The Value of Education in the 21st Century*, KnowledgeWorks Foundation, 2005 survey) And yet, in 2002, Ohio ranked 40th among all states for the percentage of the state's population that had completed a bachelor's degree or higher. Ohio's rate was 21.9 percent compared to the national average of 25.9 percent. (*A Policymaker's Guide to Higher Education in Ohio: 2004*, Ohio Board of Regents)

Why is Algebra II So Important?

Students who complete Algebra II are ***three times*** more likely to earn a college degree at a four-year institution than if the highest-level mathematics course they took was geometry.[6]

Some people ask, "Why is Algebra II so important? Isn't content from this course used directly in only a handful of occupations?"

That's a fair question. And the answer is, yes, Algebra II ***content*** is directly used primarily in certain technical occupations. But the evidence suggests that the rigor and discipline of Algebra II are valuable in other, less direct ways.

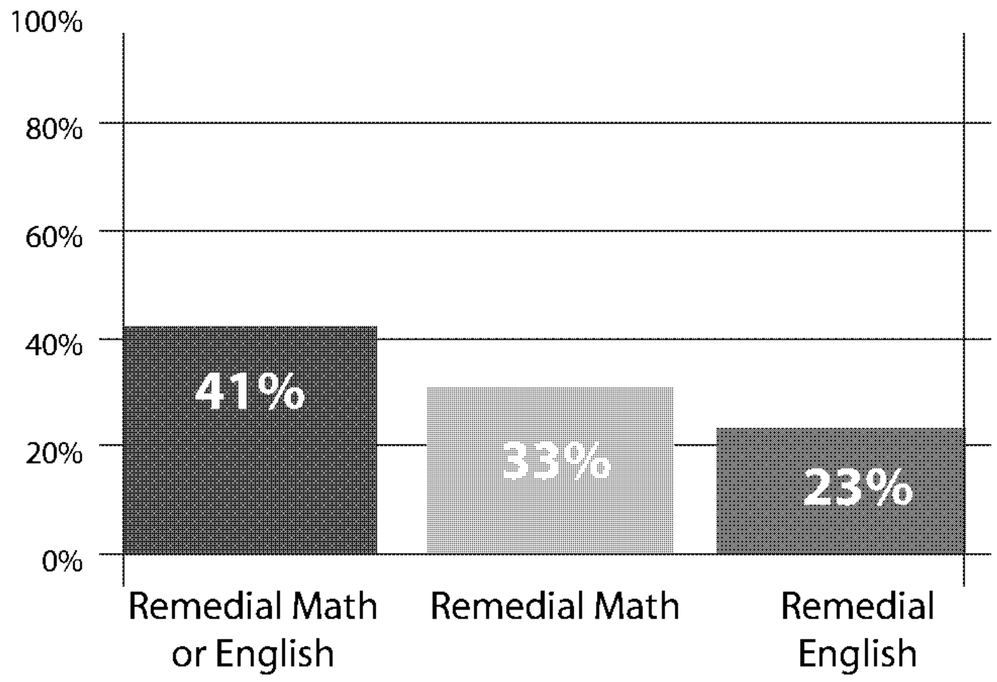
Students who take advanced mathematics courses such as Algebra II develop logic and reasoning skills that can help make them more productive in the workplace. In fact, Algebra II is widely considered to be the best predictor of success in college and high earnings in the world of work.

The True Cost of Remedial Coursework in College

Each year, American taxpayers pay an estimated $1 billion to $2 billion for remedial college education – in essence, paying a second time for what their local and state taxes already have paid for once in high school. Inadequate basic skills cost American businesses, colleges and under-prepared graduates $16 billion annually in lost productivity and remedial costs. [7]

Here in Ohio, 41 percent of our most recent high school graduates took at least one remedial course in English and math during their first year in college. These courses cost our system $29 million a year – and do not count for college credit. Moreover, students who take these courses are 75 percent less likely to earn their degree. In fact, of these students, only 4 in 10 will ever earn a 2-year of 4-year degree. [8]

Percentages of Recent Ohio High School Graduates Enrolled as First-Time College Freshmen and Taking Remedial Classes



Source: Ohio Board of Regents, *Making the Transition from High School to College in Ohio 2005: A Statewide Perspective*

Action is mobilizing on many fronts

During the last 18 months, organizations such as Business Roundtable, the U.S Chamber of Commerce, The National Association of Manufacturers, the National Academy of Sciences and the Council on Competitiveness have called for urgent action to protect our nation's historic – yet increasingly vulnerable – world leadership in science and technology.

Momentum is gathering on many fronts. For example:

- President George Bush has proposed an American Competitiveness Initiative to increase investments in research and development and to strengthen education and workforce training, especially in science, mathematics and technology.
- Twenty-one states, including Ohio, have joined together as part of the American Diploma Project, an initiative aimed at preparing every high school student for college and the world of work.
- Ohio Governor Bob Taft has proposed an "*Ohio*Core" curriculum that would require Ohio students to meet more rigorous coursework requirements in mathematics, science and foreign languages as a condition for admission to Ohio's four-year public universities.

- The State Board of Education's High School Task Force issued a report in November 2004 asserting that Ohio high schools must focus on fostering "rigor for all students, relevance to the community and wider world, and relationships that ensure students are known by adults who understand them and care about their success." [9]
- The Ohio Business Alliance for Higher Education and the Economy (BAHEE) has announced a major initiative to "catapult Ohio as a magnet and global leader in attracting, cultivating, training and producing the skilled scientists and engineers needed to create tomorrow's innovations." BAHEE has established the bold goal of doubling, by 2015, the number of science, technology, engineering and mathematics baccalaureate degrees granted by Ohio colleges and universities.

Expectations are rising for entry-level workers… and for well-paid jobs with opportunities for advancement

It's increasingly clear that education and training must become more rigorous. Case in point: As part of a research project for the American Diploma Project, the National Alliance of Business surveyed officials from 22 different occupations about the most useful skills high-school graduates would need if they came to work for the respondents' companies. Occupations represented ranged from manufacturing to financial services. The research revealed that employers expect workers to come to the job able to: [10]

- Read and comprehend informational and technical texts.
- Write coherently, concisely, persuasively and appropriately for different audiences and purposes
- Possess research skills, especially the ability to synthesize information from various sources and evaluate its relevance
- Understand and use data, probability and statistics
- Be competent problem solvers
- Have strong college-prep mathematics background (Algebra I and II and Geometry)

Even in the manufacturing sector, which historically has been a major source of jobs for young people who dropped out of high school or did not continue their education beyond a high school diploma, ***expectations for entry-level workers are rising well beyond what was true a generation ago.*** Data collected here in Ohio indicate that the top three training and development needs for *hourly* manufacturing employees are work ethic (interpersonal skills, initiative, dependability), problem solving and teamwork; for *salaried* manufacturing employees, the top three were communication, problem solving and teamwork.[11]

A rigorous high school curriculum can help fill even "soft skills" gaps such as these, because the disciplined thinking and problem solving required of high-level mathematics and science courses can help build capabilities in other, broader areas.

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The Convergence of College & Workplace Readiness

The trend is clear: Fewer and fewer jobs – good jobs, well-paying jobs, jobs with opportunities for advancement – are going to be available to young people who have only a high school diploma. More and more commonly, some postsecondary education will be required.

The "preparation for success" bar is being raised – and education and training must become more rigorous But, it's absolutely critical for policymakers to understand this one vital point: ***Increased rigor in the high school classroom is just as necessary for students going directly into the workforce right out of high school as it is for students planning on attending college.*** In the words of The Education Trust, "A fundamental transformation has taken place in the workplace – a transformation that wipes out age-old ideas about minimum skills."[12]

Employers and colleges have made it clear that they are looking for the same basic skills in prospective employees and undergraduates. All high school graduates should be able to write and speak clearly, gather and analyze information, conduct research and solve difficult mathematics problems. The American Diploma Project (ADP) has developed specific English and mathematics benchmarks for success in postsecondary education or in high-performance, high-growth jobs. (See pages 26-30.) In developing the benchmarks, ***ADP found a high degree of convergence between the expectations that employers have of new workers and those that college faculty have of entering freshmen students:***

> The knowledge and skills that high school graduates will need in order to be successful in college are the same as those they will need in order to be successful in a job that (a) pays enough to support a family well above the poverty level, (b) provides benefits, and (c) offers clear pathways for career advancement through further education and training.[13]

In other words, whether high school graduates are going directly to college or to work, they need the same skills.

Unfortunately, we know that too many of our young people are leaving high school without the essential skills for success. We know this because employers have told us, college professors have told us, and students themselves have told us. No matter the source, the message is the same: ***We are not challenging our high school students enough, and we are not preparing them to succeed, compete and prosper.***

In a survey of public high school graduates, college instructors and employers conducted in December 2004 and January 2005 by Peter D. Hart Research Associates and Public Opinion Strategies, some remarkable and thought-provoking similarities emerged.[14]

What employers said . . .

- 39 percent of high school graduates with no additional education are not adequately prepared for their current job.
- 45 percent of high school graduates do not have the skills to advance beyond entry-level jobs.

What college instructors said . . .

- 42 percent of their first-year college students are not adequately prepared for college-level work.
- 65 percent of instructors said high schools do not adequately prepare graduates to meet the expectations they will face in college.
- 70 percent of instructors said they spend some class time reviewing materials and skills that should have been taught in high school, wth 24 percent saying they spend a *significant* amount of class time on remediation.

What students said . . .

- 39 percent of college students and high school graduates said they have gaps in the skills and abilities expected in their college courses or jobs, respectively.
- 44 percent of college students said there were gaps in their high school preparation in science; for non-students already in the workplace, the figure was 51 percent.
- 44 percent of college students said there were gaps in their high school preparation in mathematics; for non-students already in the workplace, the figure was 41 percent.
- Knowing what they know today, 65 percent of college students and 77 percent of non-students said they would have worked harder in high school.
- Knowing what they know today, 62 percent of college students and 72 percent of non-students said they would have taken at least one more difficult course in English, mathematics or science in high school.

All three groups – employers, instructors and students – indicated that they support reforms that would raise standards and requirements for graduation.

- 83 percent of employers, 81 percent of college instructors, and 74 percent of all high school graduates (both those in college and those went straight to work after high school) support requiring high school students to take four years of mathematics, plus biology, chemistry and physics to graduate.

Debunking the "Rigorous Courses Aren't for Everyone" Myth

Despite the overwhelming evidence that Ohio needs to substantially increase the number of young people with strong mathematics and science skills and technological expertise, some people believe that requiring a challenging, high-level curriculum for all high school students is not the answer. These people usually base their objections on one of three points:

MYTH: *A one-size-fits-all core curriculum would fail to address the fact that not all students have the same needs, learning styles, abilities or aspirations to go to college.*

REALITY: First and foremost, the data are clear that the knowledge and skill levels needed to be successful in college or in work are the same. Second, a challenging core curriculum can be delivered to students through any of a number of different instructional pathways such as a traditional college prep program, a College Tech Prep program, or a Vocational and Career Technical Education program. In other words, students can learn the rigorous content in different ways that are best matched to their personal interests and goals, ranging from traditional academic experiences to more hands-on, applied learning experiences and even early college experiences.

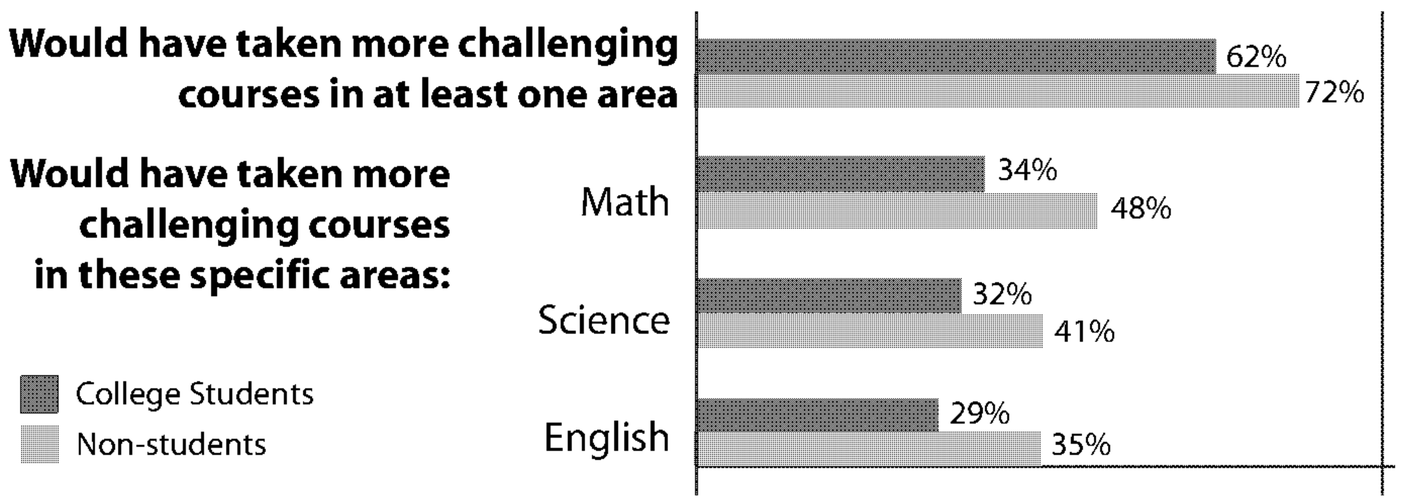
MYTH: *There are not enough good, high-growth, high-wage jobs available to justify requiring all students to take a challenging core curriculum.*

REALITY: Research shows that over the last 20 years the job market has readily accommodated the increased number of college-educated workers who have entered the workforce. Moreover, not only has the supply of high-skilled workers increased, but so too have wages risen. As has been noted throughout this document, labor need projections consistently point to a likely shortage – not a glut – of highly skilled workers, especially in the STEM disciplines. [15] Plus, with the baby boom generation rapidly approaching retirement, large numbers of highly experienced scientists and engineers will be leaving the workforce soon. More than half of all science and engineering workers in the United States are over 40, and 26 percent are older than 50. Their retirement will create a huge knowledge and skills gap. [16]

MYTH: *Demand for low-skill workers in certain industries, such as food service, are projected to rise, and the individuals who will fill these jobs clearly do not need a rigorous college-prep curriculum in high school.*

REALITY: It's true that demand for food-service jobs is increasing, but the *primary* reason for the increased demand is not an increase in the number of these low-skill jobs. Rather, it's the need to constantly replace individuals in an industry where about two-thirds of the workers are between ages 16 and 19.[17] More generally, these jobs tend to have high turnover rates and often are filled by individuals in transition. Research shows that about 30 percent of all low-skill jobs are held by young people under age 25.[18] They generally have these jobs while they are going to school and/or preparing for other careers.

Majorities of Graduates Would Have Taken Harder Courses

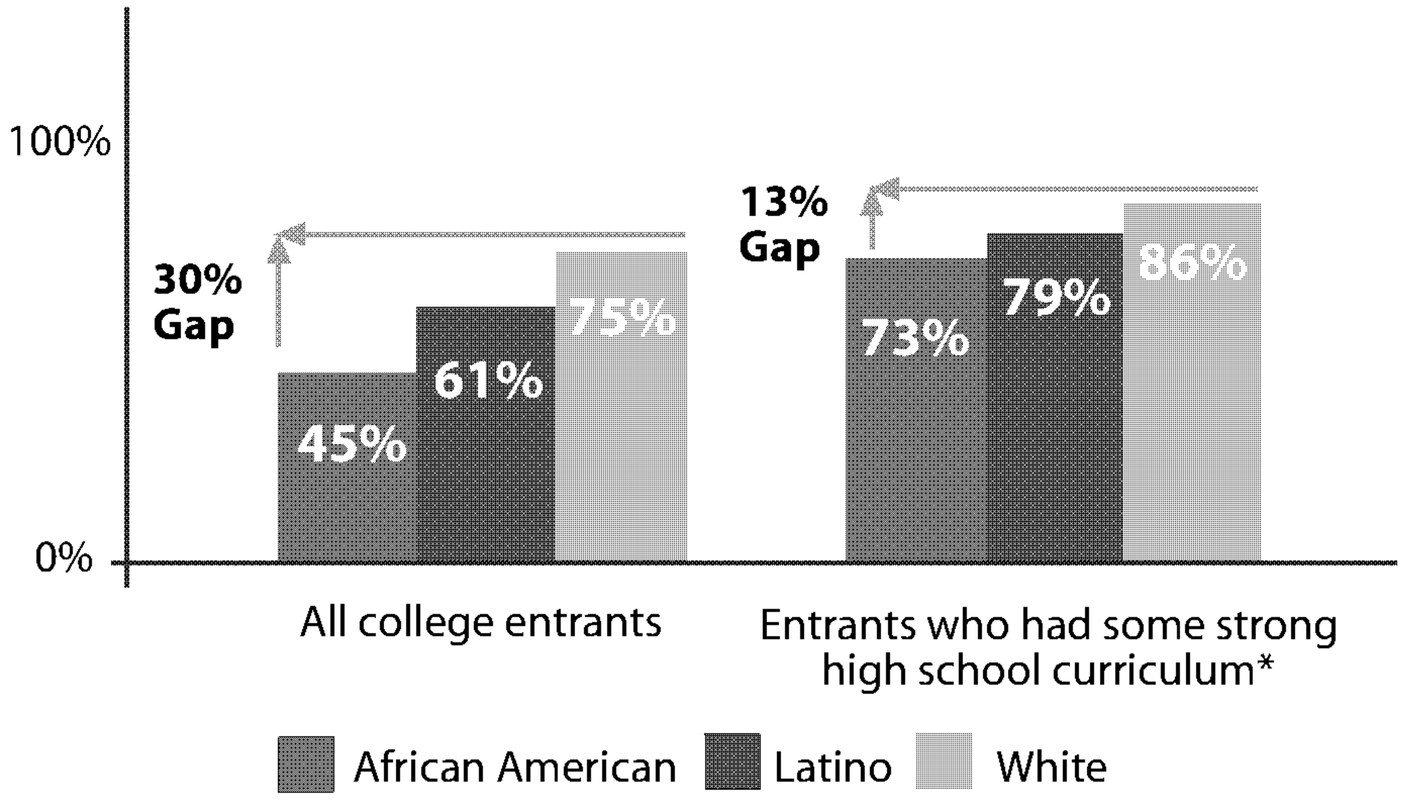


Source: *Rising to the Challenge: How Prepared Are Public High School Graduates?* Peter D. Hart Research Associates & Public Opinion Strategies, for Achieve, Inc.

Academic Rigor Narrows Achievement and Opportunity Gaps

There is a growing amount of research that shows when all kids get the same rigorous high school curriculum, all kids do better – especially students from low-income and minority families. According to the American Diploma Project, the degree attainment gap between white and minority students ***shrinks by half*** when all students have taken similarly rigorous courses in high school.[19] In fact, students' academic resources – i.e., the rigor of their academic preparation – matter far more than their socioeconomic status in predicting college success. [20] And rigorous preparation in high school substantially narrows the gap in postsecondary outcomes between first-generation college students and their peers whose parents graduated from college. [21]

More Challenging Curriculum Narrows Gaps in College Completion Rates



*Students completing at least Algebra II plus other courses

Source: Clifford Adelman, *Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment*, U.S. Department of Education, Office of Educational Research and Improvement, June 1999

All of this leads to a potentially powerful conclusion – i.e., that ***narrowing the expectation gap through more rigorous high school curriculum helps to narrow the achievement gap.***

Evidence also suggests that minority students have a deeper appreciation for the potential value of a rigorous high school curriculum. Consider:

- 53 percent of minority high school students surveyed by Public Agenda said they think strong mathematics and science skills are "absolutely essential" for success in the real world, compared to 48 percent of white high school students. In that same poll, 35 percent of black students said they think it's a serious problem that students are not taught enough mathematics and science, and 67 percent of black students said increasing the number and quality of math and science instruction would improve high school education. The responses for white students were 20 percent and 54 percent, respectively. (*Reality Check 2006: Are American Parents and Students Ready for Math & Science?* Public Agenda)

- Other studies have demonstrated that that minority students want more advanced high school courses than typically are available to them. (*Progress Toward Power: A Follow-up Survey of Children's and Parents' Attitudes About Math and Science,* National Action Council for Minorities in Engineering, October 2001)

Data such as these raise this fundamental question: How can anyone who claims to be concerned about closing the achievement gap not embrace initiatives designed to require ***all*** students take more rigorous, challenging coursework in high school?

The Link Between Rigor and Opportunity

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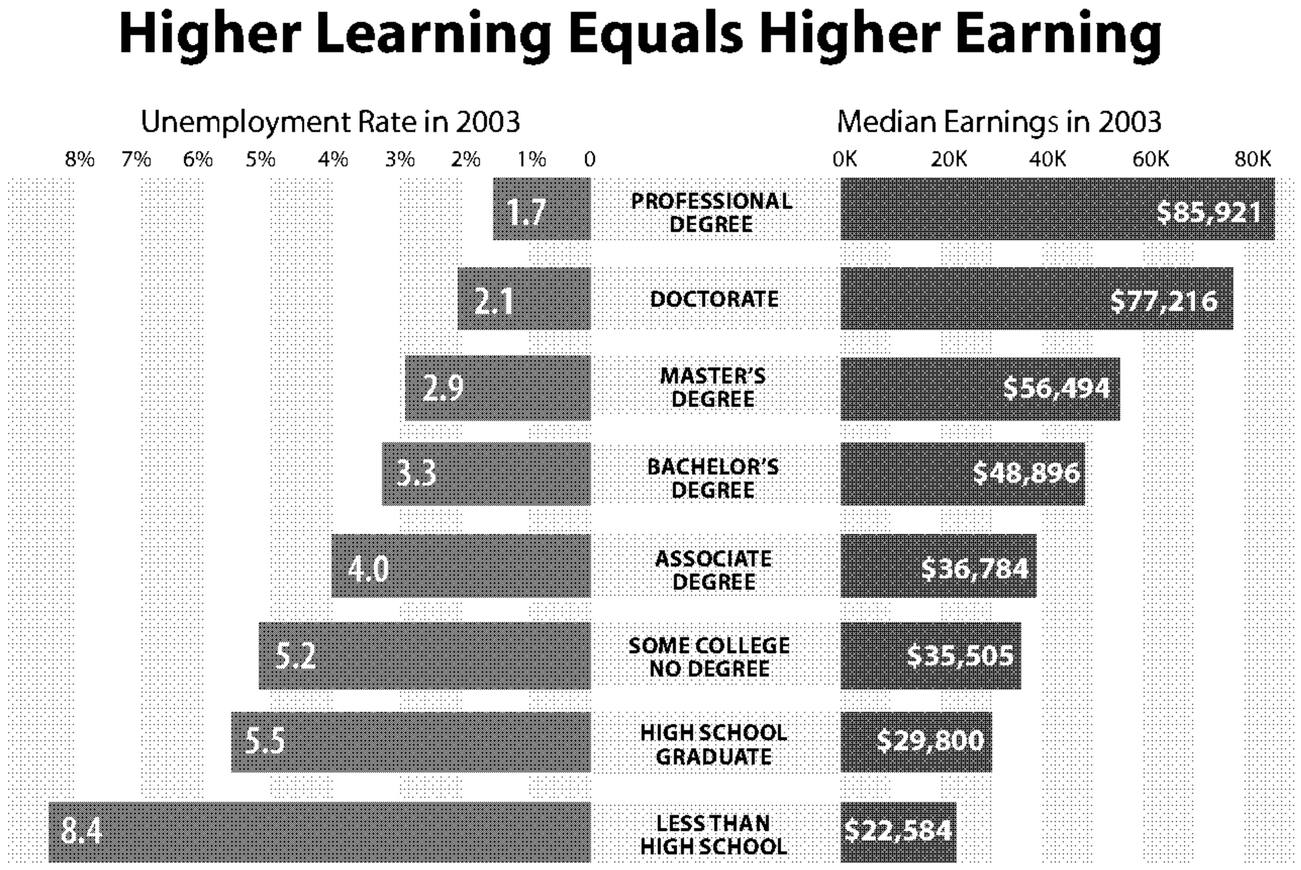
Taking rigorous courses in high school opens doors to opportunity in the world after high school – whether that world is a college or university campus, or direct entry into the workplace or the military. No matter what pathway a high school graduate chooses to follow, rigorous academic preparation increases his or her options – for further education, for career directions, for economic prosperity.

- Young people who take challenging, rigorous courses in high school and directly enter the workforce upon graduation have access to a wider variety of high-wage jobs, have more options for advancement in those jobs, and make more money over the course of their lifetimes.
- Young people who take challenging, rigorous courses in high school and continue with postsecondary education upon graduation have more college options from which to choose, are more likely to earn scholarships, and are more likely to stay in college and graduate.
- And, because there is a direct correlation between levels of educational attainment and earning power – a direct link between learning and earning – they will earn more money and be gainfully employed.

Data exist that clearly document the strong links between academic rigor, educational success and economic opportunity:

- 84 percent of young workers in the 25 best-paying jobs completed Algebra II or another higher-level math course in high school, and 94 percent took geometry. (*Standards for What? The Economic Roots of K-16 Reform,* Educational Testing Service, 2003)
- High school students who follow a rigorous course of study, including lab sciences and higher math, are nearly twice as likely to graduate from college as those who do not. They also earn 13.1 percent more, regardless of whether they attend college or not. (Clifford Adelman, *Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment,* June 1999)
- A typical high school graduate without any additional education will earn, over a lifetime, *half as much* as a college graduate. (U.S. Bureau of Census, 2002)
- Adults who have only a high school diploma are twice as likely to be unemployed as those who have a bachelor's degree. (U.S. Department of Labor, Bureau of Labor Statistics, 1999)



Source: U.S. Bureau of the Census and U.S. Bureau of Labor Statistics, Published by Postsecondary Education OPPORTUNITY

Research from ACT Documents Value of a Rigorous Core Curriculum

Earlier this year, ACT issued a report summarizing research it conducted on the preparation and performance of Ohio high school graduates in 2005 who took the ACT test (about 81,000 students). Of those students, 59 percent took a core curriculum and 34 percent took less than the core curriculum. [22]

The report found that students who took more rigorous high schools courses enjoyed significant benefits, in terms of both college readiness and college success. Here are the major findings of the report:

- Ohio students who take the core curriculum in high school score higher on the ACT than those who don't – ***regardless of gender, family income and racial-ethnic background.***
- This is true even when students' achievement levels are taken into account, Ohio students who take more rigorous high school courses score higher on the ACT than those who don't. In other words, ***it's not just the highest-achieving students who benefit from taking more rigorous courses.*** Regardless of prior levels of achievement (indicated by grade point average), Ohio students who take more rigorous courses score higher on the ACT than those who don't.
- Ohio students who take the core curriculum in high school enroll in college at a higher rate, and have higher completion rates, than those who don't – ***regardless of gender, family income and racial-ethnic background.***

What does this really mean for Ohio students? It's simple: Higher ACT scores give students better chances of being admitted to the college of their choice, better chances of earning scholarships, and better chances of staying in college and earning a degree. And a challenging core curriculum in high school leads to higher ACT scores.

The Call to Action

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Governor Bob Taft and members of the Ohio General Assembly are to be commended for their successful efforts to raise academic standards and align student assessments to those standards. Ohio clearly has made progress. Now it's time to take the logical next step.

Ohio policymakers must act decisively – and soon – to position Ohio for success in a future that already is close upon us. Employers need a more highly skilled workforce with heretofore unprecedented capacity to innovate and compete; colleges and universities need students better equipped for higher levels of thinking, learning and creating new knowledge; and high school students need the knowledge, skills and behaviors required for success in college and careers.

One strategy for beginning to address all of these essential requirements is to demand more of our high school students through more challenging, rigorous courses. We are well-positioned as a state to act in this regard. Ohio already has strong academic content standards established for the 12th grade. These standards were developed by experienced classroom teachers from schools across Ohio, with input from employers, professional organizations, outside experts, parents and others. ***The problem is, the Ohio Graduation Test only assesses students against 10th-grade knowledge and skills.***

Governor Taft's *Ohio*Core proposal addresses this critical "expectation gap." The rigorous course requirements spelled out in the Governor's proposal will help make sure that all children in Ohio learn what experienced Ohio teachers already have identified as important for high school graduates to know and be able to do when they leave high school – and what employers and college instructors have told us are required for success.

The Ohio Business Alliance for Higher Education and the Economy (BAHEE) has announced its commitment to help Ohio double, by 2015, the number of baccalaureate degrees in STEM disciplines awarded by Ohio colleges and universities. Achieving this vital yet ambitious goal will require more students in Ohio to be "college ready" when they leave high school. ***BAHEE views the OhioCore proposal for more rigorous core curriculum at the high school level as a critical enabler for all students to be college- and work-ready.*** This in turn improves the likelihood of their success in pursuing undergraduate degrees, particularly in the STEM disciplines.

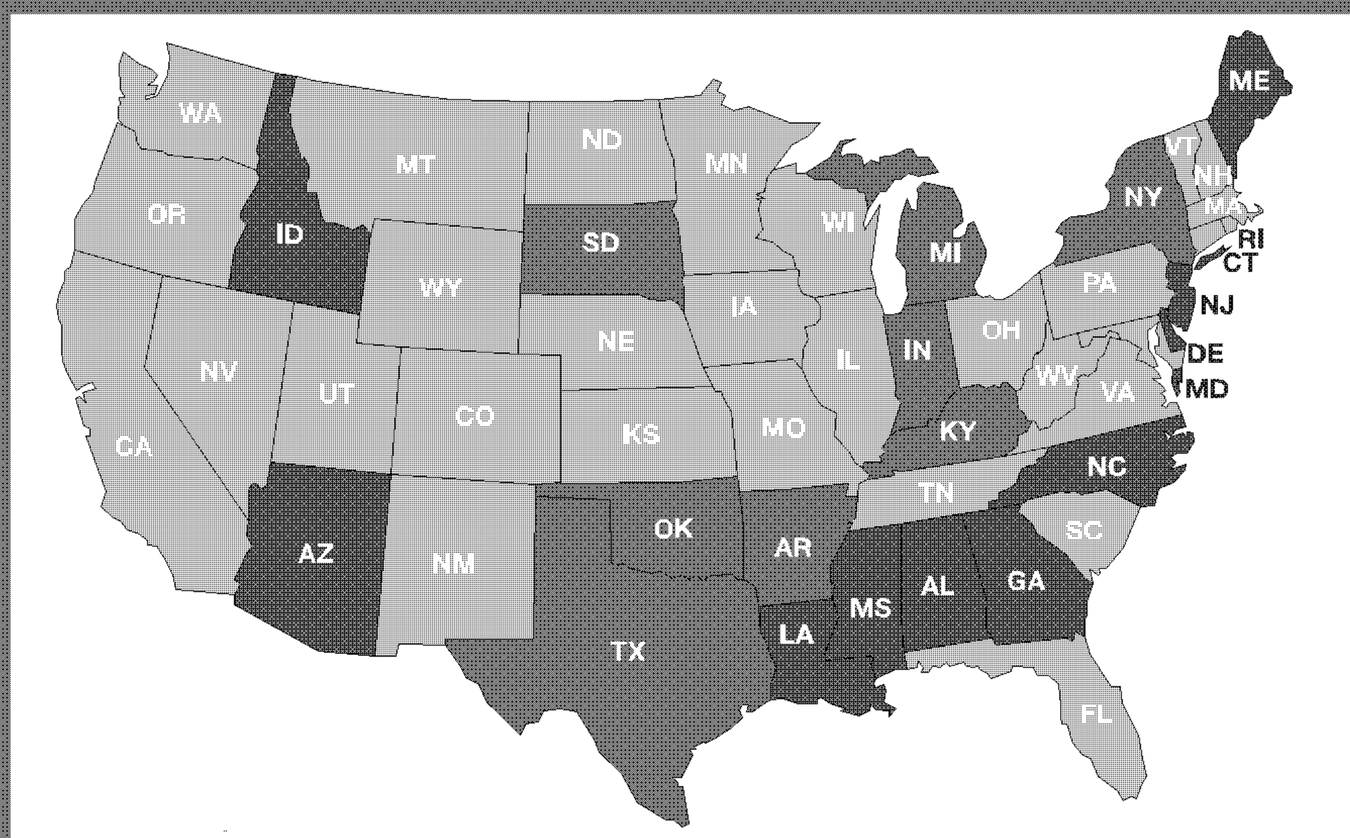
For this reason, BAHEE supports the *Ohio*Core proposal – and calls on state policymakers to do the same.

Responding to the challenge before us will not be easy. Despite the fact that employers, college instructors and students alike support raising academic standards and raising graduation requirements, many parents and members of the public are not yet persuaded.

A recent (late 2005) survey of parents nationwide by the polling firm Public Agenda suggests that American parents and students do not share business and government leaders' worries that flagging mathematics and science skills are a major cause for concern. Among the key findings of the Public Agenda survey was that "many parents are complacent about science and math education."[23] For example:

- Most parents polled think their children will have the skills they need to succeed in college (69 percent) and in the work world (61 percent) when they graduate from high school.
- Most parents support various proposals to make high schools more competitive internationally, as well as the notion that students need to study advanced mathematics to succeed in college and work (62 percent). And yet, 57 percent of parents of all school-age kids, and 70 percent of parents of high school students, think their child already is taking enough mathematics and science in high school.

What Are Other States Doing?



Already implemented a rigorous core curriculum
(Arkansas, Indiana, Kentucky, Michigan, New York, Oklahoma, South Dakota, Texas)

Aggressively pursuing a rigorous core curriculum
(Alabama, Arizona, Delaware, Georgia, Idaho, Louisiana, Maine, Maryland, Mississippi, New Jersey, North Carolina)

- Like their parents, most students support various proposals to make high schools more competitive internationally. However, only about half feel that strong mathematics and science skills are essential for their future, and just 28 percent think they are not taught enough mathematics and science.

It merits noting here, however, that the students polled in the Public Agenda survey were high school students, whereas the students surveyed in the Hart Research Associates/ Public Opinion Strategies poll mentioned earlier in this document were recent high school graduates who had moved on to college or work. The older students, with a more informed understanding of what really is required for success in the real world, voiced much stronger support for greater academic rigor in high school, especially in mathematics and science.

Whatever the obstacles, Ohio must persevere. The evidence is too compelling. The need is too dramatic. And the stakes are too enormous. The innovation economy functions in a world that has been "flattened" by globalization. Competition for talent, and for jobs, will become increasingly global and progressively fiercer. As state and national leaders, we must insist on more rigorous academic preparation for all high school students in our state and across the nation.

As Kati Haycock, the widely respected director of The Education Trust, has said, "To do anything else is nothing short of educational malpractice." [24]

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Endnotes

[1] *Knowledge and Know-How: Meeting Ohio's Skill Gap Challenge,* Ohio Business Roundtable, Ohio Department of Education and ACT, 1998.

[2] *Tapping America's Potential: The Education for Innovation Initiative,* Business Roundtable, July 2005.

[3] *Innovate America: Thriving in a World of Challenge and Change,* Council on Competitiveness, 2005.

[4] *Thinking K-16,* Volume 7, Issue 1, Winter 2003.

[5] *Tapping America's Potential,* op. cit.

[6] Laura Perna and Mavin Titus, *Understanding Difference in the Choice of College Attended,* 2003.

[7] *Preparing Today's High School Students for Tomorrow's Opportunities,* Achieve, Inc.

[8] *Making the Transition From High School to College in Ohio,* Ohio Board of Regents, December 2005.

[9] *High-Quality High Schools: Preparing All Students for Success in Postsecondary Education, Careers and Citizenship*, Ohio Department of Education, November 2004.

[10] This data from an unpublished research for the American Diploma Project was presented in *Thinking K-16,* Volume 7, Issue 1, Winter 2003.

[11] *AdvanceOhio: Manufacturing Workforce Survey Project,* The Ohio Manufacturers' Association and the Ohio Department of Development.

[12] *Thinking K-16,* op. cit.

[13] American Diploma Project PowerPoint presentation, Achieve, Inc.

[14] *Rising to the Challenge: Are High School Graduates Prepared for College & Work?,* Peter D. Hart Research Associates & Public Opinion Strategies, for Achieve, Inc. The survey included 1,487 public high school graduates from the Classes of 2002, 2003 and 2004; 400 employers who make personnel decisions (owners, CEOs, presidents, HR professionals); and 300 instructors who teach first-year students at two-year and four-year colleges and universities.

[15] Anthony P. Carnevale and Richard A. Frey, "The Economic and Demographic Roots of Education and Training," Center for Workforce Success, National Association of Manufacturers, November 19, 2001.

[16] National Science Foundation, *Science and Engineering Indicators,* 2004.

[17] "Tomorrow's Jobs," *Occupational Outlook Handbook, 2002-2003*, U.S. Department of Labor, Bureau of Labor Statistics.

[18] Anthony P. Carnevale and Donna M. Desrochers, "The Missing Middle: Aligning Education and the Knowledge Economy," for the Office of Vocational and Adult Education, U.S. Department of Education, April 2002.

[19] "American Diploma Project Defines What High School Graduates Need to Know, Says Many Fall Short," American Diploma Project news release, February 10, 2004.

[20] Clifford Adelman, *Answers in the Tool Box: Academic Intensity, Attendance Patterns and Bachelor's Degree Attainment,* U.S. Department of Education, Office of Educational Research and Improvement, 1999

[21] E.C. Warburton, R. Bugarin and A.M. Nunez, *Bridging the Gap: Academic Preparation and Postsecondary Success of First-Generation Students,* U.S. Department of Education, Office of Educational Research and Improvement, 2001.

[22] "Benefits of a High School Core Curriculum in Ohio," ACT, 2006. ACT defined "core curriculum" as four years of English and three years each of mathematics, social studies and science.

[23] *Reality Check 2006: Are American Parents and Students Ready for Math & Science?*, Public Agenda.

[24] *Thinking K-16,* op. cit.

Real-World Job Tasks and College Assignments

Beginning on the following page and continuing through page 61, we have reprinted with permission from Achieve, Inc., a number of pages from *Ready or Not: Creating a High School Diploma That Counts*, a report from The American Diploma Project. These pages include the following:

- **A brief discussion of college and workplace readiness benchmarks in English and mathematics** based on research and empirical evidence from employers and postsecondary educators about the knowledge and skills they require of their employees and students, respectively. The text identifies eight strands for English benchmarks and four strands for mathematics benchmarks. You will note, however, that due to space limitations, we have not reproduced the *Ready or Not* pages that define the approximately 150 specific benchmarks.

- **A series of actual workplace tasks and postsecondary assignments** to illustrate, in the words of The American Diploma Project, "the intellectual rigor of real-world environments beyond high school." These are examples of actual workplace tasks from real companies, and also actual classroom assignments from real two-year and four-year colleges and universities. You will note that each task and assignment is preceded by a chart containing coded references to the specific benchmarks being addressed in the task/assignment. These codes refer to the specific benchmarks that are spelled out in *Ready or Not*, but which are not included in *The Talent Challenge*.

The entire text of *Ready or Not*, including a full listing of the specific English and mathematics benchmarks, can be found in the publications section of the Achieve, Inc., Web site at www.achieve.org .

College and Workplace Readiness Benchmarks and Samples

Benchmarks

The English and mathematics benchmarks that follow were identified and refined over 18 months of research conducted in postsecondary institutions and high-performance workplaces, both within and beyond the ADP partner states and in conjunction with K–12 educators. (See "Methodology" on page 105* for a description of the development process.) The benchmarks, as well as the workplace tasks and postsecondary assignments that accompany them, represent a collaborative effort among K–12 educators, postsecondary faculty and front-line managers to define a common core of fundamental literacy and numeracy – what high school graduates must know and be able to do to be fully prepared to succeed in credit-bearing college courses or in high-growth, highly skilled occupations.

The work of ADP differs in one significant respect from other praiseworthy state efforts to develop standards: It grounds its benchmarks in empirical evidence of what the postsecondary world – employers and educators – actually requires of employees and students. The innovative addition of actual workplace tasks and postsecondary assignments vividly illustrates the intellectual demand that high school students will encounter in high-performance workplaces or in credit-bearing first-year college courses.

*This parenthetical note refers to a page in the original source document, *Ready or Not: Creating a High School Diploma That Counts*, that is not reproduced in *The Talent Challenge*.

The **English benchmarks** are organized into eight strands:

- Language
- Communication
- Writing
- Research
- Logic
- Informational Text
- Media
- Literature

The benchmarks were refined into their final form with every attention given to the ways in which each of the benchmarks is not only critical to the study of English, but also to the study of many academic subjects within the humanities, sciences and social sciences. Therefore, the ADP partners expect that in conjunction with the mathematics benchmarks, these fundamental literacy benchmarks will inform the development of standards and curricula in all content areas.

The **mathematics benchmarks** are organized into four strands:

- Number Sense and Numerical Operations
- Algebra
- Geometry
- Data Interpretation, Statistics and Probability

As with the English benchmarks, the mathematics benchmarks were refined into their final form with every attention given to the ways in which each of the benchmarks is not only critical to the study of mathematics, but also to the study of many academic subjects within the sciences and social sciences. Therefore, ADP expects that in conjunction with the English benchmarks, these fundamental numeracy benchmarks will inform the development of curricula in all content areas.

Defining Rigor: Reading Lists and Sample Mathematics Problems

In both English and mathematics, a deliberate attempt has been made to indicate the quality and complexity of the expectations by providing examples of the kinds of reading and mathematical problems the benchmarks are meant to describe.

In English, for example, it is not enough to ask high school students to analyze texts. According to employers and postsecondary faculty, students must have been expected to analyze particular kinds of rigorous texts, so that as graduates they will be prepared to meet the demands that face them after high school. For this reason, the ADP English

benchmarks are to be used in close coordination with the reading lists developed by two ADP partner states, Indiana and Massachusetts. These lists, which directly follow the benchmarks, were developed in thorough and inclusive processes in those states. They not only define the quality and complexity of reading expected of all high school graduates, but also suggest a common level of "cultural literacy" expected of all high school graduates, including representative works of various cultures both within and beyond the United States.

Defining rigor is handled differently in the mathematics benchmarks, with the inclusion of sample problems embedded within the benchmarks themselves to illustrate the quality and complexity of the corresponding mathematics benchmark.

Workplace Tasks and Postsecondary Assignments

Workplace tasks and postsecondary assignments follow the benchmarks to illustrate their practical application beyond high school. It is important to note that the workplace tasks and postsecondary assignments are *not* meant to describe the quality and complexity of *high school* assignments. Although the benchmarks, tasks and assignments may be used in the future to inform the development of high school lessons, the tasks and assignments included here are designed simply to illustrate the intellectual rigor of real-world environments beyond high school and the applicability of the ADP benchmarks in postsecondary and workplace settings.

The workplace tasks and postsecondary assignments have been gathered primarily from sources in the five ADP partner states – Indiana, Kentucky, Massachusetts, Nevada and Texas. They have been gathered from two- and four-year postsecondary institutions, as well as from companies whose workforces encompass the fast-growing occupations that were identified in the ADP workplace study. These include occupations such as:

- plant, production and construction managers;
- marketing and events managers;
- engineers and engineering technicians;
- technical writers and legal professionals;
- medical professionals and health technicians;
- environmental science technicians;
- foresters;
- financial, insurance and real estate professionals;
- machine operators, technicians and set-up personnel;
- computer programmers and information technology (IT) workers;
- skilled plumbers, pipe fitters and carpenters;
- repairers and service technicians; and
- teachers.

Similarly, the postsecondary assignments represent a broad range of English, mathematics, humanities, science and social science coursework.

Within each sample, the corresponding English and mathematics benchmarks are called out so that readers may easily recognize how, and in what context, the benchmarks are applied. A representative number of tasks and assignments is included in this print version of the report; additional samples are available at www.achieve.org.

These real tasks and assignments, whether in the workplace or in college classrooms, require the application of knowledge and skills that are contained in more than one ADP benchmark, often from more than one content area. Mastering individual skills without understanding their connections to other skills both within and across content areas is inconsistent with what is expected beyond high school, according to those who participated in the research. The samples therefore illustrate the need to integrate and apply more than one benchmark at a time, the importance of which both employers and postsecondary faculty stressed. To be successful, a high school graduate must be able to blend knowledge and skills from many areas to identify, formulate and solve problems; to connect new information to existing knowledge; and to access and assess knowledge from a variety of sources delivered through a variety of media.

One noticeable feature distinguishes the workplace tasks from the postsecondary assignments: The requisite skills are more tightly integrated at work than in typical postsecondary classroom assignments or assessments. Whereas most college courses focus on one subject or topic at a time for the purposes of instruction and assessment, these distinctions are not relevant to the workplace.

The workplace tasks tend to involve longer-term collaborative projects in which an individual contributes to a group effort. Cooperation demands greater versatility in communication – in listening and speaking, in reading and writing – than typically is required in writing a paper or solving a problem as part of a traditional course assignment. Postsecondary faculty who worked on the ADP research concur that these skills, while prevalent in workplace environments, are increasingly important to success in college classes.

How To Use the ADP Benchmarks, Workplace Tasks and Postsecondary Assignments

As noted above, the applicable English and mathematics benchmarks are identified within each task or assignment. In its online form, the reader is able to navigate back and forth between the samples and applicable benchmarks.

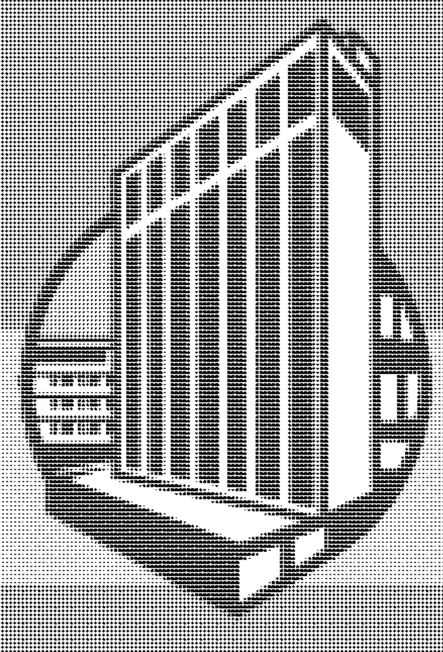
The ADP partners expect that students, parents, teachers, employers and state policymakers alike will glean useful information from the benchmarks themselves, the workplace tasks and the postsecondary assignments. **First**, the benchmarks reflect the higher level of fundamental intellectual demand that is now required of high school graduates who aspire to further education and training, whether graduates go directly into a career-track, high-growth, highly skilled job or into formal postsecondary study before pursuing a career. **Second**, the workplace tasks and postsecondary assignments can help students understand how the subjects they study in high school today are relevant to the challenges that await them tomorrow. **Third**, the benchmarks and sample tasks and assignments exemplify – in a way that state standards alone have not – how very complex and contextual real workplace and postsecondary challenges are. Every sample draws on skills from many different benchmark areas within both English and mathematics; no task or assignment illustrates just one or two isolated skills.

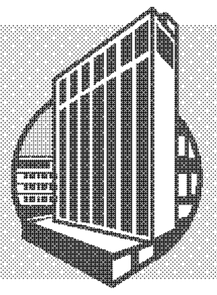
Finally, students, parents, teachers, employers and state education officials all can use the ADP work as an important tool for analyzing the efficacy of their current exit, entrance and placement systems. In particular, ADP anticipates that:

- **students and parents** will compare the curriculum of their local high schools to the ADP benchmarks to determine how much of the ADP benchmark content is addressed;
- **high school teachers** will refer to these workplace applications to develop effective curricula and to infuse dynamic, real-world contexts into their classroom teaching;
- **employers** will come to value, demand and use achievement data based on state standards that are aligned with these real-world expectations; and
- **K–12 and postsecondary policymakers** will refer to the tasks and assignments in close coordination with the benchmarks to determine how the content of their high school standards, curricula, assessments and graduation requirements compare to these real-world expectations.

The ADP benchmarks, sample tasks and assignments, grounded in the reality of actual, day-to-day experiences of people in the workplace and college classrooms, can provide a solid foundation to states for ensuring that their own standards are also grounded in real-world expectations. By providing a clear set of college and workplace readiness benchmarks, sample tasks and assignments, ADP hopes to embolden the efforts of state policymakers to hold the line on rigorous but fair high school exit standards and to reassure students that if they meet these standards they will be prepared for whatever path they choose beyond high school.

Workplace Tasks





Workplace Task #1

Machine Operator

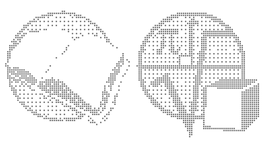
Eastman Chemical Company, *Kingsport, Tennessee*

Manufacturing companies looking to fill **machine operator** openings need candidates who possess strong fundamental skills, especially mathematics. The Texas division of Eastman Chemical has an established company-run Operator Apprenticeship Program to train new machine operators. **Operator apprentices** are evaluated on the basis of their ability to perform tasks that require the ability to solve multiple-step arithmetic problems and present solutions in the appropriate unit of measure or dimension.

Career Outlook

JOB	COMPENSATION	EDUCATION	NUMBER OF JOBS	OUTLOOK
Machine setters, operators and tenders	Median hourly earnings in 2000 range from $10.40 to $16.07.	On-the-job. Although no formal specialized education is required for most operating jobs, employers prefer to hire applicants with good basic skills.	1.6 million jobs in 2000	Employment will be affected by the rate of technological implementation, the demand for the goods they produce, the effects of trade and the reorganization of production processes.

Source: Occupational Outlook Handbook, 2002–03, *Bureau of Labor Statistics, U.S. Department of Labor.*



Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete these tasks are:

CONTENT AREA	STRAND	NUMBER
English	Language	**A7**
	Communication	**B1**
Mathematics	Number Sense and Numerical Operations	**I1.1, I1.2**
	Algebra	**J1.5, J5.1**
	Geometry	**K8.1, K8.2**

SAMPLE TASKS

TASK #1:

Computing Concentration

Ask the apprentice to mix a solution (#1) of 5 g Peters fertilizer and 50 g of distilled water.

- **Determine the percent concentration-by-weight of this solution.**
  The basic formula is *Weight of the solute divided by the combined weight of the solute and solvent equals percent concentration-by-weight.*
- **Example:** 5 g ÷ (5 g + 50 g) = 5 g ÷ 55 g = 0.09 or 9% concentration-by-weight
- **Calculate the density of this solution (#1).**
  Divide the weight by the volume to determine the density in gm/ml.

Ask the apprentice to make a solution (#2) using 10 g of Peters and 50 g of distilled water.

- **Determine the percent concentration-by-weight.**
- **Ask the apprentice:** Why is the concentration-by-weight of solution #2 not double the concentration-by-weight of solution #1 since the solute is doubled?

$$C = \frac{x}{x+V} \text{ and } \frac{2x}{2x+V} \neq 2\frac{x}{x+V}$$

- **Ask the apprentice to use the formula to explain.**

TASK #2:

Computing Volume and Weight

Ask the apprentice to compute the volume of the liquid in a rectangular tank.

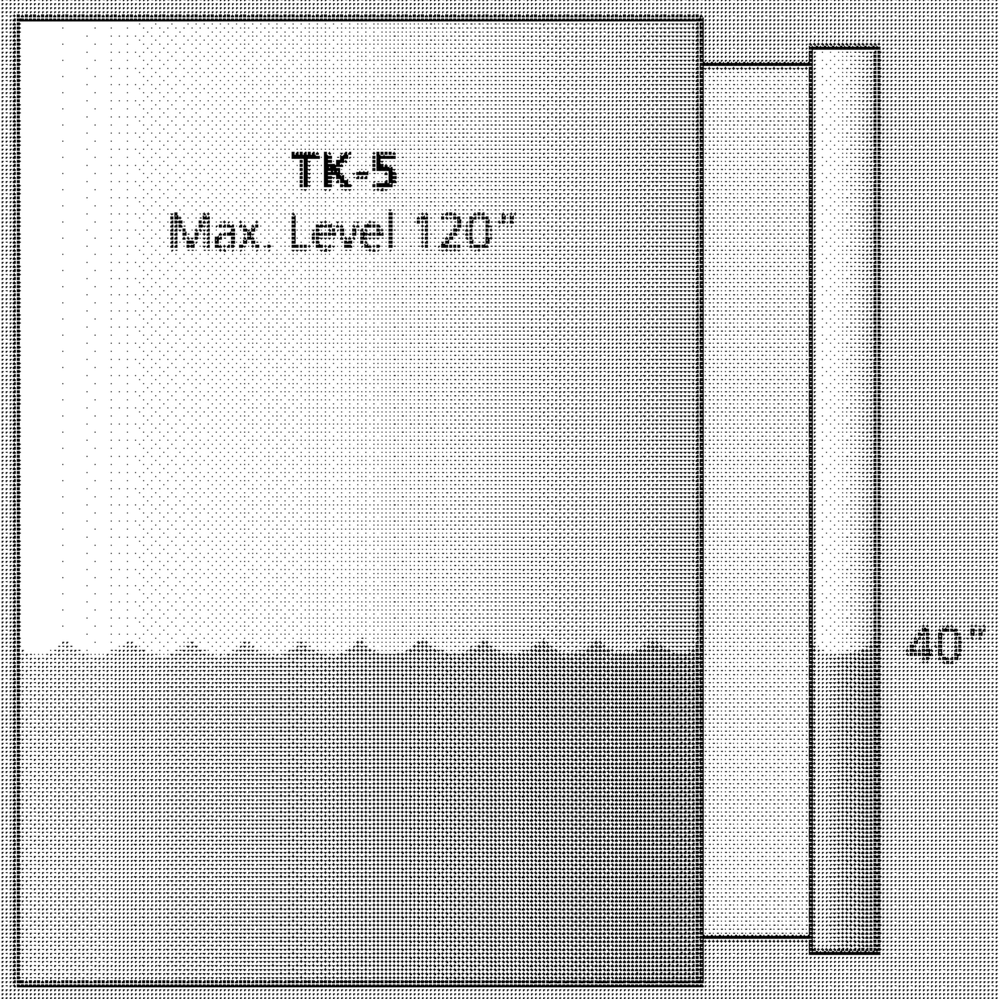
- **Measure the inside dimensions (length, width and actual depth of the liquid) to the nearest eighth of an inch.**
- **Multiply length, width and height to get volume in cubic inches.**
  $V = L \times W \times D = 10 \times 15^3/_8 \times 28 = 4410\ in^3$
- **Convert the volume in in^3 to ft^3, lb and gal.** (Assume that the liquid is distilled water.)
  There are $12" \times 12" \times 12" = 1728\ in^3$
  so the volume in cubic feet is
  $V = (4410\ in^3) \div (1728\ in^3) = 2.552\ ft^3$.
  One cubic foot of water weighs 62.4 pounds so
  Weight = (2.552 ft^3) x (62.4 lb/ft^3) = 159.25 pounds.
  The volume can be converted to gallons using
  (159.25 lb) ÷ (8.34 lb/gal) = 19.1 gallons.
- **Calculate the weight of the liquid in the tank if it were oil with a specific gravity of 0.9233.**
  159.25 lb x 0.9233 = 147.04 pounds

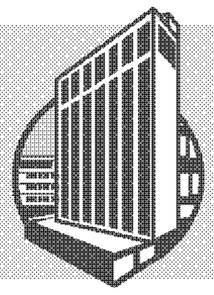
TASK #3:

Application of Weight and Volume

Ask the apprentice: If you needed to add 300 lbs. of a material to a mix tank, how would you determine if you had enough room?

- **Determine the equivalent of one inch in pounds or gallons.** Do this by draining one inch from the tank weighing the liquid.
  (1 in = 25 lbs)
- **Divide the specified amount in pounds by the lb/in to get total inches required.**
  300 lb ÷ 25 lb/in = 12 in
- **Determine the room available in the mix tank. Subtract actual tank level from maximum tank level.**
  120 in – 40 in = 80 in
- **Compare to total inches required.**
  12 inches needed, 80 inches available





Workplace Task #2

Licensed Nurse

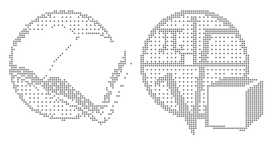
SETON Healthcare Network, *Austin, Texas*

Nursing is a demanding profession that requires workers to use sophisticated technologies, administer pharmaceutical agents and communicate effectively with patients from a wide range of backgrounds. Licensed **nurses** working for SETON, a network of hospitals and other medical facilities in central Texas, routinely administer medications in specific dosages that affect the safety, survival and recovery of patients. The difference between life and death in many instances depends on the precise calculations of quantities involving ratios and various units of measurement. Nurses are also called upon to explain dosage calculations to colleagues and patients in ways that are easily understood.

Career Outlook

JOB	COMPENSATION	EDUCATION	NUMBER OF JOBS	OUTLOOK
Registered nurses	Median annual earnings were $44,840 in 2000.	There are three major educational paths to registered nursing: associate degree in nursing (ADN), bachelor of science degree in nursing and diploma. ADN programs, offered by community and junior colleges, take about two to three years.	2.2 million jobs in 2000	Faster than average

Source: Occupational Outlook Handbook, 2002–03, *Bureau of Labor Statistics, U.S. Department of Labor.*



Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete these tasks are:

CONTENT AREA	STRAND	NUMBER
English	Language	**A1, A6, A7**
	Communication	**B1**
Mathematics	Number Sense and Numerical Operations	**I1.1, I1.2, I4.1**
	Algebra	**J5.1**
	Geometry	**K8.1**

SAMPLE TASKS

Task #1

The doctor orders Cector elixir 25 mg/kg for a child who weighs 20.4 lbs. The available Cector elixir contains 250 mg per 5 ml. A nurse must determine the proper dose for the child.

The nurse converts the child's weight from standard pounds (20.4 lbs) to metric kilograms (9.26 kg) and uses a calculator to quickly calculate a dose of:

$$25 \times 9.26 \times \left[\frac{250}{5}\right] = 11,575.$$

This number is clearly too large for a drug dose, so the nurse must check the calculation by rewriting the equation with units rather than just with numbers. With units, the calculation just completed appears as follows:

$$\left[\frac{mg}{kg}\right] \times (kg) \times \left[\frac{mg}{ml}\right] = \left[\frac{mg^2}{ml}\right]$$

Since the units in the calculator version are not ml's, as they should be, it is easy for the nurse to identify the mistake. The last term (mg/ml) should have been inverted (ml/mg). So the nurse must repeat the calculation to obtain the correct dosage:

$$\left[\frac{25\,mg}{kg}\right] \times (9.26\,kg) \times \left[\frac{5\,ml}{250\,mg}\right] = 4.63\,ml.$$

Task #2

An advanced practice nurse must teach a diabetic patient who has been started on an intensive insulin therapy regimen how to determine the proper dose of insulin to use before a meal. The patient will be on a regimen of *Lantus* 20 units at bedtime and *Novolog* 5 units before each meal. Before meeting with the patient, the nurse must review the patient's records for several factors needed to perform the dosage calculations.

First, the nurse must know the patient's "average" **Total Daily Dose** (TDD), the total amount of long acting and rapid-acting insulin used in a single day.

- The patient's regimen of 20 units of *Lantus* and 5 units of *Novolog* before each meal produces a TDD of 35 units.

$$20\ units + \left[\frac{5\ units}{meal} \times 3\ meals\right] = 35\ units$$

Second, the nurse must calculate the patient's **Insulin Sensitivity Factor**, also called the Correction Factor. The Insulin Sensitivity Factor is a measure of the lowering effect of 1 unit of insulin on the blood glucose (BG) level in milligrams/deciliter (mg/dl), and it is determined using the "1,800 rule": 1,800 divided by TDD.

$$\frac{1800}{35\ units} = 51.4\ mg/dl$$

After rounding 51.4 mg/dl to the nearest unit, the nurse will know that 1 unit of insulin will lower the blood glucose (BG) by 51 mg/dl.

Third, the nurse must calculate the **Insulin to CHO (Carbohydrate) Ratio**. The Insulin to CHO Ratio indicates how many grams (gms) of carbohydrate will be offset by 1 unit of insulin. It is determined using the "500 rule": 500 divided by TDD.

$$\frac{500}{35\ units} = 14.3\ mg/dl$$

After rounding 14.3 gms to the nearest unit, the nurse will know that the patient will need an additional unit of *Novolog* for every 14 grams of carbohydrate consumed (a 1:14 ratio).

With this information and the blood glucose goal of 120 mg/dl, the nurse teaches the patient to use two formulas to calculate insulin dosages needed before each meal.

The first formula involves the patient's actual blood glucose before the meal (BG), the blood glucose goal of 120 mg/dl (T) and the Insulin Sensitivity or Correction Factor (X). For instance, before lunch, the patient takes a blood glucose reading of 280 mg/dl:

$$\frac{BG - T}{X} \text{ or } \frac{280 - 120\ mg/dl}{51\ mg/dl} = \frac{160}{51} = 3\ units\ of\ Novolog.$$

The second formula involves the number of grams of carbohydrate in the patient's lunch and the number of insulin units needed. For instance, the patient's lunch will contain 45 gms of CHO. Using the Insulin to CHO Ratio:

$$\frac{45\ gms}{14} = 3\ units\ of\ Novolog$$

The combination of these two results means that the patient will need a dose of 6 units of *Novolog* before this particular lunch.

The formulas are used as a guide and may be modified based on patient history. For example, if the patient has frequent hypoglycemia and the nurse's review of patient records indicates that the Insulin Sensitivity Factor of 51 will not be safe, the nurse may round it up to 55 or 60.

Workplace Task #3

Actuary

A national "name brand" insurance company

Insurance is protection at a price, and **actuaries** employed by large national insurance companies use data to set the price for that protection by balancing costs of coverage against risks to be covered. When new data become available, actuaries must evaluate the impact of policy adjustments prompted by the data on the cost of future claims and determine if new pricing is needed. One type of insurance product is a *child rider,* a low-cost addition to traditional insurance policies that provides a death benefit for all children in a family under age 21. The cost of such a policy is sensitive to changes in life-expectancy data. Using calculators and spreadsheets, an actuary will create mathematical models, calculate the likelihood of events and use the results to make practical decisions regarding the price of the child rider. Once the necessary changes to the product price have been made, the actuary must brief the company's **insurance agents** so they are able to explain it to their customers.

Career Outlook

JOB	COMPENSATION	EDUCATION	NUMBER OF JOBS	OUTLOOK
Actuaries	Median annual earnings were $66,590 in 2000.	Bachelor's degree in mathematics, actuarial science, statistics or a business-related discipline, such as economics, finance or accounting	14,000 jobs in 2000	Slower than average
Insurance sales agents	Median annual earnings were $38,750 in 2000.	Bachelor's degree or high school graduates with proved sales experience	378,000 jobs in 2000	Slower than average

Source: Occupational Outlook Handbook, 2002–03, *Bureau of Labor Statistics, U.S. Department of Labor.*

Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete this task are:

CONTENT AREA	STRAND	NUMBER
English	Language	**A1, A6**
	Communication	**B6**
	Research	**D2**
	Informational Text	**F3, F5**
Mathematics	Number Sense and Numerical Operations	**I1.1, I1.2, I3, I4.2**
	Algebra	**J5.6**
	Data Interpretation, Statistics and Probability	**L1.2, L4.1, L4.5**

-- P5-41 --

SAMPLE TASK

The original rider was priced in 1971, using mortality tables containing data from 1953. An actuary is asked to use more recent mortality data to estimate the cost of the rider and determine whether a change in price is warranted. Also, the company wants to know if it can now include coverage for infants age 0–14 days without a change in price.

The Original Cost Estimate

The actuary assumes that the company sells 1,000 rider policies. Then the actual number of children covered will be about 2.3 times 1,000 because the average number of children per family in the United States is 2.3 in 1953. In a population of 1,000 newborns, approximately 46 will die before reaching age 21. Twenty-seven of these deaths occur in the first two weeks of life and are not covered. If the company sells 1,000 rider policies offering a death benefit of $1,000 per child, the cost (just the death benefit) per family incurred over the 21 years is roughly

Total Cost = $1000 × 2.3 × (19/1000) = $43.70.

Divide by 21, the number of years in which the 19 deaths occur, to get a cost of roughly $2.08 per family per year.

In the last half-century, improvements in medicine have significantly reduced child mortality. This change is reflected in child mortality data from 1999.

Table: Improvement in Child Mortality

1953 Mortality Data				1999 Mortality Data			
Age		Age		Age		Age	
1	0.02870	11	0.0005	1	0.00706	11	0.00013
2	0.00230	12	0.0005	2	0.00053	12	0.00013
3	0.00140	13	0.0005	3	0.00036	13	0.00017
4	0.00100	14	0.0006	4	0.00027	14	0.00026
5	0.00080	15	0.0007	5	0.00022	15	0.00038
6	0.00080	16	0.0009	6	0.00020	16	0.00051
7	0.00070	17	0.0010	7	0.00019	17	0.00063
8	0.00060	18	0.0011	8	0.00018	18	0.00073
9	0.00050	19	0.0012	9	0.00016	19	0.00079
10	0.00050	20	0.0013	10	0.00014	20	0.00084
		21	0.0013			21	0.00088

For example, whereas 28.7 out of 1,000 children in the United States died before reaching age one in 1953, only about seven out of 1,000 died at the same age in 1999.

The actuary sees cost reduction in the child mortality data from 1999. Only 34 children out of 1,000 will die before age 21. In addition, the number of children per family is smaller in 1999 (about 1.7) than it was in 1953, reducing costs further. These cost reductions allow the insurance company to extend coverage to include the first 14 days of life — heretofore excluded — for a total cost of about $2.75 per year per family. Because the increased coverage more than justifies the increased cost, the actuary recommends that the company drop the clause limiting coverage on children age 14 days and under.

This is a significant change, especially for the agents who will sell the policy. The actuary must explain the change to the agents in a way the agents can understand and explain to their customers.

Extensions

There are many simplifying assumptions made in the above calculations. Here are a few:

- All of the children in the population are the same age.
- All of the children in all of the families were born on the first day of the year.
- The premium is paid at the start of the year, and deaths all occur at the end of the year.
- There is no inflation, and the insurance company earns no interest on reserves.
- No other benefits are included in the policy.
- The average number of children per family for the insured population matches the U.S. population.

All of these can be replaced by more realistic assumptions. For example, the actuary would compute the present value of a stream of future premium payments as the sum of a finite geometric series rather than a back-of-the-envelope calculation. It is perhaps just as important to be able to deduce which assumptions tend to underestimate costs and which tend to overestimate costs. For example, the census data giving 2.3 children per family is probably not a good estimate for the population insured by the company (in 1953 or today). The expected number of children in a family, given that the family has purchased life insurance, is probably larger than the expected number for the full U.S. population. In real applications, the trade-off is often between getting a "pretty good" solution today and a "very good" solution next month.

Workplace Task #4

Wafer Fabrication Technician and Manufacturing Technician

Advanced Micro Devices, Inc., *Boise, Idaho*

Manufacturing today requires front-line employees to have a greater level of skill than was demanded of their predecessors. At Advanced Micro Devices, Inc. (AMD), a supplier of integrated circuits for the global computer and communications markets, **wafer fabrication technicians** and **manufacturing technicians** must be able to carry out tasks directly related to circuit production and write recommendations for improving the production processes. Progress up the career ladder depends upon the ability of employees to produce these recommendations in technical reports — critical tools for communicating with colleagues — and the company provides training courses to teach technicians to write them. Writing these reports requires the ability to understand and synthesize complex, technical information from a variety of sources and convey the findings to colleagues.

Career Outlook

JOB	COMPENSATION	EDUCATION	NUMBER OF JOBS	OUTLOOK
Semiconductor processors (i.e., wafer fabrication technicians)	Median hourly earnings were $12.23 in 2000.	Employers prefer to hire persons who have completed associate degree programs for semiconductor processor jobs. A high school diploma or equivalent is the minimum requirement for entry-level operator jobs in semiconductor fabrication plants.	52,000 jobs in 2000	Faster than average
Engineering technicians (i.e., manufacturing technicians)	Median annual earnings were $35,990 in 2000.	Employers prefer to hire persons with at least a two-year associate degree in engineering technology.	519,000 jobs in 2000	Average

Source: Occupational Outlook Handbook, 2002–03, *Bureau of Labor Statistics, U.S. Department of Labor.*

Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete this task are:

CONTENT AREA	STANDARD	NUMBER
English	Language	**A1, A6**
	Writing	**C1, C2, C3, C4, C5, C10**
	Research	**D1, D2, D4, D5**
	Logic	**E7**
	Informational Text	**F5, F7**
Mathematics	Data Interpretation, Statistics and Probability	**L1.1, L1.2, L3.2, L3.3, L4.5**

-- P5-43 --

SAMPLE TASK

As part of AMD's on-the-job training internal coursework, technicians are asked to write a project report that describes the regulation of gas-tray solenoid voltage on Fab 10 diffusion furnaces.

Excerpt of a project report that met the requirements of AMD's internal coursework for technicians:

Project Report

During this project, solenoids showing excessive wear from operation with the unregulated voltage will be replaced. The unregulated voltage is outside upper control limits for gas tray solenoids, which causes premature failure of solenoids and process aborts. This project was selected because once implemented, it will reduce diffusion furnace aborts, thereby reducing scrap for Fab 10. The cost of the project is minimal compared to the cost of scrapped wafers as a result of solenoid induced furnace aborts.

The goal of the project is to further AMD profits by bringing solenoid voltage within control limits to prevent unnecessary diffusion furnace aborts. There are four components to the report:

- Measurement and Responses
- Capability Study
- Experiments
- Results

Measurements and Responses

There are four critical measurements for this project which require response:

1. Measurement of the DC supply voltage used to power the diffusion furnace gas tray solenoids (found in furnace regulator modification tables)
2. Visual inspection of the gas tray solenoids
3. Analysis of furnace regulator modification costs
4. Reduction in solenoid induced diffusion furnace aborts

Capability Study

For this project, 24 VDC regulators and replacement gas tray solenoids need to be sourced. Coordinating this project in a production Fab is also a consideration[. . .].

Experiments

(Note: This section of the report refers to tables, also compiled by the technicians.) Thirty-three diffusion furnaces require the 24 VDC regulator modification. The success of the initial modifications proved a more aggressive modification schedule to be appropriate. None of the furnaces within this sample have aborted due to solenoid failures.

Results

This project is a success. The Furnace Regulator Modification Table 1 demonstrates the gas tray solenoids to be operating within control limits. Gas tray solenoid life cycles are now more stable. There have been no aborts due to premature solenoid failure on any diffusion furnaces with the 24 VDC regulator project complete. Furthermore, data in Table 2 shows that the cost to modify each furnace is very low in comparison to the cost of wafer scrap due to an abort.

By monitoring diffusion furnaces as they were modified, data indicated the 24 VDC modification should be performed on all diffusion furnaces. Of the 33 diffusion furnaces needing the 24 VDC modification, 25 are complete, and 8 are scheduled for completion by the end of the first quarter.

Workplace Task #5

Events Manager

"I Write the Songs" Radio Program, *Highland Village, Texas*

Publicity and public events managers must perform budgeting, hiring, contracting and writing tasks. The **events manager** for "I Write the Songs," a Texas radio program for and about songwriters, organizes a local workshop that will host a panel of locally and nationally renowned songwriters. The events manager must produce during the course of this project letters to each of the panel invitees, as well as biographies and discographies for each panelist. The events manager must know well both the business of songwriting and the interests of workshop attendees to draft materials that are persuasive and powerful. These tasks also require the ability to research and incorporate additional information.

Career Outlook

JOB	COMPENSATION	EDUCATION	NUMBER OF JOBS	OUTLOOK
Advertising, marketing, promotions, public relations and sales managers	Median annual earnings in 2000 for advertising and promotions managers were $53,360; marketing managers, $71,240; sales managers, $68,520; and public relations managers, $54,540.	Bachelor's or master's degree	707,000 jobs in 2000	Faster than average

Source: Occupational Outlook Handbook, 2002–03, *Bureau of Labor Statistics, U.S. Department of Labor.*

Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete this task are:

CONTENT AREA	STRAND	NUMBER
English	Language	**A1, A6**
	Writing	**C1, C2, C3, C4, C5, C10**
	Research	**D2, D3, D4**
	Informational Text	**F7, F9**

SAMPLE TASK

Identifying Issues and Speakers

The events manager's first task is to identify the issues and speakers to be featured at the annual workshops. To determine the emerging and important issues in the music industry that directly affect the songwriting profession, the manager must review information contained within Web sites, trade magazines and industry papers (e.g., *Billboard, Spin, Rolling Stone, Indie Music Newsletter*). The next step is to identify locally or nationally successful songwriters to be speakers at workshops by considering songwriters' past work history, success, speaking experience at workshops and conferences, genres of music, and whether or not they have written any books or articles. Subsequently, the events manager must contact the necessary individuals and organizations to obtain information, permissions and commitments.

Writing Letters and Bios

The letter of invitation is essentially a piece of persuasive writing that must build a convincing and cogent argument, and it demands that the writer be well informed about her or his reader. The events manager may already be familiar with the invitee, or she or he may have to search for background information through databases, the Internet or trade magazines. No matter how the list of invitees is determined, the contents and style of the letter must be in tune with the audience — the reader/invitee — to have a favorable chance of being accepted. Once the panelists are determined, the events manager must write a short biographical sketch, often simply referred to as a "bio," of each workshop panelist. To draft bios of the panelists who accept their invitations, the events manager may actually have to conduct interviews with the panelists or have them submit lists of their accomplishments, awards and bits of personal history, from which the events manager then composes a narrative. For those panelists who are established songwriters, the events manager then compiles discographies (a descriptive list of songs a songwriter has written or co-written) to have on hand for workshop attendees to provide them with valuable information about the panelist. The events manager must be sure to make the format uniform and cite all information accurately (e.g., title, songwriter, artist, copyright date).

Sample Invitation Letter

August 29, 2003

Courtney Delaney
4400 Moulton St., Ste. D
Greenville, TX 75401

Dear Courtney:

This is a letter to invite you to participate as a panelist and mentor at the 2004 "I Write the Songs" Songwriting Conference in Dallas, Texas. The event will take place at the Intercontinental Hotel July 16–18, 2004.

For the last five years, "I Write the Songs" has been an on-air songwriting workshop designed for songwriters of all levels. In 1989, *Billboard Magazine* estimated that there were more than 40 million songwriters throughout the United States. "I Write the Songs" was created to be a resource for those 40 million songwriters who are interested in learning and improving their songwriting craft. To do this, "I Write the Songs" features shows that offer instruction in songwriting, interviews with famous songwriters, stories of great songs and how they were written, and on-air critiques of original songs submitted by listeners. Guests featured on "I Write the Songs" have included Willie Nelson, Janis Ian, Paul Williams, Richard Carpenter, Andrew Gold, Sheila Davis, Jim Brickman and others.

In an effort to provide other opportunities for songwriters and artists to improve musically and to enhance their understanding of the music industry, "I Write the Songs" is joining forces with its parent company, CQK Music Publishing, and our sister Web site, Lyricalline.com, to offer a weekend of education, networking and creative expression in the first "I Write the Songs" Songwriting Conference. Our hope is that all in attendance will be given the opportunity to advance their knowledge of both the craft and business of songwriting through workshops and mentoring sessions.

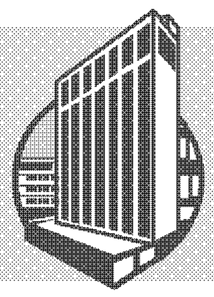
Over the last several years, we at "I Write the Songs" have admired the work that you have done to offer independent songwriters and artists an outlet for their music to be heard through your Internet radio site at OutboundMusic.com. The advent of the Internet has brought overwhelming change to the music industry, and we feel that it is essential to properly instruct the attendees at the conference in the ways to take advantage of opportunities. Someone of your experience and expertise would not only be essential to the education of these songwriters and artists but would also be a source of inspiration.

"I Write the Songs" is prepared to provide you with hotel accommodations at the Intercontinental Hotel for the weekend of July 16–18, 2004, as well as to take care of your airfare and travel expenses. We also look forward to giving you a $500 honorarium for your time and participation.

If this is acceptable to you and if you would be interested in being a part of the event, please contact me at your earliest convenience at 972-555-5555, or you can email me at sarah@cqkmusic.com.

Thanks for your consideration of this matter,

Sarah Marshall
"I Write the Songs"/CQK Music



Workplace Task #6

Loan Officer

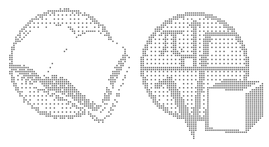
Sterling Bank, *Houston, Texas*

When banks lend money to customers, they must consider the ability of the customers to repay the loan in a timely manner as measured against the known risks and the value of the collateral offered. It is the job of a bank's **loan officer** to evaluate the merits of a loan request and then make a recommendation regarding whether or not to lend the money. To evaluate the commercial loan request described at right, a loan officer at Sterling Bank in Houston must gather information from a variety of sources, judge what information is most pertinent to a loan decision and synthesize the selected information into a credit request memo. This memo must convey findings of a technical nature to the loan committee members in a way that allows them to make the best decision on whether to approve the loan request.

Career Outlook

JOB	COMPENSATION	EDUCATION	NUMBER OF JOBS	OUTLOOK
Loan officers	Median annual earnings were $32,160 in 2000.	Bachelor's degree in finance, economics or a related field	265,000 jobs in 2000	Loan officers: slower than average; loan counselors: average

Source: Occupational Outlook Handbook, 2002–03, *Bureau of Labor Statistics, U.S. Department of Labor.*



Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete this task are:

CONTENT AREA	STRAND	NUMBER
English	Language	**A1, A6**
	Writing	**C1, C2, C3, C4, C5, C10**
	Research	**D1, D2, D4**
	Logic	**E4**
	Informational Text	**F3, F7, F9**
Mathematics	Number Sense and Numerical Operations	**I1.1, I1.2, I4.2**

SAMPLE TASK

Representatives of Acme Enterprises, LTD have approached Sterling Bank in Houston, Texas, to borrow $1.7 million needed to purchase two Gulfstream II aircraft. To evaluate Acme Enterprises' request, a loan officer must research every aspect of the loan request and write the credit request memo to be submitted to the bank's Senior Loan Committee charged with the final decision of whether to loan Acme Enterprises the $1.7 million. (Note: In the task below, the Roman numeral *M* indicates 1,000 and *MM* indicates 1,000-thousands or 1 million.) The loan officer must report information to the committee regarding the aircraft (including their condition), how the aircraft will be used by Acme Enterprises (i.e., how they plan to make the money needed to repay the loan), how likely it is that Acme Enterprises' plan will work given the realities of the marketplace and the operation costs involved, and the financial health and credit worthiness of Acme Enterprises. Based on the research, the loan officer must weigh the pros and cons of the loan and make a final recommendation to the committee.

Following are excerpts from a credit request memo written by a loan officer for approval by the Senior Loan Committee.

Credit Request

This is a request from Acme Enterprises, LTD to borrow $1.7MM to purchase two Gulfstream II aircraft. Both planes and a $200M Sterling Bank CD will initially secure this loan. Proceeds from the sale of parts from the older Gulfstream will be used to reduce the outstanding balance of the loan and the debt will then be placed on a 7-year amortization. The CD will be released under the terms outlined in the collateral section listed on page 2. The 1972 G-II will be used as an international air ambulance. The 1968 G-II will be used as a parts plane.

The 1972 G-II currently has two engines that will need replacing because they are nearing the maximum number of allowable operating hours since last overhaul allowable under Part 91 of FAA regulations. This plane is in exceptional condition, with several valuable modifications outlined below. It does however need "new"/overhauled engines and the cost to overhaul these Rolls Royce jet engines is $750,000 each. Most Gulfstream operators cannot fulfill their operating contracts if their aircraft is down for the several weeks needed to complete the overhaul, so in this case — as in many cases the owner/operator placed this plane for sale after buying another aircraft with acceptable hours on the engines. Our borrower wants to make an offer of $1,000,000 for this plane.

Because the 1968 G-II has not received any of the key update modifications (see below — Especially RVSM) our borrower feels that the plane may be acquired for a bid of $700M — even though the engines on the plane still have 6,000 useful hours on them. The engines will be removed from the 1968 G-II and installed on the 1972 G-II. These replacement engines have roughly 10 years of flight time remaining on them. The borrowers also have a committed buyer of specific parts on the 1968 G-II that will sell for $200M. This money will be applied to the principal portion of the loan. The labor cost of the engine replacement will be covered by the sale of additional parts. Ultimately, when the 1972 G-II has been completed and the appraisal is certified at the "as completed value" the CD will be released.

Full Collateral Description and Valuation Analysis

1972 Gulfstream II/SP Model G-1159 G-II, S/N 109; Engines make/model: Rolls Royce/MK511-8. Aircraft blue book value is $4,275MM. This plane will have both engines replaced with engines from the other aircraft securing this loan. The two replacement engines will allow the aircraft approximately 6,000 more hours or 10 more years in flying time. This aircraft also comes with three major modifications that cost approximately $1MM.

1968 Gulfstream G-II Model N244DM S/N 21; Engines Make/Model: Rolls Royce/MK 511-8 Spey. Aircraft blue book value is $3,888MM. This plane will be used as a parts plane. They will initially remove the two engines from this plane and install them on the 1972 G-II. They will also sell $200M worth of parts which will be used to reduce the principal balance of this loan.

$200M SB CD will be released upon a $200M principal reduction, completion of the engine installation, and appraisal confirmation of the "as completed" value.

Strengths & Weaknesses

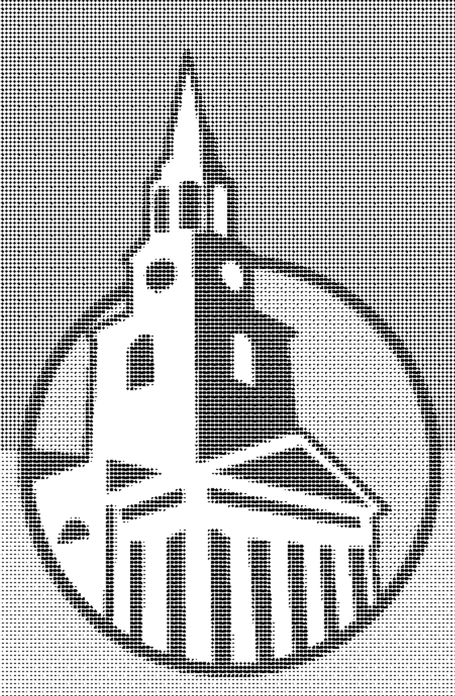
Strengths:

- Experience of the Borrower
- Financial Strength of Blank Emergency Medical Service; sales growth during the past three years and improving gross and profit margins.
- Loan to value
- Meets all 3-2-1-2 guidelines
- Rapid payback

Weaknesses:

- Loan to cost

Postsecondary Assignments



Postsecondary Assignment #1

College Algebra and Calculus

In collecting samples from first-year mathematics courses across the nation, ADP found — perhaps not surprisingly — that the level of mathematics demanded is notably consistent. As these sample problems from institutions in Indiana, Kentucky, New Mexico and Texas demonstrate, first-year courses in algebra and calculus demand that students understand different number systems and geometric properties, as well as model mathematics problems, and solve algebraic equations.

Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete these tasks are:

CONTENT AREA	STRAND	NUMBER
Mathematics	Number Sense and Numerical Operations	**I1.1, I3**
	Algebra	**J1.5, J2.3, J3.4, J3.5, J4.1, J4.5, J5.3, J5.5, J5.6**
	Geometry	**K4, K5, K8.2, K10, K10.4, K11.1**

SAMPLE TASKS

TASK #1:

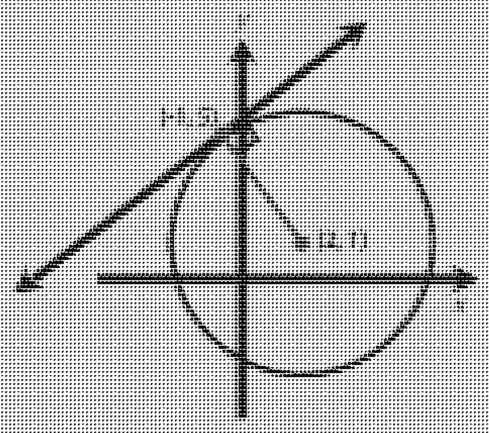
Tangent Lines without Calculus

(University of New Mexico)

A tangent line to a circle is a line that passes through just one point of the circle and is perpendicular to the radius line. Find the equation of the tangent line to the circle defined by $(x-2)^2+(y-1)^2=25$ at the point (-1, 5).

The student should be able to sketch the figure to picture the problem. The slope of the segment joining the center of the circle (2, 1) to the point (-1, 5) is -4/3, and so the slope of a perpendicular line is 3/4. The equation for the line through (-1, 5) with this slope is

$$(y-5)=\frac{3}{4}(x+1).$$



TASK #2:

Computing Average Rates of Change

(University of New Mexico)

Find the average rate of change of the function $g(x)=\frac{2}{x+1}$ between $x=0$ and $x=h$.

The student needs to understand that the "average rate of change" is the net change in the function value on the interval divided by length of the interval. The solution requires that the student simplify rational expressions.

$$\text{Average rate of change}=\frac{g(x+h)-g(x)}{h}$$

$$=\left[\left(\frac{2}{x+h+1}\right)-\left(\frac{2}{x+1}\right)\right]\left(\frac{1}{h}\right)$$

$$=\left[\left(\frac{2x+2-2x-2h-2}{(x+h+1)(x+1)}\right)\right]\left(\frac{1}{h}\right)$$

$$=\left[\left(\frac{-2h}{(x+h+1)(x+1)}\right)\right]\left(\frac{1}{h}\right)$$

$$=\left(\frac{-2}{(x+h+1)(x+1)}\right).$$

TASK #3:

Solving Equations

(Purdue University)

Find the zeros of the following functions.

(a) $f(t)=\frac{2t-9}{t}$

(b) $g(x)=1-x^2$

(c) $a(b)=2b^2-24b+70$

In each case, the student must be able to rearrange and simplify the equation. In addition, the student must be able to recognize that "x" is not the only variable used in mathematics (or in applications of mathematics).

TASK #4:

Solve a Quadratic (in Disguise)

(Purdue University)

Solve the following equation for x: $x^4+5x^2-36=0$.

The student must recognize that this is a quadratic equation, but for $y=x^2$ (and not for x). The first step is to solve $y^2+5y-36=(y+9)(y-4)=0$.

One solution, $y=-9$, gives a pair of complex solutions: $x=\pm 3i$.
The other solution, $y=+4$, gives a pair of real solutions: $x=\pm 2$.
These are the four solutions to the original equation.

Postsecondary Assignment #1

College Algebra and Calculus

TASK #5:

Circles and Completing Squares

(Purdue University)

Identify the circle described by the following equation:
$x^2 + y^2 - 8x + 4y + 11 = 0$.

The students must be able to regroup the terms in the equation and then complete the square (twice):

$$\begin{aligned} 0 &= (x^2 - 8x) + (y^2 + 4y) + 11 \\ &= (x^2 - 8x + 16) + (y^2 + 4y + 4) + 11 - 16 - 4 \\ &= (x - 4)^2 + (y + 2)^2 - 9. \end{aligned}$$

This is equivalent to $(x-4)^2 + (y+2)^2 = 9$, so the equation describes a circle with radius 3 centered at $(x, y) = (4, -2)$.

TASK #6:

Plot a Graph

(Purdue University)

Graph the function given by $h(x) = \begin{cases} x + 3 & \text{if } x \le -1 \\ x^2 & \text{if } x > -1. \end{cases}$

The graph consists of two separate branches. The left branch is a ray with slope 1 containing the point $(x, y) = (-1, 2)$ (which is the endpoint of the ray). The right branch is a parabola (opening up) with vertex at $(x, y) = (0, 0)$. Notice that the right branch starts at, but does not contain, the point $(x, y) = (-1, 1)$; there is a jump in the graph at this point.

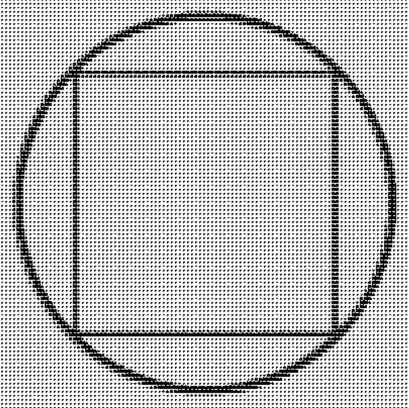
TASK #7:

Basic Geometry

(Northern Kentucky University)

The square shown below has a side length of 6 inches and is inscribed in a circle so that each vertex of the square lies on the circle. What is the radius of the circle in inches?

Draw radii from the center to each of two adjacent corners to obtain a right triangle with two sides of length r and hypotenuse of length 6. The Pythagorean theorem provides the equation $2r^2 = 36$, so $r = \sqrt{18} = 3\sqrt{2}$.



TASK #8:

Geometric Series

(Northern Kentucky University)

A ball dropped from a height of 18 feet above the ground as shown rebounds to 2/3 of its previous height after each bounce so that after the first bounce, it rebounds to 12 feet, after the second bounce to 8 feet and so forth.

A. To what height does it rebound after its third bounce?

B. Find an expression for the height to which it rebounds after the nth bounce as a function of n, where n is a positive integer.

C. Find the total distance the ball has traveled at the point where it hits the ground on its nth bounce as a function of n, where n is a positive integer. For example, on the first bounce, it has traveled 18 feet; on the second bounce, $18 + 12 + 12 = 42$ feet; on the third bounce, $18 + 12 + 12 + 8 + 8 = 58$ feet; and so forth.

The height of the nth bounce will be $h_n = 18\left(\frac{2}{3}\right)^n$, and the sum of the distances traveled on the first n bounces is

$$h_1 + 2h_2 + 2h_3 + \ldots 2h_n = 18 + 2 \cdot 18 \sum_{k=1}^{n} \left(\frac{2}{3}\right)^k.$$

The value for the final summation is $\sum_{k=1}^{n} \left(\frac{2}{3}\right)^k = \frac{(2/3) - (2/3)^{n+1}}{1 - (2/3)}$.

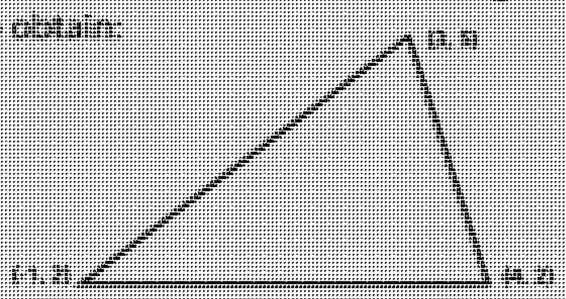
TASK #9:

Triangles and Area

(Northern Kentucky University)

A triangle has vertices (-1, 2), (4, 2) and (3, 5) as shown. What is the area of the triangle?

The student should be able to draw the figure, with points labeled to obtain:



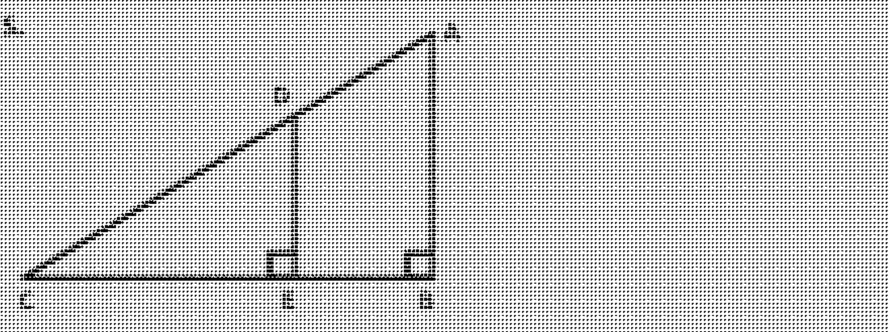
The triangle has base $5 - 4 - (-1)$ and height $3 = 5 - 2$ so the area is $\text{Area} = \frac{1}{2} \cdot 5 \cdot 3 = \frac{15}{2}$.

TASK #10:

Similar Triangles

(Northern Kentucky University)

In the right triangles ABC and CDE shown below, AB has a length of 8 feet, BE has a length of 5 feet and CE has a length of 7 feet. What is the length of DE? Round your answer to two decimal places.



Use similar triangles: $\frac{DE}{CE} = \frac{BA}{CB} \Rightarrow DE = \frac{8}{5+7} \cdot 7 = \frac{14}{3} = 4.67.$

TASK #11:

Parabolas and Completing the Square

(Angelo State University)

If $y = -x^2 + 4x - 10$, find the largest value attained by y. Do this without using calculus.

The solution to the problem is to find the vertex for the parabola. One approach is to complete the square and obtain $y = -(x - 2)^2 - 6$.

So the graph is a parabola opening down, and the vertex is at the point $(x, y) = (2, -6)$.

Hence the largest value is $y = -6$.

TASK #12:

Properties of Logarithms

(Angelo State University)

Explain why $\log\left(\frac{x}{y}\right)$ is equivalent to $\log(x) - \log(y)$.

The key property to remember is $\log\left(\frac{a}{b}\right) = \log(a) - \log(b)$.

Apply this formula twice, along with $\log(1) = 0$ to get the result.

TASK #13:

Solving Systems of Equations

(Angelo State University)

Solve the linear system of equations below using the elimination-substitution procedure. (Note: The student also needs to know how to apply matrix techniques using the augmented matrix in solving this and other similar linear systems of equations.)

$$x - 2y + 6z = 2$$
$$-x + y - 2z = -1$$
$$2x - 3y + 8z = 3$$

The problem is complicated by the fact that there are infinitely many solutions. In fact, any point of the form $(x, y, z) = (2z, 4z - 1, z)$, where z is a real number, is a solution.

Postsecondary Assignment #2

Introductory Chemistry

Ball State University, *Muncie, Indiana*
Worcester Polytechnic Institute,
Worcester, Massachusetts

Introductory chemistry courses at Ball State University and Worcester Polytechnic Institute challenge students to interpret, manipulate, process and present quantitative information accurately; use technology such as graphing calculators appropriately; and present solutions in the appropriate unit of measure or dimension.

Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete these tasks

CONTENT AREA	STRAND	BENCHMARK
English	Language	**A7**
	Informational Text	**F5**
Mathematics	Number Sense and Numerical Operations	**I1.1, I1.2, I1.5, I3, I4.2**
	Algebra	**J1.5, J3.2, J5.1, J5.2, J5.5**
	Geometry	**K8.1**

SAMPLE TASKS

Task #1

Use percent composition information to calculate either the empirical formula or the molecular formula for a compound.

Problem: Trichloroethylene (TCE) is a common solvent used to degrease machine parts. Calculate the empirical formula for TCE if the percent composition is 18.25% C, 0.77% H and 80.99% Cl.

Solution: Consider having a 100 g sample of trichloroethylene. The percent composition is then 18.25 g C, 0.77 g H and 80.99 g Cl. Find the number of moles of each element.

18.25 g C × (1 mol C/12.01 g C) = 1.520 mol C
0.77 g H × (1 mol H/1.008 g H) = 0.76 mol H
80.99 g Cl × (1 mol Cl/35.45 g Cl) = 2.285 mol Cl

Chemical formulas are written with whole numbers, so divide by the smallest number of moles to find the empirical formula.

Because C: 1.520/0.76 = 2 and H: 0.76/0.76 = 1 and Cl: 2.285/0.76 = 3, the empirical formula is C_2HCl_3.

– P5-55 –

Task #2

Analyze complex mathematical models in which several parameters appear. In many cases, the first step in analyzing the model is to determine the conditions that will reduce the complex model to a simpler case. The Van der Waal equation of state is an extension of the ideal gas law for real gasses:

$$\left(P + \frac{n^2 a}{V^2}\right)(V - nb) = nRT$$

where P is pressure, V is volume, T is temperature, R is the universal gas constant, n is the number of moles, and a and b are constants. Rewrite the equation of state to see that it approaches the equation of the ideal gas law for large V.

For an ideal gas, $Z = \frac{pv}{nRT} = 1$.

Rearrange the Van der Waal equation to obtain the same ratio, and the result is

$$Z = \frac{PV}{nRT} = \frac{V}{V - b} - \frac{an}{RTV}.$$

The terms on the right are close to 1 if V is sufficiently large.

SAMPLE TASKS, *continued*

Task #3

Use formulas such as the ideal gas law ($P \cdot V = nR \cdot T$) to calculate unknown quantities such as pressure, temperature, volume, molar mass, density or molecular formula.

Problem: What is the temperature of 0.520 mol of argon gas that occupies 4.25 L at 750 torr?

Solution: Use the ideal gas law: $PV = nRT$. Solve the ideal gas law for T, and substitute the known information.

$$T = \frac{PV}{nR} = \frac{(750.0\ \text{torr})(1\ \text{atm}/760\ \text{torr})(4.25\ \text{L})}{(0.520\ \text{mol})(0.0821\ \text{L atm mol}^{-1}\text{K}^{-1})} = 98\ \text{K}$$

Task #4

The *half-life* of a chemical reaction is the time required for half of the reactant initially present to decompose. The first-order rate law leads to $c = c_0 e^{-kt}$ where c is the concentration at time t, c_0 is the initial concentration, k is a positive constant and t is time.

Solve this equation for t and $t = \frac{1}{k} \cdot \ln\left(\frac{c_0}{c}\right)$.

If $c = \frac{1}{2} c_0$, this equation gives the half-life as $t_{1/2} = \frac{\ln(2)}{k}$.

Task #5

A mixture of methane and ethane is contained in a glass bulb of 500 cm^3 capacity at 25°C. The pressure is 1.25 bar, and the mass of gas in the bulb is 0.530 g. What is the mole fraction of methane?

To find a solution to this problem, the student must solve a system of two equations and two unknowns. Once the number of moles of either compound is found, there is sufficient information to calculate the mole fraction of methane.

First, use the ideal gas law to find the total number of moles of gas.

$PV = nRT \Rightarrow n = \frac{PV}{RT}$ so

$$n = \frac{(1.25\ \text{bar})(10^5\ \text{Pa}/1.0\ \text{bar})(500\ \text{cm}^3)(1\ \text{m}^3/10^6\ \text{cm}^3)}{(8.314\ \text{J/mole K})(298\ \text{K})} = 0.0252\ \text{moles of gas}$$

Let n_e = moles of ethane, m_e = mass of ethane, n_M = moles of methane, and m_M = mass of methane. Then we can write $0.0252\ \text{moles} = n_e + n_M$, and we know from the given information that

$0.530\ \text{g} = (30.068\ \text{g/mole})\ n_e + (16.042\ \text{g/mole})\ n_M$.

This system of equations can be solved by substitution. The most direct way to determine the mole fraction of methane in the system is to solve for n_M, the number of moles of methane. Proceeding along these lines one finds $n_M = 0.0162$.

The mole fraction methane is simply the ratio of moles of methane to the total number of moles.

$$X_M = \text{the mole fraction of methane} = \frac{0.0162}{0.0252} = 0.64$$

Task #6

Calculate the pH of a 0.50 M HF solution at 25°C. The K_a is 7.1×10^{-4}, and the ionization of HF is given by

$HF\ (aq) \rightleftharpoons H^+(aq) + F^-(aq)$.

The students use a table to organize the data to solve this problem.

	HF (aq)	H^+(aq)	F^-(aq)
Initial (M)	0.50	0.00	0.00
Change (M)	$-x$	x	x
Equilibrium (M)	$0.50 - x$	x	x

Then use the equilibrium constant to find x.

$$K_a = \frac{[H^+][F^-]}{[HF]} = \frac{x \cdot x}{0.50 - x} = 7.1 \times 10^{-4}$$

One could use the quadratic formula to solve this equation, but an approximation could be made to solve the problem more easily. Since HF is a weak acid we could reason that x must be small compared to 0.50. Thus we make the approximation $0.50 - x \approx 0.50$.

Now K_a can be written as $K_a = \frac{x \cdot x}{0.50} = 7.1 \times 10^{-4}$.

Solving for x we find $x = 0.019$M. Before calculating the pH of the solution, it is wise to determine if the approximation was legitimate. If x is less than 5% of the number it was subtracted from, then the approximation is valid.

$$\frac{0.019\text{M}}{0.50\text{M}} \cdot 100 = 3.8\%$$

Thus the approximation is valid. The pH can be calculated as follows.

$$pH = -\log[H^+] = -\log[0.019] = 1.72$$

Postsecondary Assignment #3

Introductory Microeconomics

William Rainey Harper College, *Palatine, Illinois*

In studying topics such as economic growth and government intervention in markets, students must apply their understanding of key microeconomic principles such as supply and demand to interpret the graphic representations of macroeconomic relationships. As these samples from William Rainey Harper College demonstrate, students must be able to interpret graphic representations of linear equations and the meaning of slopes.

Associated Benchmarks

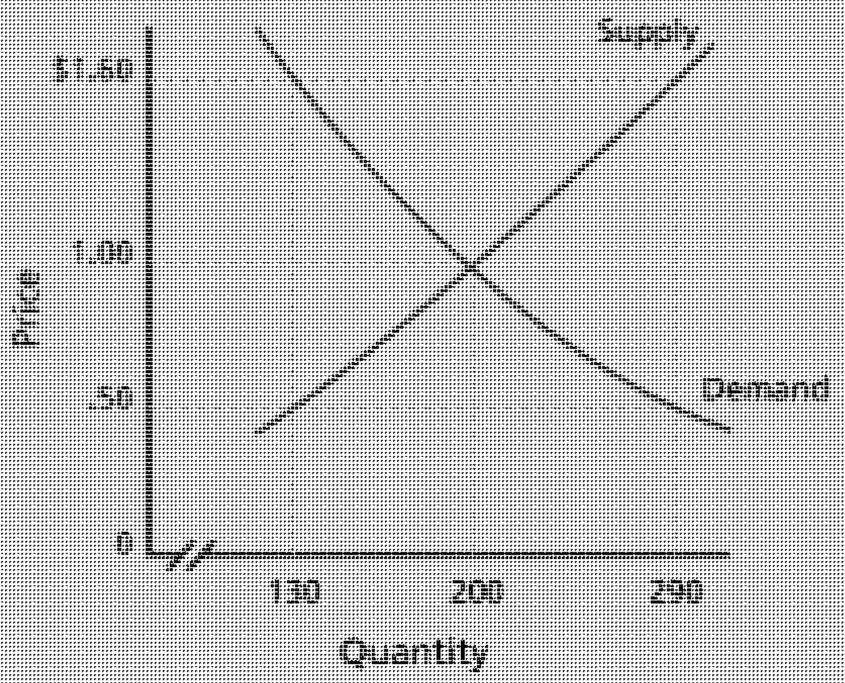
ADP benchmarks that address the knowledge and skills required to complete these tasks are:

CONTENT AREA	STRAND	NUMBER
English	Language	**A7**
	Informational Text	**F5**
Mathematics	Algebra	**J4.2, J4.8**

SAMPLE TASKS

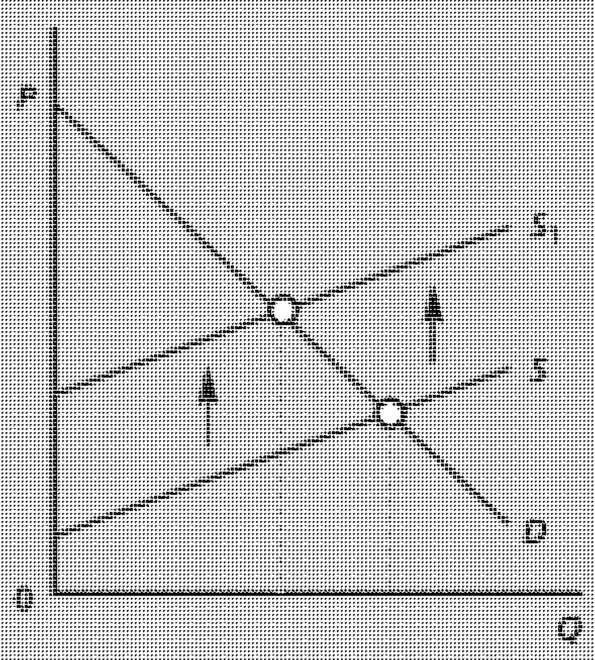
Task #1

In the diagram below, what is the equilibrium price and quantity in this market?



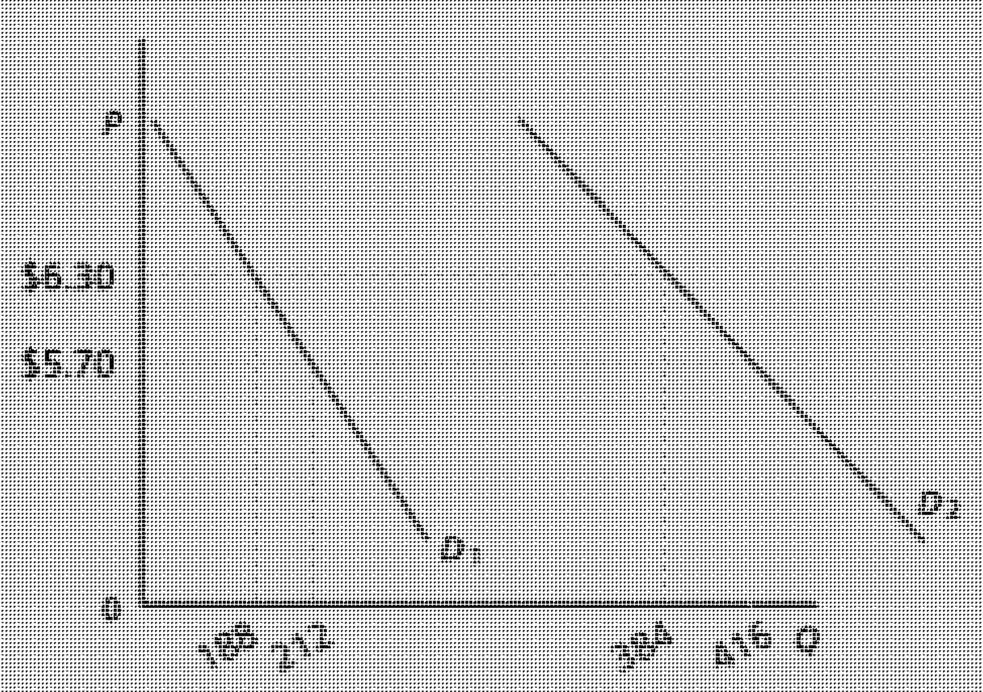
Task #2

In the diagram below, S is the market supply curve, and S_1 is a supply curve comprising all costs of production, including external costs. Assume that the number of people affected by these external costs is large. How could the government establish an optimal allocation of resources in this market? Explain your answer.



Task #3

In the diagram at right, assume a single good. If the price of the good increased from $5.70 to $6.30 along D_2, what would the price elasticity of demand along this portion of the demand curve be? Explain your answer.



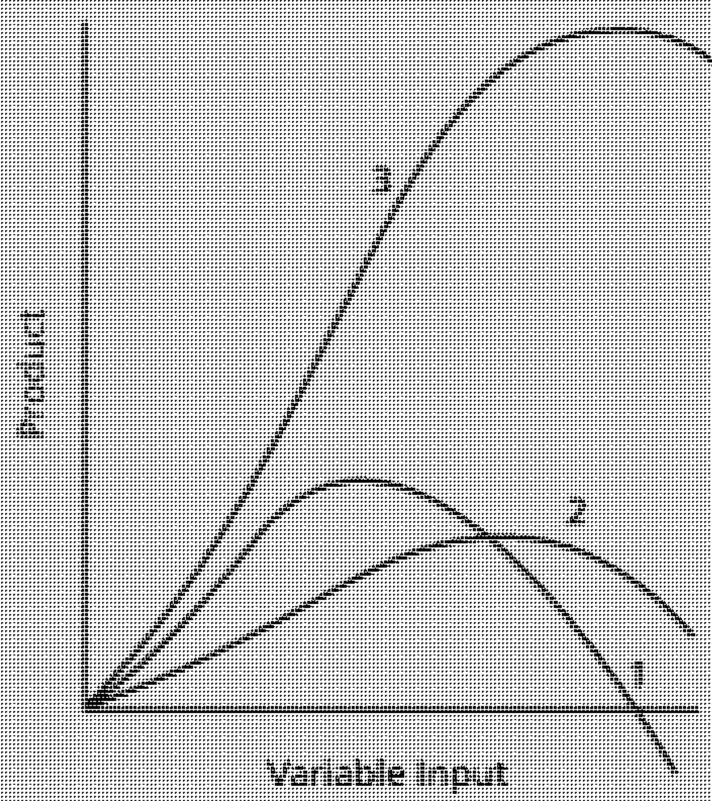
Postsecondary Assignment #3

Introductory Microeconomics

William Rainey Harper College, *Palatine, Illinois*

Task #4

Identify the *average*[*] *marginal*[**] and *total product*[***] curves in the diagram below. Explain your answer.



[*] *The **average product curve** graphically illustrates the relation between average product and the quantity of the variable input, holding all other inputs fixed. This curve indicates the per-unit output at each level of the variable input.*

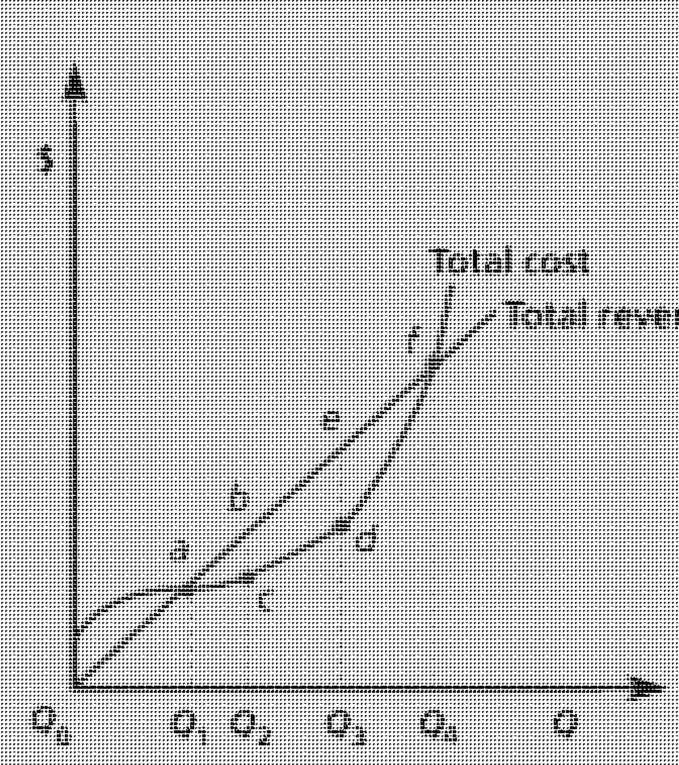
[**] *The **marginal product curve** graphically illustrates the relation between marginal product and the quantity of the variable input, holding all other inputs fixed. This curve indicates the incremental change in output at each level of the variable input.*

[***] *The **total product curve** graphically represents the relation between total production by a firm in the short run and the quantity of a variable input added to a fixed input. When constructing this curve, it is assumed that total product changes from changes in the quantity of a variable input like labor, while we hold fixed one or more other inputs, like capital.*

Source: The Area Web (2005) "Access to a searchable database of 1,800 economic terms and concepts, http://www.arnoweb.com/glo/."

Task #5

In the diagram below, what is the profit-maximizing[*] output level for this firm? Explain your answer.

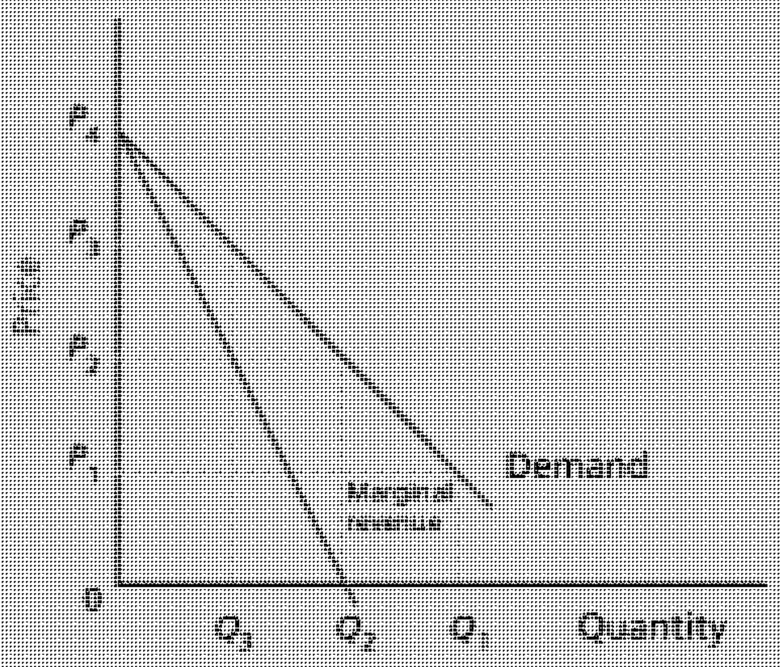


[*] ***Profit maximization** is the process of obtaining the highest possible level of profit through the production and sale of goods and services. The profit-maximization assumption is the guiding principle underlying short-run production by a firm.*

Source: The Area Web (2005) "Access to a searchable database of 1,800 economic terms and concepts, http://www.arnoweb.com/glo/."

Task #6

In the diagram to the right, at what point or in what range is demand relatively inelastic? Explain your answer.



Task #7

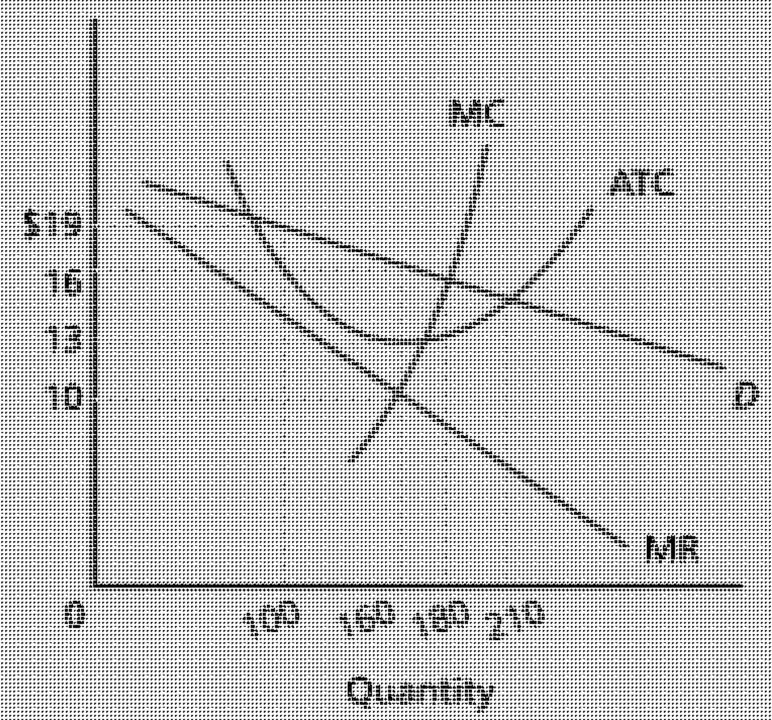
In the diagram to the right of a monopolistically competitive firm in **short-run equilibrium** ...

a. What will this firm's profit-maximizing price and output be?

b. What economic loss or profit will this firm realize?

c. In the long-run equilibrium, what economic loss or profit will this firm realize?

Explain your answers.



Postsecondary Assignment #4

Introductory English Survey Course

Sam Houston State University, *Huntsville, Texas*

The study of English often can take students beyond the written word and demand that they explore connections across genres and media. This assignment from an introductory English course at Sam Houston State University focuses on the relationship between the verbal and the non-verbal, between poetry and painting, and between novels or plays and the films that attempt to interpret them. In doing so, it challenges students' language, communication and media skills. A central feature of this assignment is a professor-led discussion, demanding students be able to express themselves verbally and listen effectively.

Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete this task are:

CONTENT AREA	STRAND	NUMBER
English	Language	**A1, A2, A6**
	Communication	**B7**
	Writing	**C1, C2, C3, C4, C5, C9**
	Research	**D2**
	Media	**G2, G3**
	Literature	**H5**

SAMPLE TASK

The Set-Up Assignment

On your course CD open the JPEG file "Icarus" and take a look at the picture (see right). For now, just notice what draws your attention (and write a few sentences about why you think that's where your eye fell). For our purposes, we'll call this the "visual focal point" of the painting. Now, go back and perform a careful viewing of the painting (much the same way we have learned to perform analytical reading of a written text). Based on your close "reading" of this painting, what do you think the painter was trying to "say"? If you have difficulty with this, look in the painting for any details that seem important, startling or hard to explain. If you are still having trouble, consider the title of this painting: *The Fall of Icarus*. Do an Internet word search for "Icarus." Using what you have discovered, determine the main idea presented by Pieter Bruegel's painting *The Fall of Icarus*.

Day Two (in class or out)

We will begin class with a reading of two poems written about *The Fall of Icarus*: "Landscape with the Fall of Icarus," by William Carlos Williams, and "Musee des Beaux Arts," by W. H. Auden. This is not the focus of our assignment, but you should understand that in the world of art, as in the worlds of movies, television and magazines, the people who send the messages are acutely aware of the interplay between words and images. In our discussions, we have arrived at a consensus that the red sleeves of the farmer seem to be the visual focal point and that the legs of Icarus disappearing beneath the water seem to be the thematic focal point. We have agreed, roughly, that the painting seems to be saying something about how life goes on despite tragic events (even events that are downright fantastic). Think about how this idea is conveyed in images and about how it could be (or, in the case of the poems we read, is) conveyed in words. Then think about the differences and similarities between those conveyances.

Paper: The Verbal and the Visual in Contemporary Media

Using the principles you have learned about theme, verbal messages, visual focal point, thematic focal point, and other principles of language and media, locate an excellent example of how words and images work together to create a theme (which might also mean to make a point or sell a product). The definition of media for this assignment is diverse. It may be a printed magazine or television ads, music videos, cartoons (moving or still), or practically any other medium. You will have a week to locate your subject and write a preliminary draft of a paper in which you analyze the interplay between the visual and the verbal in it. (Considering our discussion about how sometimes words and images disconnect rather than connect, you might even choose an example in which there is dissonance rather than harmony between the verbal and the visual.) After the preliminary draft, we will proceed to the final paper.

Postsecondary Assignment #5

Introductory Philosophy

Montclair State University, *Montclair, New Jersey*

First-year philosophy courses require students to reason — to think critically, logically and dispassionately — and to make effective arguments. In this assignment from Montclair State University, students not only must read texts carefully to make judgments about the validity of the author's reasoning, but also must structure an essay in a way that advances the explanation of these ideas.

Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete this task are:

CONTENT AREA	STRAND	NUMBER
English	Language	**A1, A6**
	Writing	**C1, C2, C3, C4, C5, C9**
	Logic	**E1, E2, E3, E9**
	Literature	**H3, H7**

SAMPLE TASK

500-Word Expository Essay

For the expository essay option, topics that are fairly well defined and self-contained can be found in the texts covered in the course. Carrying out this assignment involves two distinct steps.

First, you must make the idea your own — i.e., you must understand it, make sense of it, see it as a candidate for adoption, sufficiently so as to be able to produce an intelligible presentation of it (or at least a sketch of or an outline for such a presentation) to a specific audience (think of an audience made up of your fellow students or any other audience whose characteristics you can effectively represent to yourself). (Note that this rhetorical situation in which you are required to explain somebody else's idea to others is not only common in college classrooms, but it is also very common in professional work where you as a manager may be asked to explain ideas or policies that you did not yourself invent and that you may not find either valid or particularly interesting.)

Second, you must develop a strategy for rendering the idea intelligible to your chosen audience as succinctly as possible (so as to remain fairly close to a target of 500 words in length). Unlike the "text-focused" essays, here you have the widest possible latitude with regard to organization and structure. Analysis, interpretation and argument are intellectual tasks sufficiently identifiable as to make at least plausible the claim that an ideal rhetorical organization can be specified for each, but this is not so for exposition. Of course, any good exposition of an idea or policy must do its job effectively, i.e., it must actually succeed in rendering its subject matter intelligible to its audience. Needless to say, to do this job successfully the expositor must have a modest grasp of that subject matter. Beyond that, the most effective strategy or order of exposition cannot be determined in advance. Many very different organizational strategies can be equally successful in presenting the same subject matter.

Sample 500-Word Essay Topics

1. Explain Nietzsche's statement that the doctrine of will to power offers the "solution to the problem of procreation and nourishment."
2. Explain Nietzsche's claim that "faith in the categories of reason is the cause of nihilism."
3. Explain Spinoza's critique of the use of final causes in explanation.
4. Explain Aristotle's conception of the relationship between moral virtue and practical wisdom.
5. Explain the way in which Plato distinguishes and relates thinking (*dianoia*) and belief (*pistis*).

Postsecondary Assignment #6

Introductory English

Western Nevada Community College, *Carson City, Nevada*

Tests in first-year English courses often require students to identify excerpts from course readings and to explain their significance. To perform well on this midterm exam from Western Nevada Community College, students must have been able to develop a solid understanding of the themes and literary techniques employed in a broad selection of short stories and poems. Students must also be able to describe how the works relate to one another.

Associated Benchmarks

ADP benchmarks that address the knowledge and skills required to complete this task are:

CONTENT AREA	STRAND	NUMBER
English	Language	**A1, A6**
	Writing	**C1, C2, C3, C4, C5, C9**
	Logic	**E9**
	Literature	**H1, H3, H4, H5**

SAMPLE TASKS

English 102 Midterm Exam [Total of 100 Points]

Part One. Fiction. Respond to eight of the 10 quotations.
Five points per question.

Explain the significance of each excerpt, especially the section in bold, as it relates to each story's theme (NOT PLOT) or to the story's main character.

1. "Jupiter was an anomaly. His retrieving instincts and **his high spirits were out of place** in Shady Hill. ... Jupiter went where he pleased, ransacking ..." ("The Country Husband")

2. "I replied to the yells of him who clamoured. I **re-echoed, I aided, I surpassed them in volume** and in strength. I did this, and the clamourer grew still." ("The Cask of Amontillado")

3. "Her poems are always cool and intellectual; **that is their form, which is contradicted or supported by** a gravelly sensuous texture." ("Our Friend Judith")

4. "She **believes in these signs:** Speed Monitored by Aircraft. It doesn't matter that you can look up and see that the sky is empty." ("No One's a Mystery")

5. "'I don't feel any way,' the girl said. **'I just know things.'**" ("Hills Like White Elephants")

6. "You will have a full bag. People will seem to know what you have done, where you are going. They will have his eyes, the same pair, passed along on the street from face to face, like secrets, like glasses at the opera." ("How")

7. Gurov has just alluded to the "charming woman" he had met in Yalta to one of his card-partners. The card-partner replies, "'You were quite right, you know — the sturgeon was just a leetle off.' **These words, in themselves so commonplace, for some reason infuriated Gurov, seemed to him humiliating, gross.**" ("The Lady and the Dog") Explain Gurov's reaction.

8. "On errands of life, these letters speed to death." ("Bartleby the Scrivener")

9. "The flat is shabby and badly heated. The furniture is old, was never anything but ugly, is now frankly rickety and fraying. ... She ... eats very little, **from preference, not self-discipline.**" ("Our Friend Judith")

10. "Besides casual onlookers there were also relays of permanent watchers selected by the public, usually butchers, strangely enough. ..." **Why would the narrator seem to think it strange that butchers should be watchers?** ("The Hunger Artist")

Part Two. Poetry. Respond to five of the seven quotations.
Five points for each one.

Explain the significance of the excerpted lines, focusing especially on the words that are in bold type.

1. "Back from the hospital, his mind rattling/Like the suitcase swinging from his hand,/That contains **shaving cream, a piggy bank,/A book he sometimes pretends to read.**" ("Alzheimer's," p. 637)

2. "My mother, after a life/of it, says, 'This is the last straw.'/**And it is. We're all clutching.**" ("You Didn't Fit," p. 635)

3. "— and, if God choose,/I shall but love thee better after death." **Explain how one can love someone better after one is dead.** ("How Do I Love Thee?" p. 601)

4. "and in one another's blameless eyes go blind." ("The Tally Stick," p. 602) **Explain the paradox in this metaphor — in what way blameless? In what way blind?**

5. "It lies/among keys to abandoned houses,/nails waiting to be needed and hammered/into some wall,/telephone numbers with no names attached/idle paperclips." ("Wedding-Ring," p. 606) **What does the ring have in common with these other items? Explain the logic.**

6. "When I came in, and I was embarrassed/By old men standing up to shake my hand ..." ("Mid-Term Break," p. 610) **Explain. Why should the speaker be embarrassed?**

7. "Pack up the moon and dismantle the sun;/Pour away the ocean and sweep up the wood" ("Stop all the clocks, cut off the telephone," p. 615) **What is the effect of these particular images (especially as compared to the earlier images of the first and second stanzas)?**

Part Three. Essay question. *35 points.*

Refer to stories we have read ("How," "Hills Like White Elephants," "No One's a Mystery," "The Country Husband" and "Our Friend Judith") as well as several poems ("The Tally Stick," "love poem," "Wedding-Ring," and "What lips my lips have kissed, and where, and why" or any other 20th century poem we have read) and write an essay on the following topic:

The nature of love and marriage (these are TWO topics), as depicted in 20th century fiction and poetry, IS or IS NOT consistent. (Choose whichever point of view you think you can best defend by using the above stories and poems as your "support.") You will first have to identify WHAT IS the nature of love and the nature of marriage and state each definition. You also need to explain how you understand the term "is consistent" or "is not consistent."

-- [illegible] --

"Analysts have always tended to measure a society by classical economic and social statistics: its deficit-to-GDP ratio, or its unemployment rate, or the rate of literacy among its adult women. Such statistics are important and revealing. But there is another statistic, much harder to measure, that I think is more important and revealing: Does your society have more memories than dreams or more dreams than memories?"

Thomas L. Friedman
The World is Flat: A Brief History of the Twenty-first Century

-- PEACE --

Ohio Business Alliance for Higher Education and the Economy

a 501(c) (3) affiliate organization of the Ohio Business Roundtable

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P5-3

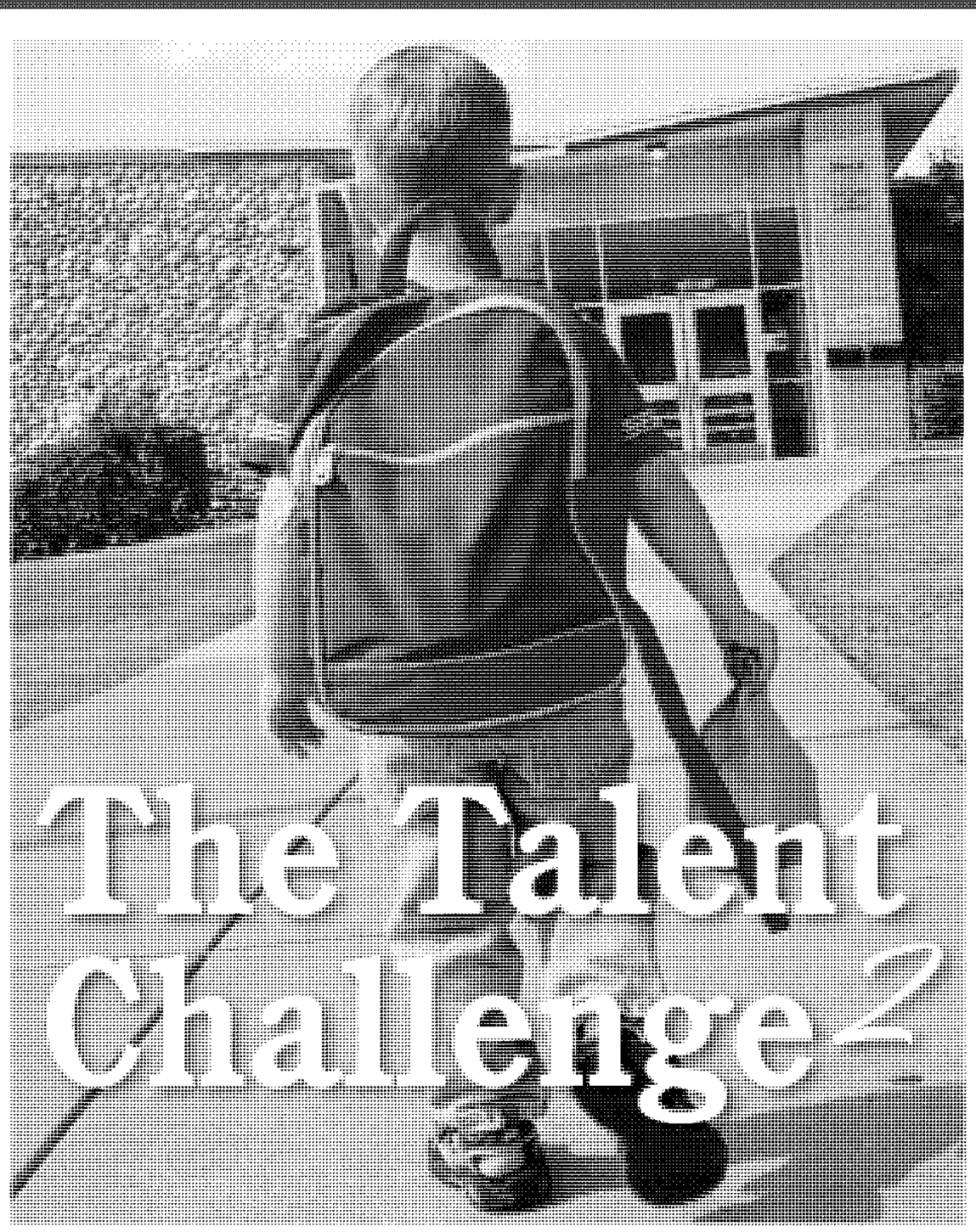
The Talent Challenge^2: Ensuring Kindergarten Readiness by 2020

Rationale: Demonstration of Ohio's business community commitment to early childhood education policy. Document prepared by the Ohio Business Roundtable challenging policymakers to goal of ensuring 90 percent of Ohio children entering school will be ready to succeed in kindergarten by 2020.

Referenced in:

VII, Priority 5

Exposure Draft
Second Printing



The Talent Challenge 2

Ensuring Kindergarten Readiness by 2020

OHIO BUSINESS ROUNDTABLE

Acknowledgements

The Ohio Business Roundtable gratefully acknowledges the support of the Pew Charitable Trusts, which along with dozens of children's advocacy organizations and funders has worked with a singular purpose and encouraged us as business leaders to tackle the challenge of early learning. No BRT initiative gets out of the starting gate without impassioned and disciplined CEO leadership – and for that we are indebted to Tanny Crane, Al Stroucken and their CEO colleagues across Ohio. Finally, we appreciate the analytical, strategic and systems thinking of Accenture, which has supported this initiative on a probono basis over the past year. We dedicate this work to the millions of children in this state who are the future of Ohio.

Contents

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A Call to Action

Building on two decades of sustained progress in education reform, the Ohio Business Roundtable four years ago challenged Ohio's leaders to significantly ramp up initiatives aimed squarely at growing our talent. In *The Talent Challenge: What Ohio Must Do to Thrive, Not Merely Survive, in a Flat World,* Ohio's business leaders spoke with a united voice and appealed to policymakers to help us better prepare our children for college or work in our knowledge-based economy.* Responding to business leaders' appeals, Ohio lawmakers enacted a rigorous core curriculum for high school students and made strategic investments in STEM (science, technology, engineering and mathematics) education. These policy actions were a necessary step in developing Ohio's talent base, but we know they are not nearly enough.

Too many of our children are still falling behind – and they are behind from the very beginning. ***Nearly 60 percent of Ohio children who show up at the schoolhouse door are not ready to succeed in kindergarten.*** On the 2009 National Assessment of Educational Progress, 85 percent of economically disadvantaged fourth graders were not proficient in reading. The vast majority of these kids will struggle throughout their academic life and most will fail to graduate from high school. These are but a few of the many sobering statistics on the "state" of Ohio's talent base.

We now know that the foundation for academic and work success is established early – long before children enter the classroom. Extensive research confirms that kids who start off right – with a nurturing home environment, access to quality pre-kindergarten, adequate health care and good nutrition – are far more likely to succeed in school and become productive members of society. Yet, despite all the compelling evidence, we continue to neglect the needs of Ohio's young children. ***Less than two percent of our public expenditures support our youngest learners.*** We're failing to make the investments we need to develop our human capital.

If we are truly committed to developing world-class talent and putting Ohio on a path to economic prosperity and growth, we must invest where the research tells us we can have the biggest impact – the early years. So, today we challenge Ohio's leaders to commit to a bold new goal:

By 2020, ensure that 90 percent of Ohio children entering school will be ready to succeed in kindergarten.

The Talent Challenge²: Ensuring Kindergarten Readiness by 2020 explores what science tells us about brain development and school readiness and examines what we know about how to foster children's learning in these early, most formative years. It lays the foundation for an early learning strategy that will help us meet that bold goal – and calls for an intensified effort to meet Ohio's talent challenge.

Preparing our youngest citizens for future success – in the classroom, in careers and throughout their lives – is an economic and moral imperative. The people of Ohio have every right to be indignant if we cannot get this done.

Tanny Crane, CEO
Crane Group
Co-Chair, BRT Early Learning Initiative

Al Stroucken, CEO
Owens-Illinois
Co-Chair, BRT Early Learning Initiative

Richard Stoff, President
Ohio Business Roundtable

* To access the report, see www.achieve.org/files/enewsletters/200606/TheTalentChallenge.pdf

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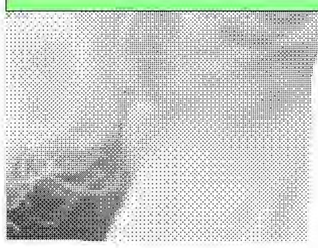

Just the Facts

The first years of life are crucial to the development and functioning of the brain. Early experiences affect learning, as well as the social and emotional development that is of fundamental importance to children's well-being and future success. Developmental opportunities lost during the first years of life are difficult, if not impossible, to recover. The research is clear on this.

Starting behind is damaging for children and expensive for society. Together, business leaders and policymakers have no higher priority than to ensure that we improve the odds for every child to begin life and start school ready to succeed.

Learning Starts Early

- By age three, a child's brain reaches 85 percent of its adult weight, developing 700 neural synapses every second – the connections that help the child learn.[1]
- A child's use of words at age three is a direct predictor of how well he or she will use language at ages nine and ten. [2]
- At age three, low-income children have average vocabularies of only about 500 words, while high-income children have average vocabularies of more than 1,100 words.[3]

Ohio's Children Are Behind

- On basic measures of early literacy, nearly 60 percent of Ohio children entering school are not ready for kindergarten.[4]
- On the 2009 National Assessment of Educational Progress, just 22 percent of economically disadvantaged Ohio fourth graders were proficient in mathematics, and only 15 percent were proficient in reading.[5]
- More than 30 percent of Ohio's eighth graders are not proficient in mathematics or science. [6]

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Early Childhood Investments Pay Off

- Quality home visiting/parent mentoring programs have been shown to reduce child abuse and neglect by as much as 80 percent, improve cognitive and vocabulary scores, and contribute to higher grade point averages and achievement test scores.[7]
- Evaluations of pre-kindergarten programs have shown reductions in participating children's odds of grade retention and special education placement by as much as 50 percent.[8]
- Early childhood development programs that focus on at-risk families have shown annual rates of return ranging between 7 and 10 percent – far exceeding returns from typical economic development initiatives.[9]

Yet, Ohio is Not Investing in Its Youngest Learners

- Ninety-eight percent of Ohio's public expenditures occur after age five – after 90 percent of brain development has already occurred.
- The percentage of eligible children served in state preschool programs remains in the single digits.
- Help Me Grow, the state's home visiting program, serves only one in five eligible children.
- Ohio only meets three of ten quality benchmarks (National Institute for Early Education Research) in its state-funded preschool program.[10]
- While the program is growing, just 880-plus of Ohio's 5,800-plus child care centers participate in the state's quality rating system, Step Up To Quality. Of the 880 centers, only one-third meet standards beyond the most basic requirements.[11]

What Policymakers Must Do Now

1 Establish new leadership – solely accountable to the governor – with the responsibility for consolidating services and funding to create a world-class system of early learning

2 Adopt a new comprehensive kindergarten readiness assessment to track our progress in meeting all dimensions of children's school readiness

3 Invest in home visiting and quality pre-kindergarten for at-risk children and families

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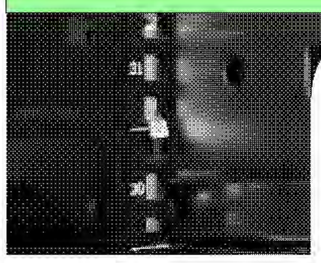


Addressing the Talent Challenge

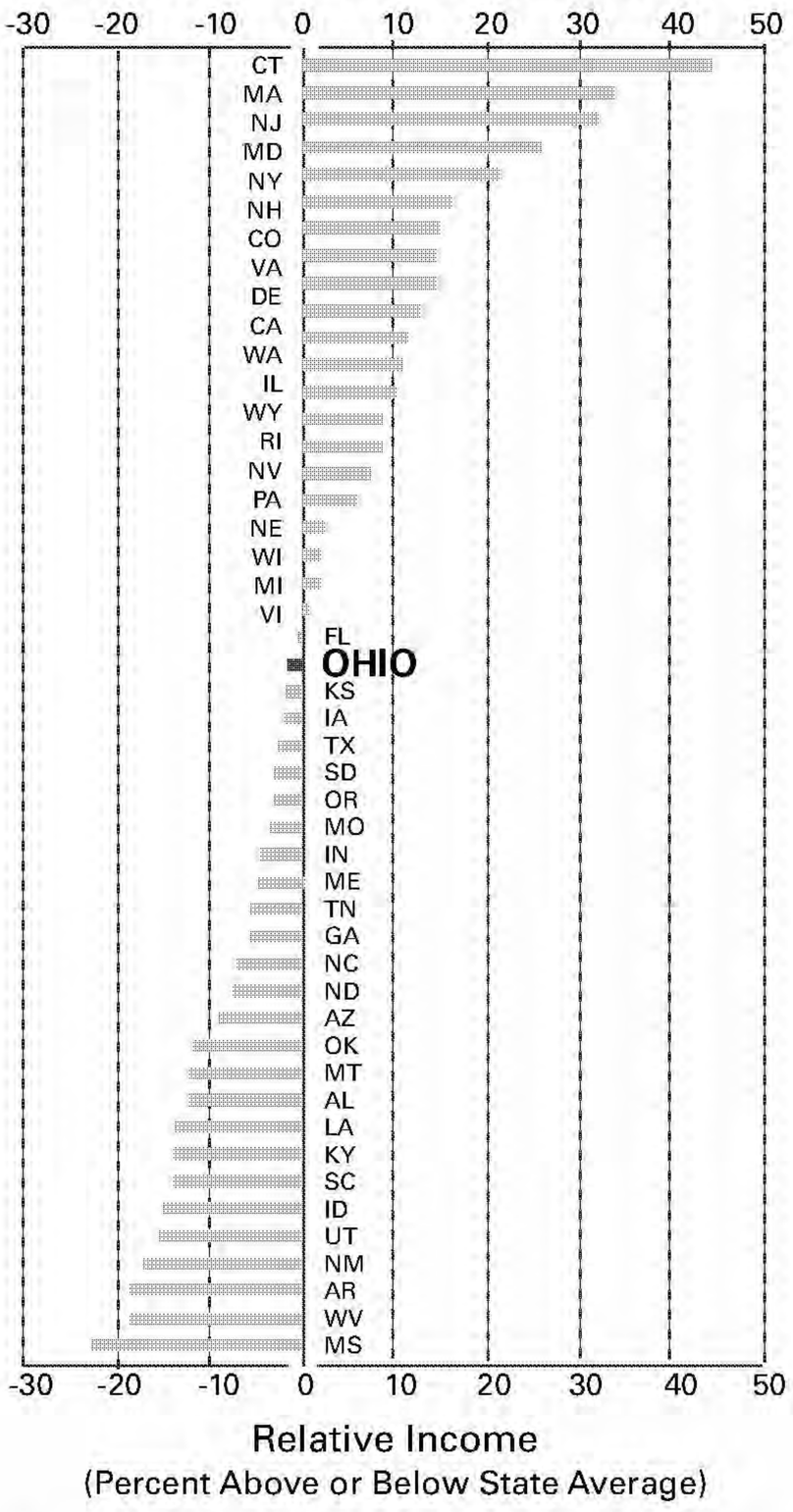
The data are compelling: Nurturing world-class talent must continue to be Ohio's top policy priority. Globalization continues to dramatically change the marketplace for jobs, talent and investment.

Innovation remains the key to competitiveness, which is necessary for economic growth and prosperity. Mathematics and science are the foundations of innovation. Yet unfortunately, America's "brain power" leadership – particularly in the STEM disciplines – is facing its stiffest challenge ever.

Understanding Ohio's Talent Challenge: I+T=P

The Ohio Business Roundtable has long recognized that knowledge and innovation are the keys to competitiveness and the stepping stones to economic strength and prosperity. A few years ago, looking at all 50 states over a 75-year period, the Federal Reserve Bank of Cleveland commissioned a compelling analysis of relative per capita personal income – as good a metric of economic strength as anything. The analysis showed that "wealthy" states are differentiated from "poor" states by two basic variables: **(1)** ***innovation,*** as measured by the pace of their technological advancement and the strength of their commercialization engines; and **(2)** ***talent,*** as measured by the level of educational attainment of their citizens and the quality of their workforce. Expressed as an equation, the Cleveland Fed's analysis might look something like this: ***Innovation + Talent = Prosperity.***

State Relative Incomes in 2004



SOURCE: Federal Reserve Bank of Cleveland 2005 Annual Report: *Altered States: A Perspective on 75 Years of State Income Growth*

Understanding the seriousness of this challenge, Ohio like many other states has experienced more than a decade of significant education reform. Academic expectations for all students have been raised. New assessment programs aligned with standards designed to hold schools, teachers and learners accountable have been implemented. The recruitment, preparation, deployment and development of teachers have all been improved.

Driven by a new understanding of how students learn, significant changes have been made in the way instruction is delivered and schools are designed. As a result, Ohio schools now rank fifth in the nation – the state's highest rating ever on the well-regarded and closely watched report cards issued each year since 1997 by *Education Week*.

Yet, our job is far from complete. Consider these alarming indicators:

- On basic measures of early literacy, nearly 60 percent of Ohio children entering school are not ready for kindergarten.[12]
- On the 2009 National Assessment of Educational Progress, just 22 percent of economically disadvantaged Ohio fourth graders were proficient in mathematics, and only 15 percent were proficient in reading.[13]
- Nearly 30 percent of Ohio's economically disadvantaged students fail to graduate from high school.[14]
- Ohio is 32nd out of 50 states in the percentage of high school graduates who go directly on to college. [15]
- Ohio is 33rd out of 50 states in the percentage of its population that has a bachelor's degree or higher, and 39 percent of Ohio's 52,000 first-year public college students took at least one remedial course in 2008.[16]

Clearly, it's a bad news situation. Too many of Ohio's young people are not ready to succeed in school, college, careers and life.

James J. Heckman, the Henry Schultz Distinguished Service Professor of Economics at the University of Chicago, argues that the health of our talent and our economy is only as healthy as our investment in the development of children from birth to age five. After winning a Nobel Prize in Economics in 2000, Heckman set out to determine why America's workforce was falling behind that of other countries, and he focused his attention on how well we develop our human capital. His work with a consortium of economists, developmental psychologists, sociologists, statisticians and neuroscientists concluded that early childhood development heavily influences health, social and economic outcomes for individuals and society.

> "The economic importance of being educated has never been greater than it is today. For individuals, education is the surest path to opportunity and success. Beyond that, a more educated population and more highly skilled labor force can lift our nation's economic performance over time. We all should care about this issue, and I am convinced that it begins with early childhood education. If we can reach children early and help them value educational attainment, we can accomplish some incredible things."
>
> – *Sandra Pianalto*
> *President and CEO*
> *Federal Reserve Bank of Cleveland*

Heckman believes that many of America's major economic and social problems – crime, teenage pregnancy, high school dropouts – can be traced to low levels of skill and social ability (i.e., attentiveness, persistence and impulse control). Through his research, Heckman found hard evidence that both intelligence and social abilities are developed at an early age and both are critical for success.

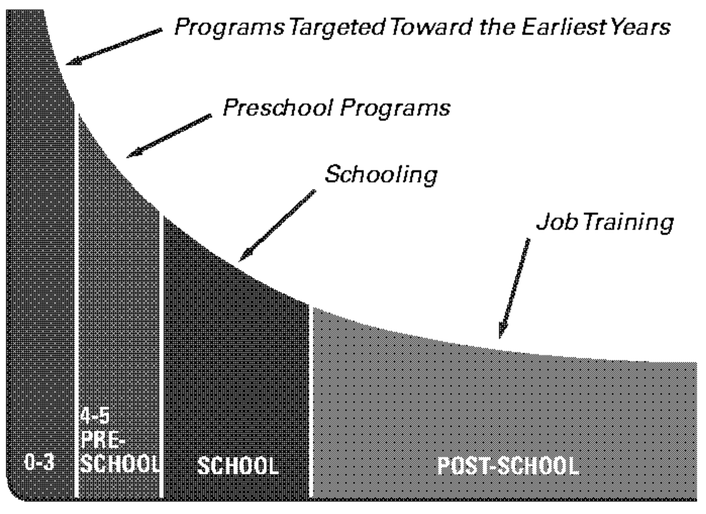
> ***"Skill begets skill. Motivation begets motivation. If a child is not motivated and stimulated to learn and engage early on in life, the more likely it is that when the child becomes an adult it will fail in social and economic life."***
>
> *– James J. Heckman*
> *Nobel laureate in Economics*

Through the analysis of several longitudinal studies of early human development and its impact on school and adult outcomes, Heckman found that investment in early childhood development for disadvantaged children helps prevent the achievement gap, reduce the need for special education, increase the likelihood of healthier lifestyles, lower the crime rate and reduce overall social costs. Heckman's research has demonstrated that every dollar invested in early childhood education produces a 10 percent per annum return on investment – far exceeding returns on later interventions – such as reduced pupil-teacher ratios, public job training, convict rehabilitation programs, adult literacy programs and tuition subsidies. [17]

In its 2006 report, Ohio's School Readiness Solutions Group, chaired by then-Battelle CEO Carl Kohrt, agreed: "The first years of life are crucial to the development and functioning of the brain. Early experiences affect learning, as well as the social and emotional development that is of fundamental importance to children's well-being and future success. Research confirms that what children know and can do when they start school helps determine their success in the classroom and the workplace – and throughout their lives." [18]

This is the *good news* and the basis for an early learning strategy for meeting Ohio's talent challenge.

Rates of Return to Human Capital Investment Initially Setting Investment to Be Equal Across All Ages



***Source**: Heckman, James J. Schools, skills and synapses. Economic Inquiry. July 2008.*

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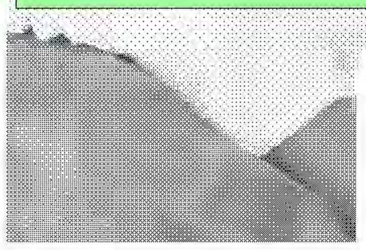


The Research

The brain is the body's supercomputer, which is built almost entirely prenatally and during the first few years of life. According to researchers at Harvard University's Center on the Developing Child, two recent developments have stimulated growing public interest in the development of young children:

> The first is the explosion of research in neurobiology that clarifies the extent to which the interaction between genetics and early experience literally shapes brain architecture. The second is the increasingly recognized need for a highly skilled workforce and healthy adult population to confront the growing challenges of global economic competition and the rising costs of Social Security, Medicare, and Medicaid for the aging baby boomers.[19]

The best research tells us that brains are built over time – that the interactive influences of genes and experience literally shape the architecture of the developing brain. Most scholars agree that both brain architecture and developing abilities are built "from the bottom up," which means that developmental opportunities lost during the first years of life are difficult, if not impossible, to recover.

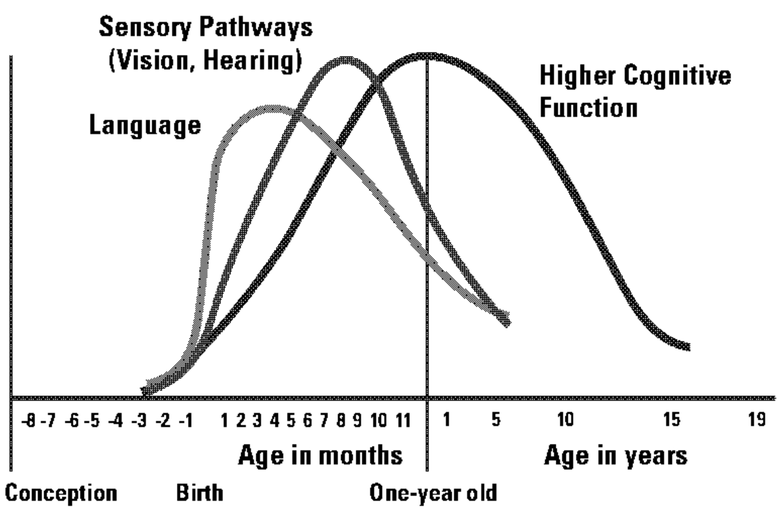
An apt metaphor for this process is an apple tree whose root system receives water and nourishment, and whose blossoms are transformed into apples ready for picking. Starved for nourishment, the tree's apples will not fully develop – they will drop off the tree and be lost. Similarly, without proper nourishment, children's brains will not fully develop and young children's lives will be damaged.

Here's some of what we know about brain development:

- During pregnancy, the basic architecture (e.g., brain stem, thalamus, cerebellum) of the brain is formed. Although this "hardware" is laid out during pregnancy, the brain is still immature in that the "software," or the connections between different parts of the brain, are not yet formed.
- The brain is undergoing explosive growth in the first years of life and needs organizing experiences to facilitate development. By age three, a child's brain reaches 85 percent of its adult weight, developing 700 neural synapses every second – the connections that help the child learn.[20]

HUMAN BRAIN DEVELOPMENT IS GREATEST AT VERY YOUNG AGES

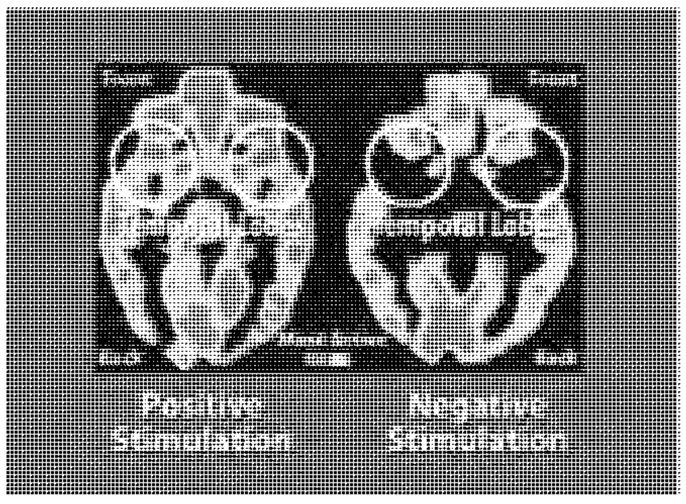
Synapse Formation and Retraction



SOURCE: C. A. Nelson in Jack P. Shonkoff and Deborah A. Phillips, eds, *From Neurons to Neighborhoods: The Science of Early Childhood Development,* National Academy Press (2000), p. 188.

- A number of studies show that when children hear a good deal of "live" language, when they are spoken to often and encouraged to communicate, they are more proficient with language than children who have more limited language exposure. For example, the University of Chicago's Janellan Huttenlocher found that at 20 months of age, children of "chatty" moms averaged 131 more words than kids of "non-chatty" moms, and by age two the gap had increased to a difference of 295 words. Only live language, not television, produced these vocabulary-boosting effects. [21]
- In their 1995 book, *Meaningful Differences in the Everyday Lives of American Children,* Risley and Hart compared the early language environments of children from seven to nine months until three years, and then correlated language exposure to achievement test scores in the third grade. Children who heard the greatest amount of language when they were young had the highest achievement test scores, while children who heard the least amount of language had the lowest achievement test scores.[22]

What these and other studies tell us is that early prenatal and postnatal experiences and exposures influence long-term outcomes and that the brain is particularly responsive to experiences during early development, which influence how well or poorly its architecture matures and functions. Put simply, infants, toddlers and preschoolers who use their newly formed brain connections, keep them. Those who do not exercise these connections, lose them.



Brain activity of a normal five-year-old child (left) and a five-year-old institutionalized orphan neglected in infancy (right).

Limited exposure to language, touch or social interactions can cause structural changes to the brain, as can emotional or cognitive neglect. We know that the complete absence of hearing language or receipt of extremely poor care will likely result in developmental deficits. We know that toxic stress in early childhood is associated with persistent effects on the nervous and stress hormone systems that can damage developing brain architecture and lead to lifelong problems in learning, behavior and both physical and mental health.[23]

Knowing that the foundation of skills to succeed in school, work and life is built early in a child's life, it is not surprising to find that programs that create nurturing and stimulating experiences for young children make a difference. Here are some other things we know about the connection between quality early learning experiences and a child's future success:

- Numerous studies have pointed to the efficacy of home visiting programs that provide support and mentoring to parents. Studies have demonstrated these programs have cut child abuse in half and have improved cognitive skills in reading and math through the third grade.[24]
- Extensive research has shown that participation in quality pre-kindergarten experiences significantly improves early literacy, language and math skills. Pre-k has been shown to improve student performance on third-grade tests, reduce the number of kids held back in school by up to 36 percent and reduce the need for special education by up to 49 percent.[25]
- Early experiences last a lifetime. Numerous studies have shown that pre-k programs have contributed to higher rates of employment and higher earnings as well as a reduction in crime and use of public assistance. Research shows the rate of return on investments made in the early years is far greater than investments made in the primary and secondary years.[26]

To examine the implications of this research for public policy and good practice, the Center on the Developing Child at Harvard University reached out to several of the nation's leading neuroscientists, developmental psychologists, pediatricians and economists. Here's what they concluded based on the existing literature about development in the early childhood years:

- Substantial progress toward greater productivity in the workplace and solid citizenship in the community can be achieved by assuring growth-promoting experiences both at home and in community-based settings, through a range of parent education, family support, early care and education, preschool and intervention services.
- When parents, informal community programs and professionally staffed early childhood services pay attention to young children's emotional and social needs, as well as to their mastery of literacy and cognitive skills, they have maximum impact on the development of sturdy brain architecture and preparation for success in school.

> "Education doesn't begin in kindergarten and first grade. It begins when the child can look up at a mother lovingly and look up at a father lovingly. So I think part of our system of reform has to include what we do in those early years of life and not just fixing our schools. Too often we ... ask our teachers to be truant officers because we're giving them children who [are] not ready to learn."
>
> *– Former U.S. Secretary of State Colin Powell*

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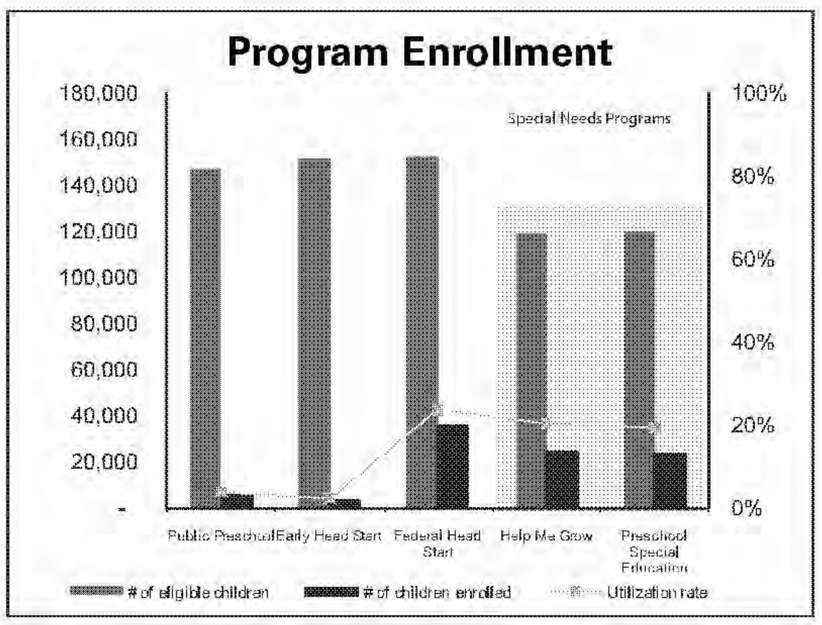
Ohio's Disinvestment

Ohio is losing ground.

Not long ago, Ohio was a leader among states in the provision of services to young children and their families.[27] In 1998, for example, Ohio one was of just eight states saluted for funding comprehensive initiatives for young children and families. At that time, every preschooler living at or below the poverty level could enroll in a state-funded program. In 2003, the National Institute for Early Education Research showed Ohio ranking #7 among the states serving three-year-olds and #19 for four-year-olds.[28]

If Ohio's goal is to give every child a fair chance to succeed and parents good choices, then the state must begin to move beyond its fragmented system and sporadic investments to offer an opportunity for quality early experiences to more eligible children. It is a significant challenge, as the state has issues with access, quality and leadership. Consider, for example:

- The percentage of eligible children served in state preschool programs remains in the single digits.
- Help Me Grow, the state's home visiting program, serves only one in five eligible children.
- Ohio only meets three of ten quality benchmarks (National Institute for Early Education Research) in its state-funded preschool program.[29]
- While the program is growing, just 880 of Ohio's 5,800-plus child care centers participate in the state's quality rating system, Step Up To Quality. Of the 880 centers, only one-third meet standards beyond the most basic requirements.[30]



Source: Eligible children is based on Age Cohort Populations and Ohio Child Population by Family Income. Eligible population requiring special needs is 27% of the population within each age group per the Children's Issues Policy Analyst, Ohio Developmental Disability Council, March 2010.

- The state continues to deliver early learning programs though a fragmented, uncoordinated delivery system. Plans to implement a Center for Early Childhood Development – that would begin to co-locate and coordinate early learning programs – have been put on hold.

A Costly Disinvestment

The recent economic downturn has taken its toll on state budgets across the country. From FY 2009 to FY 2010, states closed budget gaps totaling nearly $146 billion – and most of those gaps were closed at least in part by significant spending cuts to government programs. Many states, however, responded by protecting or expanding their long-term investments in human capital. Twenty states increased funding for early learning programs, and seven other states maintained existing funding levels.

In Ohio, many programs serving young children received deep cuts. According to an analysis of all the budget-balancing efforts across the country prepared by the National Conference of State Legislatures (NCSL), Ohio led the nation with the largest percentage decrease in investments for early childhood initiatives.[31]

> "The best way to improve the American workforce of the 21st century is to invest in early education, to ensure that even the most disadvantaged children have the opportunity to succeed alongside their more advantaged peers."
>
> – *James J. Heckman Henry Schultz Distinguished Service Professor of University of Chicago and Nobel Prize winner in Economics*

Funding Changes for Early Childhood Initiatives in FY 2009-2010

Top Five Reductions

State	Percent Reduction
Ohio	22.2%
Michigan	20.3%
Missouri	15.6%
New Mexico	14.3%
South Carolina	13.6%

Top Five Increases

State	Percent Increase
Idaho	30.2%
Delaware	28.8%
Alabama	23.6%
Texas	19.0%
Tennessee	9.5%

SOURCE: National Conference of State Legislatures (May 2010). Early Care and Education State Budget Actions

The state's current budget:

- eliminates the Early Learning Initiative (ELI), which funded full- and part-day services for approximately 12,000 three- and four-year-old children;
- cuts $11 million from the public preschool program;
- reduces funding by 20 percent for Help Me Grow, the state's birth-to-three program that provides home visiting and parent education services to at-risk children and their families; and
- reduces reimbursement rates for child care providers that serve low-income families and lowers the income level at which families can qualify for subsidies (from 200 percent of the federal poverty level to 150 percent of the federal poverty level).

Including a few smaller programs not mentioned above, the cuts represented a drop of more than $200 million for early childhood programs from FY 2009 to FY 2010.

A Few Bright Spots

While the challenge before us is daunting, Ohio has a number of innovative early learning programs – efforts aimed at demonstrating results. The inclusion of these initiatives in this discussion does not necessarily constitute an endorsement of any of them, but this is what business is all about – the search for better ways of doing things.

- **Programs that recognize the importance of a child's physical and social-emotional development**
    - **Health Care Coverage.** Historically and still today, Ohio's aggressive Medicaid outreach to low-income young children means most Ohio children have health care coverage. Nearly 83 percent of eligible children are enrolled in the Children's Health Insurance program.[32]
    - **Early Childhood Mental Health.** As the importance of a child's social and emotional development gains broader recognition, the state has some small-scale programs and the knowledge base to build the capacity necessary to meet the needs of children who could benefit from early consultations to help them learn, grow and achieve.
- **Programs supporting quality information and choices for parents**
    - **Step Up to Quality.** The State continues to implement and advance a quality rating program that helps parents make informed child care choices for their children and incentivizes increased quality in child care centers.
- **Programs ready to go to scale and meet the need**
    - **Help Me Grow.** Ohio's home visiting program for prenatal moms, infants and toddlers can grow capacity and yield results with proper investment.
    - **Pre-Kindergarten.** School districts, Head Start providers and child care providers have proven they can deliver pre-kindergarten experiences in a mixed market that gives parents choice.

- **Promising local early childhood initiatives**
  - **SPARK Ohio.** This initiative gets children ready for school and works closely with families and schools to ensure smooth transitions. Created initially to serve 1,000 children ages three to five in the Canton area, SPARK uses a home visitation model utilizing paraprofessionals as parent partners in the development of individual learning plans. The program aligns with Ohio's early learning content standards and also provides books, supplies and learning materials. Preliminary results have demonstrated:
    - improved results on kindergarten assessment tests;
    - higher attendance rates and on-time grade promotion in each year through the third grade; and
    - higher reading and math scores on Ohio's third-grade achievement tests.[33]

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- **Columbus Kids: Ready, Set, Learn**. This initiative provides a learning check-up to children two-and-a-half through four years of age to identify early strengths and potential developmental delays. The program has established a goal of screening Columbus children every six months to ensure they are connected to appropriate intervention services. Through its outreach efforts and by collaborating with early care and education centers, Head Start sites, the Columbus City Schools pre-k programs and other community partners, nearly 1,000 children are already engaged in the initiative. Thirty percent have been referred for further assessment and/or intervention. Nearly one in five children has a delay in social-emotional development.[34]
- **Invest in Children.** Cuyahoga County's public-private partnership, Invest in Children, launched the first phase of a voluntary pre-kindergarten program in August 2007 with a goal of serving 12,000 children ages three to five by 2019. The program requires all participating providers to meet a series of quality standards, including standards related to teacher qualifications, child-to-staff ratios, appropriate curricula and linkages to supportive services. Evaluation data indicate:
  - Children entering kindergarten from program sites show an average level of school readiness that significantly exceeds the average readiness of all children entering kindergarten in the Cleveland Metropolitan School District; and
  - Strategic investments in the quality of settings have resulted in substantial gains in site quality.[35]

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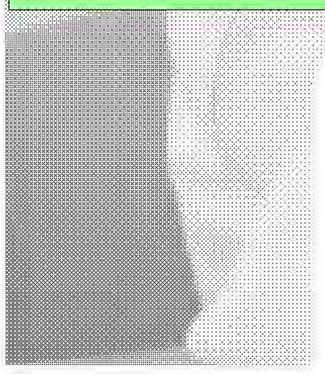


A New Strategy…Before It's Too Late

Early childhood development and education programs have been shown to yield significant benefits for children, families and communities. Their effect on academic achievement, behavior, learning progression and degree attainment, delinquency and crime prevention, and labor market success has been well documented.[36]

The research that supports this assertion is compelling, which makes Ohio's "lost ground" in early care and school readiness even more disturbing.

To be sure, some will see this as an opportunity to assign blame. Ohio's business leaders reject this position. Instead, they challenge lawmakers to make a new commitment to prepare our youngest citizens for future success – in the classroom, in careers and throughout their lives. They embrace the counsel offered by the School Readiness Solutions Group, a task force created by the State Board of Education in 2006:

> Providing high-quality early-learning experiences to all children and families who want them demands that we move away from a ***circle of blame*** to a ***circle of responsibility.*** It calls for a shift in thinking about how we can mobilize our energies, talents and resources to meet the educational needs of all children and families. It's not for the timid, because it requires bold action and a comprehensive approach to early learning.[37]

In the final weeks of 2009, the Ohio Business Roundtable asked Accenture for help in creating a roadmap of action for improving kindergarten readiness in Ohio. As a starting point, the project team worked to build a fact base and to identify a set of specific actions that the BRT could take to have the greatest positive impact on preparing Ohio's children for success in the classroom and in life.

One of the early products of this collaboration was the identification of the core drivers of kindergarten readiness, which are influenced by program access (e.g., capacity, affordability and eligibility) and program quality. A graphic representation of these drivers can be found in the appendix on page 25 of this report.

These drivers provide the basis for a challenging roadmap of specific actions needed to improve all children's kindergarten readiness. Yet, Ohio's current economic realities place limits on the new financial resources that can be allocated to early care and school readiness in the short term. This fact cannot be an excuse for doing nothing – or for backing away from action on behalf of young children. And there are three areas in which policymakers can and should act to move the state's early care and school readiness agenda forward – and to move Ohio back to the top:

1. **Establish new leadership – solely accountable to the governor – with the responsibility for consolidating services and funding to create a world-class system of early learning.**

   Result: State investment should come with improved accountability. When everyone is in charge, no one is in charge. Improved state leadership will help generate focused results.

2. **Adopt a new comprehensive kindergarten readiness assessment to track our progress in meeting all dimensions of children's school readiness.**

   Result: Ohio needs to measure what its children know, how they are developing and how their behaviors affect learning when they enter kindergarten in order to know what to do and where to invest. Assessment knowledge will enable us to better prepare youngsters for school, help schools be better prepared for children and provide strategic accountability for smart early childhood investments.

3. **Invest in home visiting and quality pre-kindergarten for at-risk children and families.**

   Result: Investments that build on programs with proven track records yield better value for children, families and taxpayers.

Effective Leadership: Making Things Happen

1

How decisions are made and carried out matters. Who makes decisions and responsibility for coordinating activities across organizational boundaries also matter.

Four years ago, the School Readiness Solutions Group recognized the importance of these "governance" issues, which address the rules, roles and relationships among those who make decisions and those who are affected by them. In the case of early learning, this includes families, schools, employers, community-based organizations, civic leaders and the state of Ohio.

Chaired by Carl Kohrt, then-CEO of Battelle, and comprised of early learning advocates, service providers, business leaders and national experts on early childhood development, the Solutions Group urged policymakers to create a results-driven early learning system that is (1) ***collaborative*** (i.e., recognizes that programs and services often transcend any single agency and involve interdependencies among public agencies and a number of third-party intermediaries or individuals); (2) ***sustainable*** (i.e., understands that social service delivery often requires stakeholder input and bipartisan agreement that extends across changes in political leadership); (3) ***authentic*** (i.e., keeps all stakeholders well informed and meaningfully engaged); and (4) ***effective*** (i.e., operates with a commitment to the prudent use of public and private resources).

School Readiness Solutions Group Recommendations

The state of Ohio should establish a Board of Early Care and Education to govern early learning programs and services for children from birth to kindergarten.

Investments in early learning require strong leadership and accountability. Recognizing the early learning system's unique and specialized governance responsibilities, the Solutions Group recommends the establishment of a Board of Early Care and Education, which will be responsible for setting standards for transitions among early learning settings and for program health and safety, core curricula and child service screenings.

The programs affected include Help Me Grow; Early Childhood Mental Health; the child care portion of the USDA Child and Adult Food Program; Early Periodic Screening, Diagnostic and Treatment (EPSDT) program; Healthy Start; and Preschool Special Education.

The state of Ohio should co-locate major early learning funding streams in a single state agency.

The Solutions Group recommends that major early learning programs and their funding streams be co-located in a single state agency, to ensure effective implementation and coordination of the services they support.

The programs and funding streams affected by this recommendation would include the following: Child Care and Development Block Grant; the Early Learning Initiative; Public Preschool Program; and the child care portion of the Child and Adult Care Food Program.

The identity of this single state agency should be determined by the governor.

Recognizing the importance of effective leadership, the Solutions Group called for the creation of a separate, distinct Board of Early Care and Education to govern early learning programs and services for children from birth to kindergarten. It also recommended that the state co-locate major early learning funding streams in a single state agency.

Since 2006, there have been ongoing efforts to execute these recommendations. The state's current biennial budget includes language that requires the Superintendent of Public Instruction, in consultation with the Governor, to create the Center for Early Childhood Development (CECD) within the Ohio Department of Education. The center's mission would be to coordinate early childhood programs and services for children from prenatal care through entry into kindergarten, and to support the eventual transfer of the authority to implement those programs and services from other state agencies to the Ohio Department of Education.

We believe that the Center proposal has one fatal flaw: the accountability for the center rests with the Governor ***and*** the Superintendent of Public Instruction. Our concern is that early learning programs and services could easily be "lost" between multiple and sometimes competing priorities of the Governor and the Superintendent. When everyone is in charge no one is in charge.

To provide the infrastructure to support a coherent system for early learning, the General Assembly should consolidate programs and funding, under new leadership, with a single line of accountability to the Governor. And, just as we have for our system of higher education, we must establish a separate advisory board – comprised of business and early learning experts – to counsel the state and publish an independent annual report on the condition of early learning in Ohio.

These actions are necessary to ensure that the state's early learning investments are used effectively, and to lay the foundation for a world-class system of early learning that develops and nurtures Ohio's human capital. This will put our state on the right path to meet its talent challenge.

Four years later, the recommendations of the School Readiness Solutions Group have not been realized. These recommendations reflect the thinking of national experts, business leaders, early care and learning providers, and advocates for children and families – yet today Ohio's programs for young children and their families remain fragmented and disjointed, governed by myriad state agencies and policymaking bodies.

Now is the time to bring the recommendations of the School Readiness Solutions Group to fruition.

Assess School Readiness: Sizing Up the Problem

2

Children who enter school ready to meet the demands of kindergarten – academic, social and emotional – are much more likely to succeed in school and go on to become productive, active citizens. Likewise, children who enter school behind their peers, tend to remain behind and are at a greater risk for dropping out of school, criminal behavior and future unemployment. Researchers tell us that more than half the achievement gaps found in later school years can be identified at kindergarten entry.

"I'm a lifelong political conservative, and I believe that government should intervene on a limited and targeted basis. Early education is not conservative common sense or liberal common sense – it's just plain common sense. Reaching the most at-risk kids helps increase graduation rates and cut crime, so early education is a matter of national security."

– Major U.S. General James W. Comstock

Other States: Taking the Lead [38]

Massachusetts Department of Early Education and Care (EEC) is responsible for a system of early care and education and out-of-school services for children birth to 14 years of age (through 16 years for children with special needs). EEC is a department with status comparable to that of the Department of Elementary and Secondary Education and the Department of Higher Education. It is run by a nine-member board and a board-appointed commissioner, with additional input from an Advisory Team established by the commissioner. EEC employs 180 staff members and operates with an annual budget of approximately $575 million.

Bright from the Start: Georgia Department of Early Care and Learning oversees early care and education services for children from birth to five and their families. Bright from the Start is led by a commissioner who reports directly to the governor as well as a 13-member governor-appointed Board of Early Care and Learning with a member from each of the state's congressional districts. The department operates with an annual budget of more than $488 million.

A young child's readiness to learn in a classroom setting is generally attributed to five domains:

- Physical well-being (e.g., health and motor development)
- Social and emotional development (e.g. social skills and emotion regulation)
- Approaches to learning (e.g., ability and inclination to use skills)
- Language development (e.g., verbal language and emerging literacy skills)
- Cognition and general knowledge

Educators, policymakers, parents and the public need to know whether children are ready to fully engage in formal learning. This information is critical to developing and delivering instructional practices that meet children's learning needs, to establishing accountability for public investments in early childhood initiatives, and to understanding gains over time in the state's kindergarten population.

Unfortunately, the assessment tools currently used in Ohio are limited and uncoordinated; they do not provide a comprehensive picture of school readiness.

- **The Kindergarten Readiness Assessment – Literacy (KRA-L)**

  Ohio Revised Code Section 3301.07.15 mandates that public and community school districts assess all first-time kindergarten students using the state-developed Kindergarten Readiness Assessment – Literacy (KRA-L). School districts must administer the assessment no sooner than four weeks prior to the start of each school year and no later than October 1 of each school year.

  Developers intended the KRA-L to be a quick screening instrument to assess oral language, rhyming, letter identification and alliteration – elements identified through research as being essential for reading. The purpose of the screen is to identify children for whom additional testing may be needed and to assist teachers in literacy instruction.

  The KRA-L was not designed to be a high-stakes assessment, and according to state law, districts may not use results of this screening to prohibit children from entering kindergarten.

  According to this measure, which focuses on a single domain of school readiness, nearly 60 percent of Ohio's children were not ready for kindergarten in the fall of 2009.

From Ohio's Race to the Top Application (July 2010)

"An aligned system of standards and assessments achieves its greatest power when it is fully integrated across the entire P-20 system. Ohio already requires the assessment of all first-time kindergarten students using the Kindergarten Readiness Assessment-Literacy (KRA-L). While the results collected from the KRA-L are beneficial for informing early literacy strengths and gaps for entering kindergarten students, there is a need to expand the assessment beyond literacy skills to include other measures of school readiness, including mathematics skills and child development measures such as social-emotional measures."

- **Health Screenings and Information**

  Separately, state law requires districts, prior to the first day of November, to screen kindergarten students for hearing and vision issues and ensure complete immunizations.

  These health screenings, while part of a child's individual record, are disconnected from the KRA-L, and as such cannot be considered part of a coordinated, comprehensive school readiness assessment.

  Recognizing the need for additional data, the Ohio Department of Education included funding in Ohio's Race to the Top application to support a more comprehensive kindergarten readiness assessment. (See excerpted statement on page 18.)

  It is instructive to note that Ohio is not alone in recognizing the need for a comprehensive assessment of kindergarten readiness.

  - Twenty-five states have some form of kindergarten readiness assessment. Of these states, ten assess early reading skills and the others assess multiple domains of readiness. States vary in the reporting and use of their data, although most indicate data are used to improve instruction and inform policy.
  - Two states, Hawaii and Vermont, also assess the readiness of schools to receive incoming students for school improvement purposes.[39]

The inability to fully assess kindergarten/school readiness leads to the inability to evaluate the effectiveness of early learning practices and to measure the return on investment in the public's support for center- and home-based early learning programs. In addition, it makes it difficult if not impossible for educators and schools to be ready for the young children whose education will soon be their responsibility.

For this reason, Ohio's education policy leaders must act decisively – and quickly – to develop and implement comprehensive tools to assess entering kindergarteners' readiness to learn in a classroom setting. These tools should incorporate all five domains of school readiness.

Start at the Beginning: Investing in What Works

3

Too often, children begin their lives with the odds stacked against them. Consider, for example:

- nearly 30 percent of Ohio's children are born to a mother who received inadequate prenatal care;[40]
- about 9 percent are born at low birth weight;[41]
- almost 40 percent are born to women who are unmarried – and 11 percent of new mothers are teenagers;[42] and
- nearly one quarter of children under age six live at or below 100 percent of the federal poverty level.[43]

When physical, emotional and cognitive development is at risk, children are at risk. That means their chances for future academic, social and economic success are limited. ***Yet, we have proven tools – home visiting and pre-kindergarten – that can be used to improve their odds in the classroom, in careers and in life.***

Long-Term Benefits, Short-term Returns

While policymakers' focus needs to be on early learning programs' long-term benefits for children and families, they should not ignore initiatives' short-term consequences. Consider the following research-based short-term benefits:

Quality home visiting/parent mentoring programs for at-risk families help to reduce costs now:

- Such programs can decrease by nearly half the incidence of low-birthweight births, saving $28,000–$40,000 for each one averted.[44]
- By cutting child abuse and neglect up to 80 percent, they can save states collectively some of the $33 billion in annual hospitalization, legal and other costs.[45]
- Nurse-Family Partnership (NFP) program child participants had 32 percent fewer emergency room visits than their peers as toddlers and 56 percent fewer visits for injuries and poisonings.[46]

Effective pre-k programs help reduce costly grade retention and special education services right away:

- Pennsylvania Pre-K Counts, a public-private partnership, saw a reduction in the percentage of participating children with developmental delays (a predictor of special education needs) from 21 percent at entry to 8 percent at program graduation.[47]
- A study of New Jersey's Abbott Preschool Program found up to 50 percent less grade retention for first graders who attended at both ages three and four.[48]

The cost-savings persist into children's early grade school years:

- Graduates of the Chicago Child-Parent Centers had 35 percent less grade retention and 26 percent less special education placement than their third-grade peers. They also experienced 30 percent less child abuse and neglect.[49]
- Louisiana's LA4 program reduced participating children's odds of kindergarten retention by up to one-third and of special education placement through second grade by nearly one-half.[50]

Home Visiting

Extensive research has documented positive results – both short- and long-term – from home visiting programs. These voluntary home visits provide parental information and support to at-risk parents from pregnancy through the first three years of a child's life.

This support includes encouraging appropriate prenatal care, helping parents understand their child's development and the importance of a stimulating environment to promote a child's early learning. By supporting and empowering parents, home visiting programs around the country have led to healthier births, safer and more enriching home environments and stronger cognitive scores for participating children. Consider, for example, the findings of recent research:

- One Cincinnati program found that infant death rates fell by as much as 60 percent among home visiting participants.[51]
- Mothers who received home visits in New York's home visiting program were half as likely to deliver low-birth-weight babies compared to mothers who were not enrolled.[52]
- Nurse-Family Partnership (NFP) home visiting services have been shown to reduce abuse and neglect among children of low-income, single mothers by as much as 79 percent.[53]

- At age six, children who participated in (NFP) home visiting programs in Memphis had higher cognitive and vocabulary scores than those in a control group; and at age nine, these children had higher grade point averages and achievement test scores in mathematics and reading in the first through third grades.[54]

Help Me Grow is Ohio's voluntary home visiting program serving families with infants and toddlers to age three who have or are at risk for developmental delays or disabilities. Historically, the program also has served families who are at risk due to certain criteria, including teen pregnancy and/or a history of abuse and neglect. The program offers newborn and prenatal home visits to parents in order to assess the health of both the child and mother – and to help educate the parent on such topics as infant feeding, newborn care and immunizations. Based on this initial assessment, the family may be linked to additional services.

Despite the fact that home visiting programs have demonstrated their effectiveness – generating as much as $5.70 in economic return for every dollar invested – state funding for Ohio's home visiting program was cut by 20 percent in the FY 2010-11 biennium.[55] One-time newborn and prenatal home visits were eliminated and services are now limited to first-time parents and their children with incomes below 200 percent of the federal poverty level who have at least two risk factors. Families are able to enroll starting in the second trimester of the pregnancy and only until the child is six months of age.

These measures were introduced to manage need and demand for the program – and as a result, ***Ohio's home visiting program now serves only 20 percent of eligible children and families.***

Making a Difference

Home Visiting in Hamilton County

Every Child Succeeds is a collaborative program that includes 16 provider agencies whose nurses, social workers and child development specialists provide home visits for first-time, at-risk mothers on a regular basis from the time of pregnancy until the child's third birthday.

- The large-scale program serves families in seven counties in Ohio and Kentucky, and focuses on first-time mothers who are learning the parental role.
- Eligible moms are young, low-income, single and/or receiving inadequate prenatal care, factors that tend to put their children at higher risk for delayed development, abuse and neglect, and poor academic achievement.
- All participating children now have a medical home and two-thirds are up to date on immunizations.
- Virtually all of the participating children are developing normally in the following areas: gross motor skills, fine motor skills, language development, social-emotional development and problem solving.
- Ninety-nine percent of the mothers enrolled prenatally report receiving at least four prenatal doctor visits.
- Two-thirds of mothers complete their postpartum visits.
- The infant mortality rate for families enrolled in the ECS program is 4.7 per 1,000 live births, less than one-third of the Hamilton County infant mortality rate.

SOURCE: www.cincinnatichildrens.org/svc/alpha/e/every-child/default.htm

Quality Pre-Kindergarten

Research shows that attending high-quality pre-kindergarten has a lasting impact on a child's success both in school and in life. Today, even many outside the education field have heard about the academic and lifetime gains and the significant returns on investment yielded from the High/Scope Perry Preschool Project and the Chicago Child-Parent Centers.[56] The findings from the Perry Preschool and the Chicago Child-Parent Centers projects continue to be affirmed through more recent evaluations of preschool programs across the country. For example, an evaluation of the Abbott Preschool Program in New Jersey found that, as compared with children who did not have a pre-k experience, children who attended the program:

- showed measurable improvement in early language, literacy and mathematics skills at kindergarten entry and through second grade; and
- were 30 percent less likely to repeat a grade after one year of enrollment, and 50 percent less likely after enrolling for two years.[57]

Despite the overwhelming evidence of its benefits, Ohio now has just one, small-scale, state-funded pre-k program serving disadvantaged children. The Early Childhood Education (public preschool) program administered by the Ohio Department Education serves approximately 5,700 children ages three to five at or below 200 percent of the Federal Poverty Level. The program follows Ohio's Early Learning Program Guidelines, which align pre-kindergarten students with Ohio's K-12 curriculum and include quality standards related to teacher training and education.

(b)(6)

Launched in 2006, the state's Early Learning Initiative was a program designed to provide full-day, full-year, high-quality child care and early education services to thousands of disadvantaged three- and four-year-olds each year. Pre-kindergarten services were provided through Head Start centers, community-based licensed child care centers, public schools and educational service centers, and all were monitored to ensure compliance with Ohio's Early Learning Program Guidelines.

Funding for this program – serving more than 12,000 disadvantaged preschool children – was eliminated in the state's FY 2010-FY 2011 budget. ***State-funded pre-kindergarten programs now only reach four percent of eligible children and families.***

The earliest investments in children's development – their physical, emotional, cognitive and social capabilities – have the highest return. Home visiting and pre-kindergarten support are critical to the growth and development in the early years. As a result, children are healthier, safer, better prepared to learn and more likely to succeed as adults.

(b)(6)

"The best research confirms that the importance of the first three years of a child's life is not just some intuitive belief – it is a biological fact. From years of study, we have learned that the development of the brain is hugely influenced by the emotional and early learning experiences surrounding a child. We must do everything in our power to make those experiences positive ones."

– *John Pepper*
Former Chairman and CEO,
Procter & Gamble
Chairman of the Board,
The Walt Disney Company

Taking Action

Reflecting on what research tells us about early learning and school readiness, *The New York Times* columnist David Brooks wrote a couple years ago,

> ***"By age 5, it is possible to predict, with depressing accuracy, who will complete high school and college and who won't."*** [58]

Depressing, indeed! Yet, even more alarming is the National Academy of Sciences' recent report on the ability of America and Americans to compete for jobs in the evolving global economy.

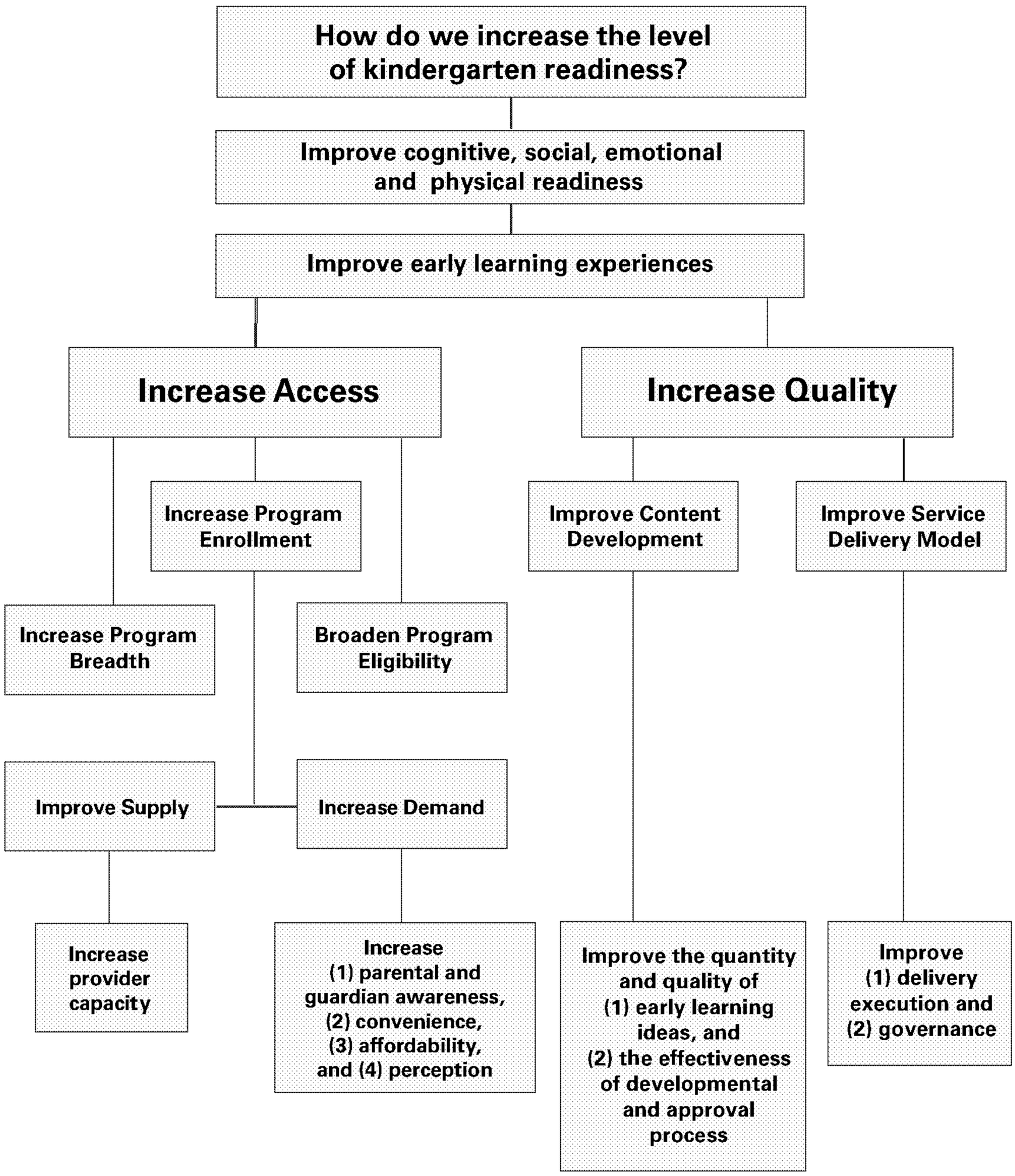
In *Rising Above the Gathering Storm, Revisited: Rapidly Approaching Category 5,* the National Academies' panel of authorities tells us that the nation's outlook has worsened since the release of its initial report in 2005.[59] The panel's unanimous judgment is that in spite of sometimes heroic efforts, both in government and the private sector, "the outlook for America to compete for quality jobs has further deteriorated over the past five years." [60]

The National Academy of Sciences tells us that our overall public school system has shown little sign of improvement, particularly in mathematics and science. It reports that the United States ranks 48th in the quality of mathematics and science education – and that a shockingly high proportion of the nation's high school graduates are not prepared to succeed in postsecondary learning. It confirms that many other nations are making significant progress in these areas, thereby affecting America's relative ability to compete effectively for new factories, research laboratories, administrative centers and jobs.

America cannot afford to stay on the perilous path it has been following in recent years. This is why business leaders across the country are calling for action to build the nation's sustained competitiveness. It is the reason why Ohio's business leaders are challenging the state's education policy leaders to commit to a bold new goal – to ensure, by 2020, that 90 percent of Ohio children entering school will be ready to succeed in kindergarten.

Since the road to college – and to healthy and productive lives – begins at birth, Ohio should invest in its youngest children to succeed as learners before it invests in anything else.

Drivers of Kindergarten Readiness



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OHIO BUSINESS ROUNDTABLE

The Ohio Business Roundtable is a partnership of the chief executives of the state's major businesses who represent all sectors of the economy and are committed to working with public leaders to build a better Ohio. Established in 1992, the BRT was created in the belief that business leaders in a pluralistic society should have an active and effective role in the formulation and evaluation of public policy. The principal strength of the Roundtable is the extent of participation of the CEOs of the member firms – working together on specific issues where their business experience and judgment can make a significant contribution in stimulating change. In an effort to provide a broad base of information for the decision-making process, membership is diversified by industry sector and geographic location. Thus the CEOs, representing companies in all fields, can present a cross-section of thinking on critical statewide issues. The Roundtable is highly selective in the issues it addresses. The chief executives are committed to advocating public policies that foster vigorous, sustained economic growth and an improved standard of living for all Ohioans.

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