



Early Childhood Development Reference Guide

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Sandia National Laboratories



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This guide provides activities and web resources to assist parents and families in the development of their young children. The purpose of this guide is also to offer additional awareness and understanding of key building blocks toward children's growth.

Wishing you the very best from Sandia National Laboratories.

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*All children bring to school what they learn at home.
This guide is to help the creation of a home full of harmony
and the preparation of a successful child.*

You are your child's first teacher!

*-Rosemary Wells
Award winning
Children's Author*

Early Childhood Development Reference Guide

Welcome to the new Early Childhood Development Reference Guide for parents and families of preschool children. Current research indicates the dramatic impact of learning in the first few years of life. The U.S. Department of Education has reported that the first five years of a child's life are a time of tremendous physical, emotional, social and cognitive growth. Children enter the world with many needs that must be filled in order to develop the important skills to prepare them for school success. Children also enter the world with a great capacity to learn. Here are a few statistics:

- 90% of the brain's growth occurs from zero to age five
- A baby's brain doubles in weight from birth to age three
- Children who don't play much or are rarely touched develop brains that are 20-30% smaller than normal

Research shows clearly that children are more likely to succeed in learning when their families actively support them. Families who involve their children in activities that allow the children to talk, explore, experiment, and wonder show that learning is both enjoyable and important. We are learning more everyday that there is a strong connection between the development a child undergoes early in life and the level of success that the child will experience later in life.

Getting Ready for School Begins at Birth



Children learn best through their everyday experiences with the people they love and trust, and when the learning is fun.

Children are born “ready to learn.” Children are naturally curious beings who are motivated to make sense of the world around them. The brain is the only organ that is not fully formed at birth. During the first three years, trillions of connections between brain cells are being made. Children’s relationships and experiences during the early years greatly influence how their brain grows ([www.zerotothree](http://www.zerotothree.org)).

You are your child’s first teacher!

90% of our intellectual, emotional, and social ability is formed by the age of 3.

For access to healthy and happy babies in the first few months of new life:

<http://www.cyfd.org/>

Sharing ways to help your child learn in the early years can be found at:

<http://www.zerotothree.org/schoolreadiness/>



How Your Child Grows

1-3 Months

Lifts head up briefly when on tummy.
Reacts to sudden movement or noises.
Makes sounds such as “cooing.”
Follows moving objects with eyes.
Smiles when played with.
Grasps small object if placed in hand.

3-6 Months

Lifts head and chest when on tummy.
Tries to roll over.
Tries to reach and hold objects.
Seems to know familiar objects and people.
Makes babbling sounds such as “ee, ih, uh.”
Sometimes laughs or chuckles.
Turns head toward sounds such as bell, voice, music.

6-9 Months

Sits by himself when placed in a sitting position.
Rolls from tummy to back, and back to tummy.
Begins to creep on his tummy.
Feeds himself a cracker.
May pass objects from hand to hand.
Makes sounds such as, “baba, gugu, didi.”
Uses crying to show different needs (hunger, anger).
Knows strangers from family.
Begins to play simple games (peek-a-boo, pat-a-cake).

9-12 Months

Pulls self to sitting and/or standing position.
Creeps or crawls (perhaps backwards at first).
Picks things up with thumb and forefinger.
Can stack two blocks or objects.
Understands simple words (“Mommy,” “Daddy,” “Dog,” “Bye-bye”).
Knows own name.
Pays attention to simple commands such as “Give it to me.”
Copies sounds and words such as “Mama” and “Dada.”

12-15 Months

Begins to walk by herself; may walk by holding onto furniture.
Begins self-feeding (lifts cup with two hands, starts using a spoon).
Turns pages two or three at a time.
Tries to build and stack objects.
Talks nonsense words.
Can say two or more words besides “Mama” & “Dada.”
Understands more of what is being said to her.
Plays by herself, but also likes to be with others.

15-18 Months

Walks by himself; can often walk upstairs with help.
Can throw a ball without falling.
Scribbles with crayons; can push and pull toys.
Imitates simple words (may use many words).
Can point to simple pictures such as dog, baby, and car.
Imitates simple actions such as cleaning and reading.
Begins to ask parent for help when needed.

18-24 Months

Walks well; may begin to run; can climb stairs.
Can put squares and circles into puzzles.
Combines two or more words (“Play ball,” “Me want cookie”).
Knows self in mirror or picture.
May say “No” to bedtime, certain foods, and simple requests.
Likes to move to music.
Plays for longer periods of time.

24-30 Months

Jumps, runs, kicks a ball, walks up and down stairs.
Turns pages one at a time.
Can help to dress and undress herself.
Can feed herself well with a spoon.
Speaks in short sentences.
Begins to name objects in books.
Knows some colors.
Points to four or five parts of the body.
Plays with other children, usually for short periods of time.

30-36 Months

Walks upstairs (one foot on a step).
Puts shoes on (no lacing).
Brushes teeth with some help.
Says first and last name; repeats some nursery rhymes.
Knows difference between “big” or “little” and “boy” or “girl.”
Begins to count.
Begins to ask to use the toilet during the day.
Shares, tells stories, likes to play pretend with other children.

Source of Information:

<http://www.health.state.nm.us/ddsd/fit/index.html>

Early Intervention & Children’s Services
Family Infant Toddler Program
1-877-696-1472



Matching Great Kids with Great Care!

You want your child to succeed in school and in life. You and your family are your child's first and best teachers, but the people who care for your child when you cannot be there are important as well.

Good child care is a first step to school success. Studies show that children who get quality child care enter school with better math, language, and social skills. These skills help your child do well in school. When your child has a safe, loving, and stimulating child care that you can count on, you don't have to worry while you are at work. You know that your child is getting the kind of care children need to be healthy, happy, and ready for school (National Association of Child Care Resource and Referral Agencies).

For additional information and helpful checklists for childcare, please check:

<http://www.childcareaware.org/en/>

<http://www.nncc.org>

“The Parent's Guide to Selecting Quality Child Care” can be found at:

<http://www.newmexicokids.org/caregivers/>

New Mexico requirements for child care can be found at:

<http://www.daycare.com/newmexico/>



*95% of Public Investment in education
does not occur until after the age of 5.*

Getting Ready to Read



Reading readiness is an important step for preschoolers. It sets children up for success and gives them all the steps they need to begin reading. For toddlers who are ten to 18 months old, books can be used to help them learn to identify objects. A parent can point at the pictures and name them to the toddler.

Children will start to learn things about reading even if they don't understand what the story is about. They will learn that we read left to right, top to bottom. Between the ages of two and three, toddlers begin to understand and follow the plots of stories and remember characters and scenes. Soon they will become much more interested in the story. Slowly, things come together, and at about the age of six or seven, they can read simple stories themselves (White, "Educating the Infant and Toddler").

More information on how to build your child's love for reading can be found at:

<http://www.parentsreachingout.org/publications.htm>

Check here for key milestones in the development of emergent literacy skills:

<http://www.asha.org/default.htm>

A is for apple

B is for ball C

Be Positive about Math

One of the most important steps for young children is to introduce them to math in a positive and fun way. This is very simple to do with a few basic activities, and you do not need to obtain expensive instructional materials. The secret is to consider the math we use in everyday activities at home. The best news is that using daily chores is one of the easiest methods to help teach numbers and problem solving to your child. With practice, the successful child will gain added confidence towards using math. Children can also be especially creative if you allow them to show you how they can solve a “math problem” by themselves. Here are three fundamental examples of hands-on activities that can build math skills:



Learning to solve problems

- Measure, weigh, and compare items
- How many plates do we need?
- Count and climb the stairs
- How many candies are in a bag?

Communicating with math

- Use normal language to express math concepts
- In all things, call out numbers and describe size and distance

Showing how to reason

- Talk as you make a recipe
- Serve a math portion of food
- Sorting and patterns

(Leanna Landsmann, Child Development Specialist)

For a summary of key math concepts your child may learn in kindergarten:

<http://www.greatschools.net/cgi-bin/showarticle/ct/395>

Great ways to build math skills using game pieces like cards and dice:

<http://www.asha.org/default.htm>

The Power of Play

Play is special for children. Not only is it fun, but it's also important for healthy development. It is their "work" and their way of learning about the world.

Children's behavior in play develops in stages. Play allows them to explore new things at their own pace, master physical agility, learn new skills, and figure things out in their own way. During play with others, children learn leadership skills by directing the action or by following a leader ([www.childaction](http://www.childaction.org)).

The American Academy of Pediatrics (AAP) recently found that what children really need for healthy development is more simple playtime. A new Academy report reflects that unstructured play has benefits to help children become more creative, to discover their own passions, to relate to others, and to adjust to school settings. Another significant finding indicates that families need to choose child care and early education programs that meet children's social and emotional developmental needs as well as academic preparedness. The report also shares an important observation that, "Perhaps above all, play is a simple joy that is a cherished part of childhood."

The AAP Report and other research for parents is located at:

<http://www.aap.org/>

More on the importance of play and other handouts can be found at:

<http://www.childaction.org/families/publications/handouts.asp>

The booklet on the Power of Play can be found at:

http://www.zerotothree.org/ztt_parentAZ.html



Preschool children enjoy making their own choices. They experiment with new material and can discover creativity with toys. Three important pieces to the discovery process for children are:

- Manipulation
- Mastery
- Meaning

Storytelling as a Teaching Tool

Young children learn extremely well through storytelling. They learn through listening and watching, then striving to recreate what they see and hear to the best of their ability. They learn by repetition, and storytelling is a wonderful tool that helps them with their listening skills. Children learn through play – participating in and retelling stories helps them in their oral expression and increases their vocabulary. Because a story has a beginning, middle and an end, storytelling helps very young children understand sequencing. Young children also want to hear the same stories repeatedly, just as they do when they say, “Again!” immediately after being read a book. (Presented by Ann Oravetz, a children’s storyteller, at the Northern California Early Childhood Education Conference, August 2006.)

One easy approach for this activity is to attend a local library during a storytelling event where children have a chance to experience the magic of a performance by a storyteller. Then they can find additional books on their favorite subjects or things they would like to explore that nourish the imagination.

National programs and events for storytelling can be found at:

<http://www.storynet.org/>

Interesting stories from tall tales and famous characters can be found at:

<http://www.americanfolklore.net/>



Expanding Vocabulary through a Shared Cooking Experience


Any number of books related to fruit, farming, or cooking can serve as powerful teaching tools for young children. Reading aloud is the single most important activity for building knowledge required for success in reading. This activity helps children to learn quickly new words, see written language, and explore new topics in their world. For example, Johnny Appleseed can be used as the means to work on reading, learn about a famous person, and then move into cooking with apples. A picture recipe can be used for Applesauce Crunch or Apple Cake.

Kitchen activities also provide an opportunity to experiment with science, learn math skills, and make measurements. It also encourages following directions, building vocabulary, and trying new foods. Lots of fun recipes for children that have been converted into picture recipes can be found at:

<http://www.bry-backmanor.org/picturerecipes.html>

Fun with cooking for kids and other ideas:

<http://www.childaction.org/families/library/curriculum.asp>



Enjoy making applesauce with children! This is a great opportunity for oral language development and vocabulary expansion.

Science Happens All Around Us



Being scientific involves being curious, observing, asking how things happen and learning how to find the answers. Curiosity is natural to children, but they need help understanding how to make sense of what they see and to relate their observations to their existing ideas and thoughts. This is why parental involvement is so important in children's science education. The key is to encourage children to ask, explain, and explore. This allows us to give them the kind of support that they need to become successful science students and thinkers.

Scientific knowledge is cumulative: To learn new things, you must build on what you already know. So, it's important that your

child start learning early and at home. A good way for you to begin the learning process is by sharing your own interest in science. How you view and talk about science can also influence your child's attitude toward science and how she approaches learning science (U.S. Department of Education).

“Helping Your Child Learn Science” by the U. S. Department of Education can be found at this website:

<http://www.ed.gov/parents/landing.jhtml?src=fp>

At home science activities for children can be found at:

http://www.tryscience.org/parents/se_1.html

Great science activities for children are located at:

http://accept.la.asu.edu/PiN/references/sci_act_child.shtml

Children
are natural scientists in
everything they do.

This is emergent scientific thinking,
to help this means to allow children to
find the answers for themselves.

Child Action, Inc.

Music and Movement Promotes Development



Music and movement can be encouraged with recorded music, musical instruments (homemade or purchased), songs, finger plays and other items such as scarves, ribbons, or streamers. This offers a change of pace, an opportunity to express feelings, release tension, and provide playful fun with vocabulary and silly words.

Motor skill development is also a valuable part of participating in musical activities. Gross motor skills include large movements like dancing, marching, and moving to music. Fine motor skills are smaller movements such as hand motions to music or playing an instrument.

Exciting animated storybooks, songs, and games can be found at:

<http://www.boowakwala.com/>

Many great resources for children's music are located at:

<http://www.childrensmusic.org/>

Music helps children learn that movement can communicate messages and represent feelings. They also learn:

- Group participation
- Auditory discrimination
- Balance and coordination
- Memory skills

Off to School — Kindergarten is Cool!

Most parents watch proudly as their 5-year-old grabs a backpack and heads out the door for the first day of kindergarten. This is the official start into the world of education and learning. Few might imagine that their child has actually been preparing for this day since the child first opened its eyes.

With so much emphasis today on preparing children for school, parents are eager to know how they can help their young children learn. There are many tools that you can use to get your toddler off to the best start by using your everyday interactions to teach the basic skills your child will need to cooperate, get along with others, and become an enthusiastic learner. This includes colorful books, videos, and school readiness parties (www.zerotothree.org).

Children need to be encouraged in the key areas of language/literacy, thinking, self-control, and self-confidence. To learn more about these four critical skills needed to become eager learners in school:

<http://www.zerotothree.org/schoolreadiness/>

School Readiness: Will your child be ready?

<http://www.scoe.net/families/index.html>

Information on school preparation and readiness fairs:

http://www.childaction.org/families/publications/newsletters/docs/winter_2003.pdf#search='partners%20for%20readiness%20collaboration'

Check here for indicators and checklists for kindergarten:

http://childparenting.about.com/cs/k6education/a/schoolreadiness_2.htm

Activities to help your child prepare for kindergarten can be found at:

http://www.mpls.k12.mn.us/School_Readiness_Activities

One southwest state reported that approximately 1/3 of children come to school unprepared to learn.

Print and Book Awareness

Print awareness may begin with the ability to differentiate between the front and the back of a book. It eventually develops into an understanding that print is a form of communication that can be used for many purposes, whether in a book or on a stop sign. Once children understand that print conveys a message, they are ready to unite oral language with written language. Research indicates that young children's levels of print awareness predict their future reading achievement.

Children with alphabetic knowledge can do more than say their ABC's. They can name and identify letters and form the shapes of the alphabet quickly and accurately. They can also recognize individual letters in various forms and identify letters that are similar in shape. The most effective instruction is when teachers introduce a letter and then provide children with many opportunities to practice saying its name and identifying and making its shape (www.sraonline).



More information on Open Court early childhood reading instruction can be found at:

<http://www.sraonline.com/>

More tips on helping your child to read can be found at:

<http://www.nifl.gov/nifl/publications.html>

<http://www.childrensmusic.org/>

By the spring of kindergarten, children should be able to recognize the letters of the alphabet “quickly and effortlessly,” and understand the letter-sound relationship at the beginning and end of words. By the spring of first grade, most children should be recognizing words by sight and comprehending words in the context of simple sentences.

(National Academy Press 1998 and Committee on the Prevention of Reading Difficulties in Young Children 1998, cited in Denton, p.10)

A Final Word for Parents

Raising a child in today's world is one of the most rewarding yet challenging tasks an adult can undertake. But it is most important to remember that you are your child's first lifelong advocate. Does this mean parents need special training to become an advocate? No, they only need to be confident in their knowledge that they know their child better than anyone else does.

The most successful parents will strive to perform their best in these six areas:

Partner

Advocate

Responsible

Enthusiastic

Nurturing

Teacher!



In closing, one of the most valuable approaches for parents and caretakers is to take advantage of the numerous teachable moments that come about everyday. Teachable moments are those flashes of time when you are going about daily activities and a situation is perfect for discussing a specific subject with your child. The key is to make positive investments such as taking time and answering their questions in order to make teachable moments more frequent and effective (NM Parents Reaching Out, Fact Sheet 23).

Please review the booklet below for more ideas:

"Helping Your Preschool Child" U. S. Department of Education

The recent Magic of Everyday Moments Campaign is also described here:

<http://www.zerotothree.org/magic/>

Unity

I dreamed I stood in a studio and watched two sculptors there.

The clay they used was a young child's mind, and they fashioned it with care.

One was a teacher. The tools he used were books and music and art.

One was a parent with a guiding hand, and a gentle, loving heart.

Day after day the teacher toiled,
with touch that was deft and sure.

While the parent labored by his side
and polished and smoothed it over.

And when at last their task was done,
they stood proud of what they had wrought.

For thing they had molded into the child
could neither be sold or bought.

And each agreed he would have failed
if he had worked alone.

For behind the parent stood the school,
and behind the teacher, the home.

by Ray A. Lingenfelter





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