Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K)

Fifth-Grade Methodology Report

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1. INTRODUCTION

This methodology report provides technical information about the development, design, and conduct of the fifth-grade[1] data collection of the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K). It begins with an overview of the ECLS-K study. Subsequent chapters provide information on the development of the instruments, sample design, data collection methods, data preparation and editing, response rates, and weighting and variance estimation.

The ECLS-K focuses on children's early school experiences, beginning with kindergarten. It is a multisource, multimethod study that includes interviews with parents; the collection of data from principals, teachers, and student record abstracts; and direct child assessments. The ECLS-K was developed under the sponsorship of the U.S. Department of Education, National Center for Education Statistics (NCES) in the Institute of Education Sciences. Westat is conducting this study with assistance provided by Educational Testing Service (ETS) of Princeton, New Jersey. The Survey Research Center and the School of Education at the University of Michigan assisted Westat in conducting the base year and first-grade studies.

The ECLS-K follows a nationally representative cohort of children from kindergarten into high school. The base year data were collected in the fall and spring of the 1998–99 school year when the sampled children were in kindergarten. A total of 21,260 kindergartners throughout the nation participated.

Two more waves of data were collected in the fall and spring of the 1999–2000 school year when most, but not all, of the base year children were in first grade.[2] The fall-first grade data collection was limited to a 30 percent subsample of schools. Approximately 27 percent of the base year students who were eligible to participate in year 2 attended the 30 percent subsample of schools (see exhibit 1-1). The fall-first grade data collection was a design enhancement to enable researchers to measure the extent of summer learning loss and the factors that contributed to such loss and to better disentangle school and home effects on children's learning. The spring-first grade data collection, including the full sample, was

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[1] The term "fifth grade" is used throughout this document to refer to the data collection that took place in the 2003–2004 school year, at which time most of the sampled children—but not all of them—were in fifth grade.

[2] Though the majority of base year children were in first grade during the 1999–2000 school year, about 5 percent of the sampled children were retained in kindergarten and a handful of others were in second grade during the 1999–2000 school year.

Exhibit 1-1. ECLS-K waves of data collection: School years 1998–99, 1999–2000, 2001–02, and
2003–04

Data collection	Date of collection	Sample
Fall-kindergarten	Fall 1998	Full sample
Spring-kindergarten	Spring 1999	Full sample
Fall-first grade	Fall 1999	30 percent subsample[1]
Spring-first grade	Spring 2000	Full sample
Spring-third grade	Spring 2002	Full sample
Spring-fifth grade	Spring 2004	Full sample

[1] Fall data collection consisted of a 30 percent sample of schools containing approximately 27 percent of the base year students eligible to participate in year 2.
NOTE: See section 1.3 for a description of the study components. More information is provided in the *Combined User's Manual for the ECLS-K Fifth-Grade Data Files and Electronic Codebooks* (NCES 2006–032) (Tourangeau et al. forthcoming).
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, spring 2004.

part of the original study design and can be used to measure annual school progress and to describe the first grade learning environment of children in the study. All children assessed during the base year were eligible to be assessed in the spring-first grade data collection regardless of whether they repeated kindergarten, were promoted to first grade, or were promoted to second grade. In addition, children who were not in kindergarten in the United States during the 1998–99 school year and, therefore, did not have a chance to be selected to participate in the base year of the ECLS-K were added to the spring-first grade sample.[3] Such children included immigrants to the United States who arrived after fall 1998 sampling, children living abroad during the 1998–99 school year, children who were in first grade in 1998–99 and repeated it in 1999–2000, and children who did not attend kindergarten. Their addition allows researchers to make estimates for all first-graders in the United States rather than just for those who attended kindergarten in the United States in the previous year.

A fifth wave of data was collected in the spring of the 2001–02 school year when most, but not all, of the sampled children were in third grade. Approximately 89 percent of the children interviewed were in third grade during the 2001–02 school year, 9 percent were in second grade, and less than 1 percent were in fourth grade or higher. In addition to the school, teacher, parent, and child assessment data collection components, children were asked to complete a short self-description questionnaire, which asked them how they thought and felt about themselves, both socially and academically. The spring-third

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[3] The addition of these children is referred to as "freshening" the sample. See chapter 3 for more detail on the freshening process.

grade data collection can be used to measure school progress and to describe the third-grade learning environment of children in the study.

A sixth wave of data was collected in the spring of the 2003–04 school year when most, but not all, of the sampled children were in fifth grade.[4] In addition to the school, teacher, parent, and child assessment data collection components, children were asked to complete a short self-description questionnaire, which asked them how they thought and felt about themselves, both socially and academically. They were also asked about their food consumption at school and in the week prior to the interview. The spring-fifth grade data collection can be used to measure school progress and to describe the fifth-grade learning environment of children in the study.

The sample of children in the fifth-grade round of data collection of the ECLS-K represents the cohort of children who were in kindergarten in 1998–99 or in first grade in 1999–2000. Since the sample was not freshened after the first-grade year with third- or fifth-graders who did not have a chance to be sampled in kindergarten or first grade (as was done in first grade), estimates from the ECLS-K third- and fifth-grade data are representative of the population cohort rather than all third-graders in 2001–02 or all fifth-graders in 2003–04. The estimated number of third-graders from the third-grade ECLS-K data collection is approximately 86 percent of all third-graders. From the fifth-grade ECLS-K data collection, the estimated number of fifth-graders is approximately 83 percent of all fifth-graders. While the vast majority of children in third grade in the 2001–02 school year and in fifth grade in the 2003–04 school year are members of the cohort, third-graders who repeated second or third grade, fifth-graders who repeated third or fourth grade, and recent immigrants are not covered. Data were collected from teachers and schools to provide important contextual information about the school environment for the sampled children. The teachers and schools are not representative of fifth-grade teachers and schools in the country in 2003–04. For this reason, the only weights produced from the study are for making statements about children, including statements about the teachers and schools of those children.

The ECLS-K has several major objectives and numerous potential applications. The ECLS-K combines (1) a study of achievement in the elementary years; (2) an assessment of the developmental status of children in the United States at the start of their formal schooling and at key points during the elementary school years; (3) cross-sectional studies of the nature and quality of kindergarten programs in the United States; and (4) a study of the relationship of family, preschool, and

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[4] Approximately 90 percent of the children interviewed were in fifth grade during the 2003-04 school year, 9 percent were in fourth grade, and less than 1 percent were in third or some other grade.

school experiences to children's developmental status at school entry and their progress from kindergarten, through elementary school, and into high school.

The ECLS-K is part of a longitudinal studies program comprising two cohorts—a kindergarten cohort and a birth cohort. The birth cohort (ECLS-B) is following a national sample of children born in the year 2001 from birth to kindergarten. The ECLS-B focuses on the characteristics of children and their families that influence children's first experiences with the demands of formal school, as well as children's early health care and in- and out-of-home experiences. Together these cohorts will provide the depth and breadth of data required to more fully describe and understand children's health and early learning, development, and education experiences.

The ECLS-K has both descriptive and analytic purposes. It provides descriptive data on children's status at school entry, their transition into school, and their progress into high school. The ECLS-K also provides a rich data set that enables researchers to analyze how a wide range of family, school, community, and individual variables affect children's early success in school; explore school readiness and the relationship between the kindergarten experience and later elementary school performance; and record children's cognitive and academic growth as they move through secondary school.

1.1 Background

Efforts to expand and improve early education will benefit from insights gained through analyses drawn from the large scale, nationally representative ECLS-K data and the study's longitudinal design. The ECLS-K database contains information about the types of school programs in which children participated, the services they received, and repeated measures of the children's cognitive skills and knowledge. The ECLS-K database also contains measures of children's physical health and growth, social development, and emotional well-being, along with information on family background and the educational quality of their home environments.

As a study of early achievement, the ECLS-K allows researchers to examine how children's progress is associated with such factors as placement in high or low ability groups, receipt of special services or remedial instruction, grade retention, and frequent changes in schools attended because of family moves. Data on these early school experiences are collected as they occur, with the exception of

their experiences before kindergarten, which were collected retrospectively. This produces a more accurate measurement of these antecedent factors and enables inferences to be made about their relationship to later academic progress. The longitudinal nature of the study enables researchers to study children's cognitive, social, and emotional growth and to relate trajectories of change to variations in children's experiences in kindergarten and the early grades to later grades.

The spring-fifth grade data collection can be used to describe the diversity of children in the study and the classrooms and schools they attend. It can also be used to study children's academic gains in the years following kindergarten and first grade. The ECLS-K sample includes substantial numbers of children from various minority groups. Thus, the ECLS-K data present many possibilities for studying cultural and ethnic differences in the educational preferences and literacy practices of families, the developmental patterns and learning styles of children, and the educational resources and opportunities that different groups are afforded in the United States.

1.2 Conceptual Model

The design of the ECLS-K has been guided by a framework of children's development and schooling that emphasizes the interrelationships between the child and family, the child and school, the family and school, and the family, school, and community. The ECLS-K recognizes the importance of factors that represent the child's health status and socioemotional and intellectual development and incorporates factors from the child's family, community, and school-classroom environments. The ECLS-K conceptual model is depicted in exhibit 1-2. The study has paid particular attention to the role that parents and families play in helping children adjust to formal school and in supporting their education through the elementary grades. It has also gathered information on how schools prepare for and respond to the diverse backgrounds and experiences of the children and families they serve.

1.3 Study Components

The emphasis placed on measuring children's environments and development broadly has critical implications for the design of the ECLS-K. The design of the study includes the collection of data from the child, the child's parents/guardians, teachers, and schools.

Exhibit 1-2. ECLS-K conceptual model: School years 1998–2004
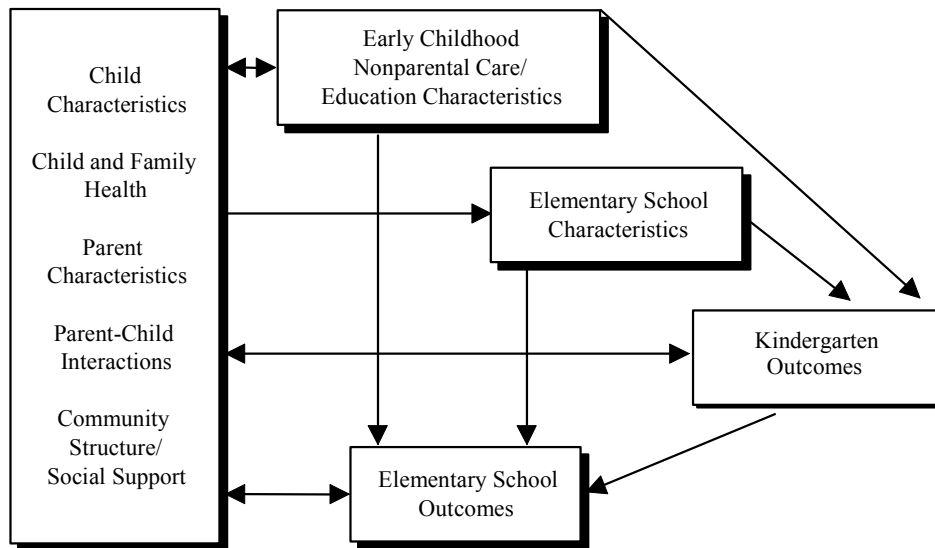
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99.

- **Children** participate in various activities to measure the extent to which they exhibit those abilities and skills deemed important for success in school. They are asked to participate in activities designed to measure important cognitive (i.e., literacy, quantitative, and science) skills and noncognitive (fine and gross motor coordination [in kindergarten] and socioemotional) skills and knowledge. Most measures of a child's cognitive skills are obtained through an untimed one-on-one assessment of the child. Beginning with the third-grade data collection, children report on their own perceptions of their abilities and achievement as well as their interest in and enjoyment of reading, math, and other school subjects. Children are assessed in each round of data collection. Children's height and weight are also measured in each round of data collection.

- **Parents/guardians** are an important source of information about the families of the children selected for the study and about themselves. Parents provide information about children's development at school entry and their experiences both with family members and others. Information is collected from parents each time children are assessed using computer-assisted interviews (CAIs). Information is collected from parents/guardians in each round of data collection.

- **Teachers**, like parents, represent a valuable source of information on themselves, the children in their classrooms, and the children's learning environment (i.e., the classroom). Teachers are not only asked to provide information about their own backgrounds, teaching practices, and experience, they are also called on to provide information on the classroom setting for the sampled children they teach and to evaluate each sampled child on a number of critical cognitive and noncognitive dimensions. Special education teachers and service providers of sampled children with

disabilities are also asked to provide information on the nature and types of services provided to the child. With the exception of the fall-first grade data collection, teachers complete self-administered questionnaires each time children are assessed.

- **School administrators**, or their designees, are asked to provide information on the physical, organizational, and fiscal characteristics of their schools, and on the schools' learning environment and programs. Special attention is paid to the instructional philosophy of the school and its expectations for students. School administrators or their designees, are also asked to provide basic information about school[5] grade level, school type (public or private), length of school year, and attendance recordkeeping practices. Information is collected from school administrators via self-administered questionnaires during each spring data collection.

- **School office staff** are asked to complete a student records abstract form and provide basic information about the school. The student records abstract form includes questions about an individual child's enrollment and attendance at the school, transfer to another school (if applicable), and verifies whether the child has an Individualized Education Program (IEP) on record. A student records abstract form is completed for each child in the study during each spring data collection.

Exhibit 1-3 summarizes the instruments that were used in each of the data collection periods from kindergarten through spring-fifth grade. Exhibit 1-4 provides additional detail about the direct child assessments conducted during each of the data collection periods. Separate psychometric reports have been prepared to describe the design and development of the kindergarten through first-grade and third-grade assessment batteries. For detailed information about the child assessments, including their psychometric properties, see the *ECLS-K Psychometric Report for Kindergarten Through First Grade,* NCES 2002–05 (Rock and Pollack 2002); the *ECLS-K Psychometric Report for the Third Grade* (NCES 2005–062) (Pollack et al. 2005); and the *ECLS-K Psychometric Report for the Fifth Grade* (NCES 2006–036) (Pollack et al. 2005).

1.4 Contents of Report

This report provides detailed technical information about the development, design, and conduct of the fifth-grade data collection. Chapter 2 provides an overview of processes used to develop the computer-assisted (CAI) and hard-copy survey instruments. Chapter 3 describes the sample design and implementation. Chapter 4 describes the data collection methods, including information about the training of field staff and quality control procedures. Chapter 5 details the preparation and editing of the

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[5] These items were collected in a separate school fact sheet in 3rd grade, but were reintegrated into the school administrator questionnaire in the 5th grade data collection. Prior to the 3rd grade data collection, the questions had been part of the school administrator questionnaire.

data as it is receipted from the field. Chapter 6 provides information on unit and item response rates. Chapter 7 discusses weighting and variance information.

Because both this report and the *ECLS-K Psychometric Report for the Fifth Grade* focus on the fifth-grade data collection, minimal information is provided about the base year, first-grade, or third-grade data. Users who wish to learn more about these data collections should refer to the *ECLS-K Base Year Public-Use Data Files and Electronic Codebook: User's Manual* (NCES 2001–029r) (Tourangeau, Burke, et al. 2004); the *User's Manual for the ECLS-K First Grade Public-Use Data Files and Electronic Codebook* (NCES 2002–135) (Tourangeau et al. 2002); or the *User's Manual for the ECLS-K Third Grade Public-Use Data File and Electronic Code Book* (NCES 2004–001) (Tourangeau, Brick, et al. 2004) Additional information about the ECLS program can be found on the World Wide Web at http://nces.ed.gov/ecls.

Exhibit 1-3.   Instruments used in the ECLS-K, by round of data collection: School years 1998–99, 1999–2000, 2001–02, and 2003–04

Instruments	1998–99 school year		1999–2000 school year		2001–02 school year	2003–04 school year
	Fall-kindergarten	Spring-kindergarten	Fall-first grade[1]	Spring-first grade[2]	Spring-third grade	Spring-fifth grade
Parent interview	X	X	X	X	X	X
Child assessments	X	X	X	X	X	X
Teacher questionnaire part A	X	X	X	X[2]	X	
Teacher questionnaire part B	X	X	X	X[2]	X	
Teacher questionnaire part C	X	X	X	X[2]	X	
Teacher questionnaire (teacher level)						X[3]
Reading teacher questionnaire						X
Math teacher questionnaire						X
Science teacher questionnaire						X
Special education teacher questionnaire part A		X		X	X	X
Special education teacher questionnaire part B		X		X	X	X
Adaptive Behavior Scale		X		X		
Self-description questionnaire					X	X
Food consumption questionnaire						X
School administrator questionnaire		X		X[4]	X	X[5]
Student record abstract		X		X	X	X
School fact sheet					X[6]	
School facilities checklist		X		X	X	X
Salary and benefits questionnaire[7]		X				
Head Start verification[8]		X				

X Round that included the instrument.

[1] The fall-first grade data collection consisted of a 30 percent subsample of the study schools. See the *User's Manual for the ECLS-K First Grade Public-Use Data Files and Electronic Code Book* (NCES 2002-135) (Tourangeau, Burke, et al. 2002) for information about the purposes and methods of the fall-first grade data collection.

[2] In spring-first grade, there were two sets of teacher questionnaires—one for the teachers of children who had made the transition to the first grade or any higher elementary school grade, and the second for teachers of children who were repeating or attending the second year of kindergarten.

[3] In spring-fifth grade, teacher questionnaires part A, B, and C were replaced by a teacher-level questionnaire and questionnaires for reading, math, and science teachers.

[4] In spring-first grade, there were two different school administrator questionnaires—one for school administrators in schools new to the study and one for school administrators in schools that participated in the base year data collection.

[5] In spring-fifth grade, questions from the school fact sheet used in spring-third grade were included in the school administrator questionnaire.

[6] The items in the school fact sheet were included in the school administrator questionnaire in kindergarten and in first grade. These items were reintegrated into the school administrator questionnaire in the 5th grade data collection.

[7] The salary and benefits questionnaire collected information on the base salary, merit pay, and health benefit pay of teachers and principals. It was completed by the school or district business administrator or by a private school administrator or headmaster.

[8] The Head Start Verification Study confirmed parent and school reports of children's Head Start participation by matching information on the name and location of the Head Start facilities the children were reported to have attended against a database of Head Start centers. For each match, the center was contacted to confirm that the child had attended the center in the year before kindergarten.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998, spring 1999, fall 1999, spring 2000, spring 2002, and spring 2004.

Exhibit 1-4. Direct child assessments, by domain and round of data collection: School years 1998–99, 1999–2000, 2001–02, and 2003–04

Direct child assessment	1998–99 school year		1999–2000 school year		2001–02 school year	2003–04 school year
	Fall-kindergarten	Spring-kindergarten	Fall-first grade	Spring-first grade	Spring-third grade	Spring-fifth grade
Language screener (Oral Language Development Scale[OLDS])[1]	X	X	X	X		
Food consumption questionnaire (FCQ)						X
Reading (language and literacy)	X	X	X	X	X	X
Mathematical thinking	X	X	X	X	X	X
Socioemotional development					X	X
General knowledge (science and social studies)	X	X	X	X		
Science[2]					X	X
Psychomotor	X					
Height and weight	X	X	X	X	X	X

X Round that included the instrument.

[1] OLDS (Oral Language Development Scale) was given to language-minority students new to the study in the spring, or who did not pass the cut score in the English version during the previous OLDS administration. The screener determined if the children understood English well enough to receive the direct child assessments in English. For further information on the language screener, please refer to the *ECLS-K Base Year Public-Use Data Files and Electronic Code Book: User's Manual* (NCES 2001-029r) (Tourangeau; Burke, et al. 2004). The screener was not used in third or fifth grade because the vast majority of children passed it by spring-first grade.

[2] In spring-third grade, the general knowledge assessment was replaced with a science assessment. Children received a science assessment in third and fifth grade that measured their understanding of science concepts and scientific investigation skills.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998, spring 1999, fall 1999, spring 2000, spring 2002, and spring 2004.

2. DEVELOPMENT OF SURVEY INSTRUMENTS

The Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) fifth-grade survey collected data on the achievement and home and school experiences of children who had attended kindergarten in 1998–99 to provide information on the children's progress in the middle elementary grades. In the design phase of the ECLS-K kindergarten, first-grade, third-grade, and fifth-grade waves of data collection, policymakers, teachers, and researchers were consulted, and relevant literature was reviewed to ascertain the specific areas within each of the topical components for which national data were needed. Information gathered from these activities guided the formulation of research questions deemed most important for the ECLS-K to address. Extant surveys were reviewed to identify surveys that had been fielded to answer similar questions.

The ECLS-K data collection instruments were similar in content and form in all six waves of the study. The ECLS-K employed two modes of data collection, computer-assisted and self-administered hard-copy instruments. This chapter describes the development of the computer-assisted and hard-copy instruments for the fifth-grade data collection. The procedures for developing the child assessment battery and indirect rating forms are described in a separate psychometric report. More information on the assessment battery and indirect rating forms is found in *ECLS-K Psychometric Report for Kindergarten Through First Grade* (NCES 2002–05) (Rock and Pollack 2002) and in *ECLS-K Psychometric Report for the Third Grade* (NCES 2005–062) (Pollack et al. 2005).

In spring-fifth grade, several modifications were made to the instruments. Many of the changes were based on advice given by the ECLS-K Technical Review Panel (TRP) and Content Review Panel (CRP) that was provided for both the spring-third grade and spring-fifth grade data collections simultaneously. Modifications were made to the fifth-grade parent interview to reduce its length and add other items of interest. A timing study was conducted to assess the effect of these changes. Several changes were also made to the child assessment, the teacher questionnaires, and the school administrator questionnaire. These are discussed below.

2.1 Review Panels

Studies with the scope, complexity, and importance of the ECLS-K require consultation with a number of individuals and organizations to address the data needs of policymakers and of those performing policy studies and educational research. In addition, consultations with practitioners, content area experts, and researchers are necessary to ensure that instruments accurately reflected curricular standards and practices. The ECLS-K project staff established and sought guidance from the Technical Review Panel and the Content Review Panel.

2.1.1 Technical Review Panel

The Technical Review Panel was assembled to provide review and comment on such matters as the technical design and implementation of the ECLS-K and policy and research topics that are appropriate for the ECLS-K third-grade and fifth-grade data collections. The membership of the Technical Review Panel represents a broad range of nonfederal and federal experts in elementary education, educational, and family research and policy issues.

Technical Review Panel Members:

Karl Alexander, Johns Hopkins University
Richard Duran, University of California at Santa Barbara
Nancy Karweit, Johns Hopkins University
Donna Morrison, Georgetown Public Policy Institute
Jane Stallings, Texas A&M University
Deborah Stipek, Stanford University

U.S. Department of Education: Institute of Education Sciences, National Center
for Education Statistics
Office of Special Education Programs, and
Office of English Language Acquisition, Language Enhancement and
Academic Achievement for Limited English Proficient Students

U.S. Department of Agriculture: Economic Research Service,
and Office of Analysis, Nutrition, and Evaluation

U.S. Department of Health and Human Services:
Administration on Children, Youth and Families

2.1.2 Content Review Panel

In addition to the Technical Review Panel, the Content Review Panel (CRP) was established to provide expert review of (1) the validity of the content of the child assessments and (2) the consistency of the items in the assessment battery with instructional practice. The panel included subject matter experts in reading, mathematics, and science as well as school assessment and evaluation administrators.

Content Review Panel Members

Dr. Gloria Johnson, Superintendent, West Contra Costa Unified School District, Richmond, California. Specialty: Reading.

Dr. Jean Joyner, North Carolina Department of Public Instruction. Specialty: Mathematics.

Helen Lounsbury, Teacher, Berne-Knowx-Westerlo Elementary School, Berne, New York. Specialty: Mathematics.

Dr. Alba Ortiz, Professor, Department of Special Education, University of Texas. Specialty: Reading.

Kathy DiRanna, Director, K-12 Alliance, California. Specialty: Science.

Iris Weiss, President, Horizon Research, Inc., Chapel Hill, North Carolina. Specialty: Science.

2.2 Modifications to the Parent Interview

Exhibit 2-1 lists the 17 sections comprising the spring-fifth grade parent interview.

Many items from previous rounds of the ECLS-K were not included in spring-fifth grade because they had been used previously and to reduce respondent burden. The following constructs in the spring-third grade parent interview were not asked in spring-fifth grade:

- School practices (PIQ.030a-e);

- School climate (PIQ.120a-h);

Exhibit 2-1. Sections comprising the spring-fifth grade parent interview: School year 2003-04

INQ	=	Introduction
PIQ	=	Parent Involvement
FSQ	=	Family Structure
HEQ	=	Home Environment, Activities, and Cognitive Stimulation
CFQ	=	Critical Family Processes
CCQ	=	Child Care
DWQ	=	Discipline, Warmth, and Emotional Supportiveness
NRQ	=	Non-Resident Parent Questions
COQ	=	Country of Origin Questions for Non-Resident Biological Parents
CHQ	=	Child Health and Well Being
PPQ	=	Parent's Psychological Well Being and Health
FDQ	=	Food Security
PEQ	=	Parent Education
EMQ	=	Parent Employment
WPQ	=	Welfare and Other Public Transfers
PAQ	=	Parent Income and Assets
CMQ	=	Child Mobility and Plans to Move

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), spring 2004.

- Parent perception of how well child is doing in reading/language arts and math (PIQ.090, PIQ.100);

- Specific home learning activities and resources (HEQ.010, HEQ.015, HEQ.017, HEQ.021, HEQ.023, HEQ.030, HEQ.065B, HEQ.094, HEQ.097, HEQ.100, HEQ.106);

- Family breakfast patterns (HEQ.115, HEQ.116, HEQ.117, HEQ.118);

- Transportation and commute to school (HEQ.124, HEQ.125, HEQ.126, HEQ.127);

- Problems around house/neighborhood (HEQ.410);

- Social support (CFQ.020); and

- Parental depression (PPQ.100, PPQ.110, PPQ.120, PPQ.130, PPQ.140, PPQ.150, PPQ.160, PPQ.170, PPQ.180, PPQ.190, PPQ.200, PPQ.210, PPQ.230, PPQ.240).

Several new construct areas were added for fifth grade. These were as follows:

- Discussions with child about school and friends (HEQ.420a and b);

- Discussions with child about smoking, sexual activity, drinking alcohol, and using other drugs (HEQ.421a–d);

- Identification of when a diagnosis of a particular disability was made, if applicable (CHQ.076, CHQ.077, CHQ.136, CHQ.137, CHQ.186, CHQ.187, CHQ.226, CHQ.227, CHQ.314, CHQ.315, CHQ.346, CHQ.347, CHQ.376, CHQ.377);

- Identification of when cochlear implants were implanted (CHQ.251-CHQ.253);

- Child's use of cochlear implants in school (CHQ.254);

- Identification of when child's use of therapy services or program for children with disabilities ended (CHQ.536, CHQ.537);

- Reason why the child no longer participated in services for children with special needs or special education (CHQ.546);

- Whether child takes prescription medication for Attention Deficit Disorder (ADD), Attention Deficit Hyperactivity Disorder (ADHD), or hyperactivity (CHQ.740);

- Medications taken for ADD, ADHD, or hyperactivity (CHQ.750a-g);

- Length of time medications have been taken for ADD, ADHD, or hyperactivity (CHQ.760);

- Receipt of family therapy (CHQ.770);

- Reason for family therapy (CHQ.780);

- Type of family therapist seen (CHQ.790); and

- Number of times family therapist seen (CHQ.800).

Other questions were added that had been used previously in the ECLS-K for parent figures in the household, but in spring-fifth grade were asked about a new group of persons (nonresident biological parents). These were:

- Country of origin, age moved to U.S., and U.S. citizenship for non-resident biological parents (section COQ);

In addition, one question was reintroduced from an earlier year of the study:

■   Whether father or mother figure has a high school diploma or its equivalent (PEQ.021);

Finally, some questions do not include new content but were modified from a previous round:

■   In spring-fifth grade, interviewers were able to record the time set aside every day for children to do homework in hours (HEQ.092b) in addition to minutes (HEQ.093a).

■   Questions about who *usually* helps the child with his/her reading, language arts, or spelling homework or helps with math homework allowed the respondent to volunteer who helped (HEQ.095b, HEQ.099). In spring-third grade, respondents were instead asked separate questions about each household member and whether he/she helped with homework.

2.3   Timing Study

As with any study instrument, questionnaire length and respondent burden were issues of concern. A timing study was conducted for the draft parent questionnaire. Three Westat staff members conducted nine interviews with respondents who had previously volunteered to participate in studies being conducted by Westat. No attempt was made to recruit respondents representative of either racial or economic groups as the objective was to obtain an estimate of the length of the questionnaire rather than to examine how individuals interpreted the questions. Westat did attempt to select people who would go through the various questionnaire paths (e.g., married couples, single parents). All of the respondents were parents of fifth-grade children. All interviews were conducted over the telephone using a paper version of the questionnaire. Interviewers used stopwatches to time the individual sections and to get an overall time for the interview. The interviewers stopped the watches for extended interruptions, such as a respondent having to take care of the needs of a family member. In most cases, the respondents were asked to answer questions in sections that required knowledge of data collected from an earlier wave of the data collection as if they had provided the information in a previous round of the survey. In only two interviews were respondents asked to complete such sections, as would be the case with a new respondent.

The revised paper version of the questionnaire took an average of 39 minutes and 17 seconds to complete. Table 2-1 summarizes the overall and section timings for each interviewer and presents the

average time expended for each section. The initials denote the three interviewers. Each interviewer completed three interviews (e.g., interviewer SG completed SG1, SG2, and SG3). One interview was done with a parent of twins (NV2). The second twin's time was included in the overall average time.

Table 2-1.   Interviewer timings for the revised ECLS-K fifth-grade parent interview, by interviewer and by section: School year 2002–03

Section[1]	SG1	LB1	NV1	LB2	SG2	NV2	NV2 (TWIN)	LB3	SG3	NV3	Mean time
Total	0:35:53	0:41:18	0:45:10	0:41:15	0:34:23	0:53:39	0:14:34	0:35:14	0:36:33	0:30:07	†
INQ	0:01:28	0:00:39	0:01:01	0:01:45	0:01:12	0:02:05	0:00:23	0:01:31	0:01:28	0:00:43	0:01:19
PIQ	0:02:50	0:02:20	0:03:28	0:03:38	0:03:41	0:03:58	0:01:34	0:03:21	0:03:04	0:03:02	0:03:16
FSQ	0:01:59	0:03:10	0:01:04	0:03:30	0:01:07	0:02:35	0:00:00	0:02:12	0:01:55	0:01:39	0:02:08
HEQ	0:08:00	0:14:05	0:09:02	0:07:39	0:09:18	0:09:32	0:04:45	0:06:43	0:06:16	0:07:29	0:08:40
CFQ	0:00:12	0:00:11	0:00:00	0:00:10	0:00:10	0:00:56	†	0:00:12	0:00:10	0:00:09	0:00:14
CCQ	0:01:25	0:01:00	0:03:29	0:02:30	0:01:53	0:01:30	0:00:10	0:01:14	0:01:30	0:01:34	0:01:47
DWQ	0:01:09	0:01:10	0:02:12	0:01:02	0:01:18	0:01:15	0:00:34	0:00:54	0:00:59	0:00:35	0:01:10
NRQ	†	†	0:03:27	†	†	†	†	†	0:02:31	†	0:02:59
CHQ	0:10:17	0:11:10	0:13:27	0:11:30	0:08:16	0:08:25	0:06:59	0:08:58	0:07:24	0:07:20	0:09:39
PPQ	0:00:10	0:00:07	0:01:00	0:00:10	0:00:10	0:00:14	†	0:00:10	0:00:10	0:00:07	0:00:15
FDQ	0:01:04	0:01:00	0:01:00	0:00:51	0:00:48	0:01:00	†	0:00:54	0:02:40	0:00:45	0:01:07
PEQ	0:00:14	0:00:49	0:01:00	0:01:20	0:00:15	0:01:00	†	0:00:43	0:00:15	0:00:52	0:00:43
EMQ	0:01:24	0:00:48	0:02:00	0:02:41	0:01:22	0:02:00	†	0:02:35	0:01:59	0:02:09	0:01:53
WPQ	0:00:43	0:01:00	0:01:00	0:01:13	0:01:03	0:01:00	†	0:01:03	0:01:36	0:00:47	0:01:03
PAQ	0:01:06	0:01:02	0:01:00	0:00:40	0:00:44	0:01:00	†	0:00:51	0:00:45	0:00:42	0:00:52
CMQ	0:03:52	0:02:47	0:01:00	0:02:36	0:03:06	0:02:35	0:00:09	0:03:53	0:03:51	0:02:14	0:02:53
Mean time		†	†	†	†	†	†	†	†	†	0:39:17

† Not applicable.
[1] See exhibit 2-1 for full section names.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 fifth-grade data collection, school year 2002–03 timing study.

Overall, the parent interview required just under 40 minutes to complete. The timings for the first interview in the household ranged from a low of 30 minutes to a high of 53 minutes. The approaches used to capture the information (update versus obtain new data) and the characteristics of the child and household contributed to the variations in the length of interviews. The twin interview required an additional 14 minutes.

No individual section was unduly long. The section that required the most time to administer was the Home Environment, Activities and Cognitive Stimulation (HEQ) section. In the first interview for respondents (i.e., for child 1), it took between 6 minutes and 14 minutes, depending upon the interviewer. Only two respondents completed the Nonresident Parent section of the questionnaire, which

included items about parents who did not live with their child, such as a question about the frequency of their contact with the child. The average time for this section was about 3 minutes. The results of the timing study suggested that the parent questionnaire could be administered within 40 minutes.

2.4   Child Food Consumption Questions

To measure children's food consumption the ECLS-K assessors administered the Food Consumption Questionnaire (FCQ), a questionnaire used to determine the kinds of food the children can buy at school and food they have eaten in the past week. The FCQ for children consisted of 19 questions. There were also food consumption questions for school administrators. Those are described in section 2.6 below.

In the FCQ for children, the first set of questions was about foods that are high in fat, sodium, and/or added sugars (e.g., candy, salty snacks, soda pop). Children were asked if they could buy these foods at school, and if so, how often they bought the food in the past week and where they bought the food (vending machine, cafeteria, or somewhere else in school). In the second set of questions, children were asked about whether they ate particular key foods and beverages in the past 7 days, such as milk, sweetened beverages (e.g., soft drinks), fruits and vegetables, and fast food. They were asked to include food they ate at home, at school, at restaurants, or anywhere else.

Items for the FCQ were taken mainly from existing surveys, although some were developed for the ECLS-K. Two main sources for questions were two surveys by the Center for Disease Control/Division of Adolescent and School Health Surveys: the Youth Risk Behavior Surveillance Survey (YRBSS) and the School Health Programs and Policies Survey (SHPPS).[1] The question on fast-food meals was taken from the California Children's Healthy Eating and Exercise Practices Survey (CalCheeps). Questions on soft drinks and children's at-school consumption of snack foods were developed at the U.S. Department of Agriculture (USDA), using YRBSS and CalCheeps questions as models.

Assessors read each question of the FCQ to the child, along with the response categories, and the child circled his or her answer. The child was asked to tell the assessor what he or she circled so the assessor could enter the answer into the computer. At the beginning of the FCQ, there is an example

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[1] Information on these CDC surveys is available at http://www.cdc.gov/nccdphp/dash/

question to show the child what kinds of questions would be asked. The example was also used to show the child how to circle a response and to practice telling the assessor what answer had been chosen. After the first few questions of the FCQ, if the child appeared to understand the response categories and was in one of the higher reading categories in the reading assessment, the child was allowed to read the response categories if he or she wanted to do so.

For children who were homeschooled by their parents or another adult and did not attend school, questions about food that could be purchased at school did not apply. For these cases, assessors were told to skip questions 1 through 9 and enter "Don't Know" into CAPI for each of these questions and then begin with the statement after question 9.

2.5 Modifications to Teacher Questionnaires

The approach for administering teacher questionnaires in spring-fifth grade differed from that of previous rounds because many fifth-grade children were expected to have different teachers for different subject areas. In the prior rounds of data collection, general education teacher questionnaires were designed for a single classroom teacher. All questions pertaining to the core academic subjects were asked in a single questionnaire and distributed to one teacher for each sampled child. When children had different subject matter teachers, it was left to the child's main teacher to ask the other teachers to complete specific sections of the questionnaire for the subjects they taught. However, as children move through the elementary grades, the prevalence of children being taught core academic subjects (reading/language arts, mathematics, and science) by a single teacher decreased. Data from the 1999-2000 Schools and Staffing Survey (SASS) indicated that the proportion of children taught core academic subjects by different teachers (i.e., team teaching and departmentalized instruction) was about 41 percent in public schools and about 56 percent in private schools. Thus, data collection procedures for spring-fifth grade were designed to ensure that the teachers most knowledgeable of the child's performance in each of the core academic subjects (i.e., reading/language arts, mathematics, and science) provided the data germane to each child's classroom environment, instruction in each of the core academic subjects, and the core academic teacher's professional background.

During the spring-fifth grade data collection, each child's reading and math or science teacher received a self-administered teacher-level questionnaire about a variety of topics, including instructional practices, classroom resources, views on teaching and the school, and teacher background.

Three additional questionnaires specifically about the focal child were also distributed for teachers in reading, math, and science. Each reading and math or science teacher received a teacher questionnaire in addition to at least one child-level questionnaire in reading, mathematics, or science.

All students were assigned to have their reading teacher complete questionnaires. To reduce respondent burden for teachers, half of students were randomly assigned to have a mathematics teacher complete questionnaires, and half of students were randomly assigned to have a science teacher complete questionnaires. In some schools, the sampled children were taught reading, mathematics, and science by the same person in one classroom. In other schools, different teachers taught these subjects to the sampled children. During the fifth grade data collection, 53 percent of the students were taught in self-contained classrooms, 24 percent received departmentalized instruction, 18 percent were team taught, and 5 percent were pulled out of class for instruction. For more information about how questionnaires were distributed, see section 4.5.5.

The reading teacher questionnaire had three different parts. The first part included questions from the Social Rating Scale (SRS) that collected data on five areas of children's social skills. The second part had questions from the Academic Rating Scale (ARS) and gathered data on each sampled child's skills in areas of language and literacy. The third part asked child-specific instructional information (for example, child's grade, additional tutoring or services the child received), asked the teacher to tell how this child behaved and performed in language and literacy relative to the other children in the class, and asked about the teacher's classroom and the characteristics of the students, instructional activities and curricular focus, and instructional practices in language arts. The mathematics teacher questionnaire included questions from the ARS gathering data on each sampled child's skills in mathematics, asked child-specific specific instructional information (for example, child's grade, additional tutoring or services the child received), asked the teacher to tell how this child behaved and performed in mathematics class relative to the other children in the class, and asked about the teacher's classroom and the characteristics of the students, instructional activities and curricular focus, and instructional practices in mathematics. The science teacher questionnaire was similar to the mathematics teacher questionnaire with the questions focusing on science rather than mathematics. Teachers responded to two of these questionnaires for each sampled child. Therefore, data were gathered on each sampled child's skills in the areas of language and literacy and mathematical thinking, or in the areas of language and literacy and science. For more information on data collection with teachers, see section 4.5.5.

In addition to the teacher questionnaires described above, the ECLS-K also included special education teacher questionnaires. These were similar to the ones given to special education teachers in previous rounds and had two parts, A and B. Part A of the special education teacher questionnaire was designed to collect information about the special education teacher's professional background and experience. Part B asked about the special education services provided to the child and the nature of the child's special education curriculum. Except for one change, the spring-fifth grade special education teacher questionnaires were identical to the ones used in spring-third grade. A question on the receipt of special education or related services due to an attention deficit/hyperactivity disorder (ADHD) was added to Part B in the spring-fifth grade questionnaire.

2.6   Modifications to School Administrator Questionnaire

The principal, administrator, or headmaster at the school attended by the sampled child was asked to complete the school administrator questionnaire in the spring of 2004. As in previous rounds of the study, this self-administered questionnaire was intended to gather information about the school, student body, teachers, school policies, and administrator characteristics.

Two main changes were made to the questionnaire in spring-fifth grade. First, it included items that in third grade had been in a questionnaire called the school fact sheet (e.g., the grades taught in the school, school sector and focus, the length of the school year). Also, a new content area about student food consumption was added. The main purpose of these questions was to determine the availability at school of various foods, including those that are healthy and those that are high in fat, sodium, and/or added sugars. Questions were asked about whether students could purchase food or beverages from vending machines at the school or a school store, canteen, or snack bar. School administrators were also asked if the school offered a la carte lunch or breakfast items to students that were not sold as part of the National School Lunch or the School Breakfast Program. In addition, questions were asked about whether children could buy particular foods and beverages at school, such as milk, sweetened beverages (e.g., soft drinks), fruits and vegetables, candy, and salty snacks; where these foods could be obtained in the school (e.g., a school store, a vending machine); and how full the cafeteria was at peak meal times. Questions on the availability of foods not part of USDA meal programs and cafeteria crowding were taken from SHPPS. The sources for the other food consumption questions in the school administrator questionnaire are the same as those described in section 2.4 about the children's food consumption questions.

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3. SAMPLE DESIGN AND IMPLEMENTATION

This chapter describes the sample design of the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), and how it was modified and implemented for each round of data collection. An overview of the sample design is given here and described in more detail in the following sections.

The ECLS-K employed a multistage probability sample design to select a nationally representative sample of children attending kindergarten in 1998–99. In the base year the primary sampling units (PSUs) were geographic areas consisting of counties or groups of counties. The second-stage units were schools within sampled PSUs. The third- and final-stage units were students within schools. During the base year, data were collected in both the fall and the spring.

Base year respondents were eligible for the first-grade data collection and nonrespondents were not eligible. A case was considered responding for the base year if there was a completed child assessment or parent interview in fall- or spring-kindergarten. A child with a disability who could not be assessed was also considered a base year respondent whether or not this child had a complete parent interview. Background characteristics such as sex, race/ethnicity, age, height, and weight are available for children with disabilities who could not be assessed. While all base year respondents were eligible for the spring-first grade data collection, fall-first grade was limited to a 30 percent subsample. The spring-first grade student sample was freshened to include current first-graders who had not been enrolled in kindergarten in 1998–99 and, therefore, had had no chance of being included in the ECLS-K base year kindergarten sample. For both fall- and spring-first grade, approximately 50 percent of sampled students who had transferred from their kindergarten schools were followed.

The third-grade data collection included base year respondents and children sampled in first grade through a freshening operation in which the spring-first grade sample was freshened to include first-graders who had not been enrolled in kindergarten in 1998–99 and therefore had no chance of being included in the ECLS-K base year kindergarten sample. As in the first-grade data collection, where only a subsample of students who had transferred from their kindergarten schools was followed, subsampling of the movers was also used in third grade. In third grade, however, the subsampling rate applied to movers was slightly higher: children whose home language was non-English (also known as children belonging to the language minority group) and who had transferred for the first time between kindergarten or first

grade to third grade were followed with certainty. In other words, 100 percent of the children belonging to the language minority group who had not moved between kindergarten and first grade but had moved between first grade and third grade were followed into their new third-grade schools. Language minority children who had moved between kindergarten and first grade and were not subsampled for followup in first grade did not re-enter the third-grade sample; those who were subsampled for followup in first grade were followed with certainty into their third-grade schools if they had moved again between first grade and third grade. The higher subsampling rate allowed for the preservation of this group in the sample for analytic reasons. Children not in the language minority group continued to be subsampled for followup at a 50 percent rate if they had moved out of the original sample schools.

In fifth grade, the sample that was fielded was reduced by excluding certain special groups of children from data collection, and by setting differential sampling rates for movers in different categories. Specifically, children in four groups were not fielded for the fifth-grade survey, irrespective of other subsampling procedures that were implemented. These were children who had become ineligible in an earlier round because they had died or moved out of the country, children who were subsampled out in previous rounds because they were movers, children whose parents emphatically refused to cooperate (hard refusals), and children eligible for the third-grade data collection for whom there are neither first-grade nor third-grade data. Of the remaining children, those who had moved from their original schools during fifth grade or earlier were subsampled for followup. Children whose home language was not English (language minority) continued to be a special domain of analytic interest, and were subsampled at higher rates. Children were subsampled at different rates depending on the longitudinal data available for those children.

The precision requirements and achieved sample sizes for the different waves of data collection are discussed in section 3.1. The base year, fall-first grade, spring-first grade, and spring-third samples are discussed in section 3.2, 3.3, 3.4 and 3.5, respectively. Sampling issues that were considered prior to the fifth-grade data collection are discussed in section 3.6. Section 3.6.3 includes a discussion of the characteristics of the fifth-grade sample and those of the children excluded from the fifth-grade data collection.

3.1   Precision Requirements and Achieved Sample Sizes

The ECLS-K is a nationally representative longitudinal survey of children who attended kindergarten in 1998–1999, supplemented with children who were in first grade in spring 2000, but were not in kindergarten the previous year. Data on these children were collected from a variety of sources at two points in the base year (kindergarten in 1998–1999), two points in the 1999–2000 school year (as noted earlier, the fall collection was limited to a subsample of children) when most of the children were in first grade, in spring of 2002 when most of the children were in third grade, and again in spring of 2004 when most of the children were in fifth grade.

The overall design for the survey evolved over time. The initial design study recommended sampling 23,500 children in approximately 1,000 kindergarten programs sampled from 100 PSUs. The initial plans also called for sampling children in private schools at a higher rate than children in public schools, as well as sampling minorities (children of Black, Hispanic, or Asian or Pacific Island [API] race or ethnicity) at higher rates than nonminorities. The design study assumed that because of nonresponse and losses due to children moving, the final number of completed interviews at the end of the survey would be about 10,300. While the design study was useful in providing overall direction, the final framework for the sample design differed in many ways from its recommendations.

The sample design implemented through the fifth grade in the ECLS-K is described in this chapter. The remainder of this section gives an overview of the sampling objectives and how the design was revised to accommodate changes in those objectives over the course of the study. Subsequent sections of the chapter give the details of the procedures used to implement the sample in the various rounds or waves of data collection, beginning with the base year in 1998–1999.

Four precision requirements for the survey were identified and formed the basis for the base year sample design and plans for the followups in subsequent rounds. These requirements are the ability to do the following:

■   Measure a relative change of 20 percent in proportions across waves;

■   Measure a relative change of 5 percent in a mean assessment score across waves;

- ■ Estimate a proportion for each wave with a coefficient of variation (CV) of 10 percent or less; and

- ■ Estimate a mean assessment score for each wave with a CV of 2.5 percent or less.

The goals were interpreted as being objectives not only for all children, but for subgroups of analytic interest that include children attending public and private schools (Catholic, non-Catholic), and children from different race and ethnic groups (Hispanic, Black, Asian and Pacific Islander, all other races). After the spring-first grade data collection, language minority children were a newly identified subgroup of analytic interest for sample design purposes. A large number of assumptions had to be made to estimate sample sizes sufficient to meet the precision requirements. The key assumptions included projections of the losses due to nonresponse and attrition due to children moving, the design effects[1] associated with the sample design, the element mean and standard deviations of the assessment scores, and the correlation of the statistics across waves. Since the ECLS-K is the first study of this population using this methodology, many of the assumptions had to be based on judgments without much supporting empirical data.

The precision requirements that drive the sample design (those demanding the largest sample size) have to do with estimating changes over time and estimating the precision of estimates in the fifth-grade data collection. Based on assumptions described above, it was determined that a sample in fifth grade of about 10,000 children would be adequate to meet the precision requirements overall and for most subgroups. A sample of about 800 to 1,000 children in a subgroup would be achieved for most of the subgroups with an overall sample of 10,000 children and these would approximately meet the precision goals. For example, with a sample size of 10,000, the number of Hispanic and Black children would exceed 1,000, as shown in section 3.6.3. Children in private schools and APIs were the two subgroups that were expected to fall short of the goals if higher sampling rates were not applied. As noted in the following sections, sampling procedures were implemented to increase the sample size for these two groups.

After the spring-first grade data collection was completed, the assumptions were reviewed and the ability of the sample to meet the survey goals was re-examined. At that time, language minority children were included as a subgroup of analytic interest. The evaluation showed that the sample sizes were adequate for most subgroups, but special efforts were needed to retain language minority children in subsequent rounds. Table 3-11 in section 3.5 shows the outcome of the spring-first grade data collection

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[1] When a clustered sample with unequal sampling weights is used, the estimates are less precise than those expected from a simple random sample and the ratio of the actual to simple random sampling variance is called a design effect.

by type of children. Since funding was made available to support these efforts, sampling procedures for retaining movers were modified. In the first-grade data collection, half of the movers were subsampled and included for followup, without taking any characteristics of the children into account. To increase the sample of language minority children, the sampling procedures were revised for the third-grade followup to retain as many of these children as possible.

The evaluation also showed that the assumed design effects for assessment scores (reading, math and general knowledge) were larger than originally expected, ranging from 4.5 to 9.5. The larger than expected design effects for scores were first identified after the base year. The design effects for percentages, ranging from 1.6 to 6.9 for proportions greater than 30 percent, were close to those originally anticipated (3.8 on average).[2] The evaluation showed that the correlation over time of the scores was higher than expected. The higher correlation makes estimates of change in scores over time more precise. Consequently, the only precision objective that is substantially affected by the higher than expected design effects is for the mean assessment scores for fifth grade. This partially offsets the loss in precision due to the higher design effect.

Table 3-1 tracks the ECLS-K sample from the base year through fifth grade. The table shows that the large initial sample of children has been reduced over time due to subsampling movers and nonresponse, as expected. While the initial assumptions that drove the sample design were not always accurate separately, the overall effect of the losses has been very close to what was expected. For example, in several rounds of the ECLS-K, the assumed moving rate was lower than the actual moving rate, but this was offset by higher completion rates. The overall number of eligible children at the end of the fifth-grade wave was more than 12,000 children, and the final sample size for the fifth-grade sample exceeded the 10,000 children in the initial projections.

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[2] See design effects for selected survey items in chapter 4 of the *ECLS-K Base Year Public-Use Data Files and Electronic Code Book: User's Manual* (NCES 2001–029r) (Tourangeau, Burke, et al. 2004).

Table 3-1.   ECLS-K sample size from the base year through fifth grade: School years 1998–99,
1999–2000, 2001–02, and 2003–04

Characteristic	Fall-kindergarten	Spring-kindergarten	Fall-first grade[1]	Spring-first grade	Spring-third grade	Spring-fifth grade
Initial sample	21,387	22,772[2]	6,507	21,357[3]	21,357[3]	16,143[4]
Fielded after subsampling movers	†	†	5,728	18,507	17,240	12,380
Fielded after locating movers	†	22,088	5,691	17,708	16,951	12,170
Number of eligibles	21,356	21,941	5,652	17,652	16,829	12,129
Child-complete[5]	19,173	19,967	5,291	16,727	14,470	11,346
Parent-complete[6]	18,097	18,950	5,071	15,626	13,489	10,996
Child- or Parent-complete	19,864	20,578	5,424	17,324	15,305	11,820
Child- and Parent-complete	17,586	18,339	4,938	15,029	12,654	10,522

† Not applicable.
[1] Only 30 percent of base year schools were included in the fall-first grade sample.
[2] Including 1,426 students from refusal converted schools and excluding 41 students in schools that cooperated in Fall-Kindergarten and refused in Spring-Kindergarten.
[3] Only students who have at least one of the four base year data points (fall-kindergarten assessment or parent data, or spring-kindergarten assessment or parent data, and the 165 students sampled in first grade through sample freshening.
[4] Excluding students described in section 3.6.1.
[5] Child-complete if the child had assessment data or was not assessed due to a disability.
[6] Parent-complete if the child had parent interview data.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998, spring 1999, spring 2000, spring 2002, and spring 2004.

The details on the sample sizes for subgroups at the end of the fifth grade are provided later in this chapter (see tables 3-20, 3-21, and 3-22). Those tabulations show that the number of fifth-grade respondents for all of the specific subgroups of interest exceeds 1,000, except for children in non-Catholic private schools and API children. For most of the key analytic groups the numbers of respondents are much larger than 1,000. For API children, the number of respondents is 970, which exceeds the minimum target of 800 and is very close to 1,000. The number of respondents in non-Catholic private schools is 957.

3.2   Base Year Sample

In the base year, the ECLS-K selected a nationally representative sample of children attending kindergarten in 1998–99, using a dual-frame multistage probability sample design. Counties and groups of counties constituted the first-stage sampling units or PSUs, schools or kindergarten programs within PSUs were the second-stage units, and children were the third- and final-stage units.

3.2.1 Selecting the Area Sample

The point of departure for the ECLS-K area sample frame development was an existing multipurpose frame of PSUs created, using 1990 county-level population data and 1988 per capita income data from the U.S. Department of Commerce, Bureau of Economic Analysis. This frame contained 1,404 PSUs that were counties or groups of contiguous counties. PSUs did not cut across census regional[3] boundaries, but were allowed to cross state boundaries. Each 1990 metropolitan statistical area (MSA)[4] constituted a single PSU except where an MSA crossed census regions, and it was split into two PSUs. The minimum size of a PSU in the multipurpose frame was 15,000 persons.

Since the focus of the ECLS-K is kindergarten students, the existing PSU frame was updated with 1994 population estimates of 5-year-olds by race/ethnicity, the most up-to-date estimates available from the U.S. Bureau of the Census at the time. The counts of 5-year-olds by race/ethnicity were used to revise PSU definitions relative to a different minimum PSU size and to construct a measure of size (MOS) that facilitated the oversampling of APIs. Each PSU in the frame that did not have at least 320 5-year-olds was collapsed with an adjacent PSU. This minimum PSU size was developed based on assumptions concerning anticipated school response rates, the average number of schools that would be selected per PSU, and the target number of students to be sampled per school. After this collapsing, the final ECLS-K PSU frame contained 1,335 records.

The MOS used for selecting PSUs took into account the amount of oversampling of APIs required to meet the ECLS-K precision goals. The weighted MOS was calculated as follows:

$$MOS = 2.5 \times n_{API} + n_{other}$$

where 2.5 is the oversampling rate for APIs, and n_{API} and n_{other} are the counts of 5-year-old APIs and all others, respectively. The oversampling rate for APIs was calculated as the target number of completed API cases divided by the expected number of completed API cases without oversampling. In all, 100 PSUs were selected for the ECLS-K. The 24 PSUs with the largest measures of size were designated as certainty selections or self-representing (SR)[5] and were set aside. They were included in the sample with certainty. Once the self-representing PSUs were removed, the remaining PSUs, called non-self-

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[3] A census region is a geographic region defined by the U.S. Bureau of the Census.
[4] A metropolitan statistical area (MSA) is a geographic entity designated as one or more counties in a metropolitan area, except in New England, where MSA is defined in terms of county subdivisions. MSAs generally have under 1 million in population.
[5] A self-representing PSU is selected into the sample with certainty (i.e., with probability 1).

representing (non-SR)[6], were partitioned into 38 strata of roughly equal MOS. The frame of non-self-representing PSUs was first sorted into eight superstrata by crossing the two MSA categories (MSA and non-MSA) and the four census region (Northeast, Midwest, South, and West). Within the four MSA superstrata, the variables used for further stratification were race/ethnicity (high concentration of API, Black, or Hispanic), size class (MOS $\geq$ 13,000 and MOS < 13,000), and 1988 per capita income range (shown in table 3-2, each range was defined so as to have roughly equal population in each of the stratum, where applicable) Within the four non-MSA superstrata, the stratification variables were race/ethnicity and per capita income. The term "superstrata" is used here to distinguish between the larger strata created by crossing MSA categories and census regions and the smaller strata defined by race/ethnicity, size class and per capita income. Table 3-2 describes how the 38 non-self-representing strata were created.

Two PSUs were selected from each non-self-representing stratum using Durbin's Method (Durbin 1967). This method selects two first-stage units per stratum without replacement, with probability proportional to size and a known joint probability of inclusion. The Durbin method was used because it has statistical properties that make it easier to compute variances. Table 3-3 summarizes the characteristics of the ECLS-K PSU sample.

The Durbin method required two passes of the frame with a different selection probability at each pass to obtain the desired probabilities of inclusion and joint probabilities of inclusion. In the first pass, one PSU was selected in the stratum with probability p_1. In the second pass, the selected PSU was excluded and another PSU was selected with probability proportional to

$$p_2 \left[\frac{1}{1-2p_1} + \frac{1}{1-2p_2} \right]$$

where $p_1 = M_1/M$ and $p_2 = M_2/M$, M_1 is the MOS of the first unit selected, M_2 the MOS of the second unit selected, and M the MOS of the stratum.

The overall selection probability of non-self-representing unit i is

$$p_i = \frac{2M_i}{M}, \ i = 1, \ 2 \,.$$

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[6] A non-self-representing PSU is selected into the sample with probability proportional to its measure of size (MOS).

Table 3-2. Stratum definitions for the 38 non-self-representing strata: School year 1998–99

Stratum	Metropolitan statistical area (MSA) status[1]	Census region[2]	Race/ethnicity (percentage range)	PSU[3] measure of size (MOS)	Per capita income range Low	Per capita income range High
1	MSA	Northeast	Any	≥ 13,000	$22,062	$25,424
2	MSA	Northeast	Any	≥ 13,000	16,342	22,030
3	MSA	Northeast	Any	< 13,000	18,128	29,084
4	MSA	Northeast	Any	< 13,000	16,697	18,032
5	MSA	Northeast	Any	< 13,000	12,279	16,616
6	MSA	Midwest	Any	≥ 13,000	17,277	18,150
7	MSA	Midwest	Any	≥ 13,000	16,103	17,092
8	MSA	Midwest	Any	< 13,000	16,552	24,009
9	MSA	Midwest	Any	< 13,000	15,732	16,475
10	MSA	Midwest	Any	< 13,000	14,450	15,693
11	MSA	Midwest	Any	< 13,000	10,185	14,433
12	MSA	South	Hispanic ≥ 30	Any	Any	Any
13	MSA	South	Black ≥ 40	Any	Any	Any
14	MSA	South	26 ≤ Black < 40	Any	14,743	18,731
15	MSA	South	26 ≤ Black < 40	Any	10,892	14,573
16	MSA	South	Black < 26	≥ 13,000	16,435	16,601
17	MSA	South	Black < 26	≥ 13,000	14,586	16,337
18	MSA	South	Black < 26	< 13,000	15,572	22,824
19	MSA	South	Black < 26	< 13,000	14,194	15,432
20	MSA	South	Black < 26	< 13,000	11,262	13,979

See notes at end of table.

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Table 3-2. Stratum definitions for the 38 non-self-representing strata: School year 1998–99—Continued

Stratum	Metropolitan statistical area (MSA) status[1]	Census region[2]	Race/ethnicity (percentage range)	PSU[3] measure of size (MOS)	Per capita income range	
					Low	High
21	MSA	West	Asian/Pacific Islander ≥ 15	Any	Any	Any
22	MSA	West	Asian/Pacific Islander ≥ 15	Any	Any	Any
23	MSA	West	Hispanic ≥ 30	Any	Any	Any
24	MSA	West	12 ≤ Hispanic < 30	Any	Any	Any
25	MSA	West	Hispanic < 12	Any	15,048	21,840
26	MSA	West	Any	Any	9,993	14,839
27	Non-MSA	Northeast	Any	Any	Any	Any
28	Non-MSA	Midwest	Any	Any	14,124	17,446
29	Non-MSA	Midwest	Any	Any	13,277	14,121
30	Non-MSA	Midwest	Any	Any	12,169	13,272
31	Non-MSA	Midwest	Any	Any	6,992	12,147
32	Non-MSA	South	Black ≥ 42	Any	Any	Any
33	Non-MSA	South	25 ≤ Black < 42	Any	Any	Any
34	Non-MSA	South	Any	Any	12,727	20,059
35	Non-MSA	South	Black < 25	Any	11,165	12,676
36	Non-MSA	South	Any	Any	6,018	11,142
37	Non-MSA	West	Any	Any	12,887	23,286
38	Non-MSA	West	Any	Any	6,959	12,884

[1] MSA is a geographic entity designated as one or more counties in a metropolitan area, except in New England, where MSA is defined in terms of county subdivisions. Non-MSA designates one or more counties not in a metropolitan area. MSA and non-MSA are as defined by the Bureau of the Census.

[2] A census region is a geographic region defined by the U.S. Bureau of the Census.

[3] Primary sampling unit.

NOTE: In this table, "Any" means any value of the column variable. For example, stratum 1 includes PSUs that have MSA status, are located in the Northeast region, with a MOS greater than or equal to 13,000 and per capita income ranging between $22,062 and $25,424, and can have any value of the race/ethnicity percentage.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 1999.

The joint probability of inclusion of the first and second units is

$$\pi_{1,2} = \left[2p_1 p_2 \left(\frac{1}{1 - 2p_1} + \frac{1}{1 - 2p_2} \right) \right] \div \left(1 + \sum_{k=1}^{N} \frac{p_k}{1 - 2p_k} \right).$$

Table 3-3. Distribution of the ECLS-K primary sampling unit (PSU) sample by self-representing (SR) status, metropolitan statistical area (MSA) status, and census region: School year 1998–99

SR status	MSA status	Total	Census region[1]			
			Northeast	Midwest	South	West
Total		100	18	25	34	23
SR	MSA	24	6	5	6	7
Non-SR	MSA	52	10	12	18	12
Non-SR	Non-MSA	24	2	8	10	4

[1] A census region is a geographic region defined by the U.S. Bureau of the Census.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 1999.

3.2.2 Selecting the School Sample

In the second stage of sampling, public and private schools offering kindergarten programs were selected. For each ECLS-K PSU, a frame of public and private schools offering kindergarten programs was constructed, using existing school universe files: the 1995-96 Common Core of Data (CCD) (U.S. Department of Education 1995-96) and the 1995-96 Private School Universe Survey (PSS) (Broughman and Colaciello 1998). The school frame was freshened in the spring of 1998 to include newly opened schools that were not included in the CCD and PSS and schools that were in the CCD and PSS but did not offer kindergarten, according to those sources. A school sample supplement was selected from the supplemental frame.

3.2.2.1 School Frame Construction

The 1995-96 CCD Public School Universe File was the primary source for the ECLS-K public school sampling frame. Most schools run by the U.S. Department of the Interior, Bureau of Indian Affairs (BIA) and the schools run by the U.S. Department of Defense (DOD) were not included on the 1995-96 CCD. The 1995-96 *Office of Indian Education Programs Education Directory* (U.S. Department of the Interior, Bureau of Indian Affairs unpublished document) was consulted, in order to complete the list of BIA schools in the CCD file. For the DOD schools, a 1996 list of schools obtained directly from the DOD was used. The 1995-96 PSS Universe File was used as the primary source of the private school sampling frame.

The first step in frame construction involved subsetting the file to schools located in counties that constituted the ECLS-K PSU sample. Further subsetting retained only those schools that offered transitional kindergarten, kindergarten, or transitional first grade, or which were strictly ungraded, as indicated by the school's grade span.

The constructed ECLS-K school frame included 18,911 public-school records and 12,412 private-school records. This frame constituted the original frame. The original frame was supplemented in the spring of 1998 to include schools that would be operational in fall 1998 but had not been included in the original frame. The procedures used to construct the supplemental or freshened frame are given later in this section.

Table 3-4 gives the estimated number of schools offering kindergarten programs and the number of kindergarten students from the ECLS-K school frame. These are the numbers of schools and students in the sampled PSUs in the frame weighted by the inverse of the PSU selection probabilities.

Table 3-4.   Estimates of the number of kindergarten schools and students, by primary sampling unit (PSU) status: School year 1998–99

	Estimated number of kindergarten schools			Estimated number of kindergarten students		
	Total	Public	Private	Total	Public	Private
Total	73,095	50,084	23,011	4,089,781	3,521,040	568,741
Self-representing PSUs	19,721	11,283	8,438	1,277,419	1,059,535	217,884
Non-self-representing PSUs	53,374	38,801	14,573	2,812,362	2,461,505	350,857

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 1999.

3.2.2.2   School Measure of Size

Within each PSU, schools with fewer than a predetermined minimum number of kindergarten students were clustered together before sampling in order to obtain a sample that is closer to self-weighting. The minimum number of kindergartners was 24 for public schools and 12 for private schools. Schools were selected with probability proportional to size. As with the PSU sample, a weighted MOS was constructed taking into account the oversampling of APIs:

$$SCHMOS_{ij} = 2.5 \times n_{API,ij} + n_{other,ij}$$

where 2.5 is the oversampling rate for APIs, and $n_{API,ij}$ and $n_{other,ij}$ are the counts of API kindergarten students and all other kindergarten students, respectively, in school j of PSU i.

3.2.2.3   School Allocation

Schools were sampled at rates designed to result in an approximately self-weighting sample of students within public and private school strata. The target number of sampled schools per PSU was calculated separately for public schools and private schools, and for self-representing and non-self-representing PSUs. The number of schools selected was the target number of schools adjusted upward by the estimated school response and eligibility rate.

3.2.2.3.1   Public Schools

The total MOS for public schools was partitioned into the self-representing and non-self-representing strata. There are 100 PSUs in the ECLS-K sample, of which 24 are in the self-representing strata. The number of public schools selected from the self-representing strata was calculated as

$$n_{SR} = \frac{\sum_{i=1}^{24} w_i \times PSUMOS_i}{\sum_{i=1}^{100} w_i \times PSUMOS_i} \times n$$

where n is the total number of public schools to be selected, w_i is the weight of PSU i, and

$$PSUMOS_i = \sum_j SCHMOS_{ij} \ .$$

The value for n is 800/.85 = 941 where .85 is the expected eligibility and response rate for public schools. The supplement of public schools was expected to add relatively few schools to the frame and thus the 85 percent rate was not modified. The distribution of sampled schools was approximately 291 for self-representing strata and 650 for non-self-representing strata. For self-representing and non-

self-representing strata alike, the number of schools allocated to each PSU was proportional to the weighted MOS of the PSU ($w_i \times PSUMOS_i$).

In the ECLS-K public school frame, 4 percent of public schools had fewer than 24 kindergarten students. These schools were combined with other schools in the same PSU to form clusters with at least 24 students prior to sampling. Schools with 24 students or more were not grouped, but were also referred to as clusters (of one school each). To sample approximately 941 public schools, around 915 clusters (single schools or groups of schools) have to be selected. As a general rule, if a sampled school or cluster of schools had 24 or more students, 24 students were selected. However, for practical reasons, all students in the sampled school or cluster were selected if there were fewer than 27 students. More details on the clustering of schools are found in the next section.

The number of clusters was allocated to each PSU proportionally to the weighted MOS of the PSU ($w_i \times PSUMOS_i$). When the 915 clusters were allocated to PSUs, it was discovered that in 5 PSUs there were not enough clusters in the frame to select the required number of clusters. As a result, only 900 clusters were selected. Table 3-5 shows the expected distributions of clusters, schools, and students.

Table 3-5.   Expected number of clusters, schools, and students—public schools: School year 1998–99

Type of primary sampling unit (PSU)	Number of clusters to select	Expected number of schools sampled	Expected number of students sampled	Average number of students/school
Total	900	944	21,643	23
Self-representing PSUs	283	285	6,792	24
Non-self-representing PSUs	617	659	14,851	23

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 1999.

3.2.2.3.2   Private Schools

The procedure used to determine the allocation of the public schools was also used for allocating the private schools. The private school target samples are labeled n_{SR}' and n_{NSR}' for self-representing and non-self-representing PSUs respectively, and n' is the sum of n_{SR}' and n_{NSR}'. The value of n' is 200/.60=333, where .60 is the expected eligibility and response rate. The supplement to the frame

was expected to add some private schools with kindergarten programs. The 60 percent rate was used because of the uncertainties associated with the estimate of the eligibility and response rate for private schools.

The percentage of schools with fewer than 24 kindergarten students was large for private schools. Approximately 56 percent of private schools offered a kindergarten program that had fewer than 24 students, and 44 percent of these small schools have fewer than 12 students in their kindergarten program. Schools having fewer than 12 kindergarten students (according to the frame) were grouped into clusters of schools with at least 12 students in each cluster, following the clustering rules discussed in the next section. Schools with 12 students or more were not grouped. As a general rule, if a sampled school or cluster of schools had 24 or more students, 24 students were selected; if a sampled school or cluster had fewer than 24, all students were sampled. However, for practical reasons, all students in the sampled school or cluster were selected if there were fewer than 27 students.

In order to sample approximately 333 private schools, 278 clusters were selected (single schools or groups of schools). Table 3-6 shows the expected distributions of clusters, schools, and students.

The number of clusters was not allocated separately to each self-representing PSU, since sampling was done on the aggregated list of school clusters in the self-representing PSUs. This aggregated list of school clusters in the self-representing PSUs had been sorted prior to sampling by religious affiliation in order to have better control of the sample distribution by religious affiliation. For the non-self-representing PSUs, the sample was allocated to each PSU proportionally to the weighted MOS of the PSU ($w_i \times PSUMOS_i$), with a minimum of one cluster per PSU imposed if the PSU was so small that it was not allocated any clusters.

Table 3-6.   Expected number of clusters, schools, and students—private schools: School year 1998–99

Type of primary sampling unit (PSU)	Number of clusters to select	Expected number of schools sampled	Expected number of students sampled	Average number of students/school
Total	278	333	6,336	19
Self-representing PSUs	107	125	2,456	20
Non-self-representing PSUs	171	208	3,880	19

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 1999.

3.2.2.4   Clustering of Small Schools

As noted above, schools with fewer than 24 students (public) or 12 students (private) were clustered together in order to obtain a sample that was closer to self-weighting. For example, if a school with 12 students was not clustered, the students from that school would be sampled at about half the probability as students in larger schools. The goal of the clustering of small schools was to form school clusters with a small number of schools, each cluster having close to 24 students and including heterogeneous schools. This goal was set so that if a cluster was selected, it would not be necessary to recruit many small schools; furthermore, the heterogeneity of schools improves the reliability of the estimates. Heterogeneity was defined by school size for public schools, and by religious affiliation and school size for private schools. Within each PSU, schools with fewer than a predetermined minimum number of kindergarten students were separated from the frame and clustered together. A few exceptions to this general rule did occur and are discussed later. The procedures for clustering of schools are described below.

3.2.2.4.1   Public Schools

Public schools with fewer than 24 kindergarten students were clustered. Within each PSU, the list of small schools (i.e., schools with fewer than 24 kindergartners) was sorted in ascending order of kindergarten enrollment; it was then split in half, with the second half re-sorted in descending order. The two halves were then put together in an interleaving fashion. Beginning at the top of the list, clusters of

schools with at least 24 kindergarten students were formed. If the last cluster on the list still did not have the required 24 minimum, then it was put together with the next-to-last cluster on the list.

This clustering scheme resulted in 18 clusters with 5 or more schools, which were considered problematic as far as fieldwork was concerned. The worst case was one cluster with 13 schools and only 41 students. In order to minimize the number of clusters having 5 or more schools, each problematic cluster was broken into groups of 2 or 3 schools, and each group was combined with the smallest of the "large" schools having 25 or more kindergarten students. Since enrollment in schools with missing kindergarten enrollment was imputed to be equal to 24, grouping any of these imputed schools with another school was avoided, lest they turn out not to have kindergarten students.

In addition to the 18 problematic clusters above, there were 12 PSUs with only 1 small school (with fewer than 24 kindergarten students) and there were 2 PSUs with only 2 small schools that, when grouped together, still had fewer than 24 kindergarten students. These small schools or groups of small schools were manually combined with the smallest school in another PSU (not one with only 1 or 2 schools) having 25 or more students (see table 3-7).

Table 3-7. Number of clusters and schools in the public school frame: School year 1998–99

Number in cluster	Number of clusters	Number of schools
Total	18,399	18,911
1 school	18,095	18,095
2 schools	153	306
3 schools	97	291
4 schools	51	204
5 schools	3	15

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 1999.

3.2.2.4.2   Private Schools

Private schools with fewer than 12 kindergarten students were clustered. Within each PSU, the list of private schools was first sorted by religious and nonreligious affiliation. If the number of religious schools and nonreligious schools in the PSU differed by no more than a factor of 3, the smaller of the two lists (religious or nonreligious) was sorted in descending order while the larger of the two lists

was sorted in ascending order of kindergarten enrollment. The two lists were then put together in an interleaving fashion, so that the records that were at the bottom of the longer list were records with larger kindergarten enrollment, and did not have to be grouped together. Beginning at the top of the entire list, clusters of schools of at least 12 kindergarten students were formed. If the last cluster on the list still did not have the required minimum size, it was put together with the next-to-last cluster on the list.

If the number of religious schools and nonreligious schools in the PSU differed by a factor greater than 3, schools were not separated into religious and nonreligious lists. Instead, the entire list of schools was sorted in ascending order of kindergarten enrollment; it was then split in half, with the second half re-sorted in descending order. The two halves were then put together in an interleaving fashion. Clusters of schools were formed as above.

There were 3 PSUs where the clustering of small schools as specified above did not work well. Two of the 3 PSUs had only 1 small school each and the third one had 2 small schools that, when grouped together, still had fewer than 12 kindergarten students. These small schools or groups of small schools were manually combined with other large schools in another PSU (table 3-8).

Table 3-8. Number of clusters and schools in the private school frame: School year 1998–99

Number in cluster	Number of clusters	Number of schools
Total	9,955	12,412
1 school	7,640	7,640
2 schools	2,184	4,368
3 schools	121	363
4 schools	9	36
5 schools	1	5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 1999.

3.2.2.5   Implicit Stratification of Schools/Clusters of Schools

Public schools with more than 24 kindergarten students and private schools with more than 12 kindergarten students were not clustered. However, they are referred to as clusters (of one school each) for simplicity.

3.2.2.5.1   Public Schools

Within each PSU, the clusters were sorted by the MOS and separated into three size classes of roughly equal size (high, medium, and low). Within each size class, clusters were sorted by the proportion of APIs in a serpentine manner (alternating the sort order from one size class to the next).

3.2.2.5.2   Private Schools

Within each PSU, each cluster was identified as religious, mixed, or nonreligious.[7] The list of clusters was then sorted by these three categories. Within each category, the clusters were sorted in a serpentine manner by the MOS prior to selection. However, for the self-representing PSUs, all clusters were sorted as if they were from the same PSU, i.e., the aggregated list of clusters from the 24 self-representing PSUs was sorted by religious affiliation (religious/mixed/nonreligious). This procedure provided better control of the sample distribution of religious/mixed/nonreligious clusters. Across non-self-representing PSUs, clusters were sorted by religious affiliation, and within each category of religious affiliation, by the MOS in a serpentine manner.

3.2.2.6   School Selection

Selection of the clusters of schools was systematic, with probability proportional to the MOS. Sampling of public schools was done independently within PSU (i.e., each PSU forms a separate sampling stratum) after the clusters of schools were sorted by MOS and proportion of API. Sampling of private schools was done separately for self-representing PSUs and for non-self-representing PSUs. All self-representing PSUs were placed in one sampling stratum and all non-self-representing PSUs were placed in a second stratum. In the self-representing stratum, sampling was done with one random start after sorting clusters of schools by religious affiliation and MOS. In the non-self-representing stratum, sampling was done with one random start after sorting clusters of schools by PSU, religious affiliation, and MOS.

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[7] A private school cluster is "religious" if all schools in the cluster are Catholic schools or non-Catholic religious schools; "nonreligious" if all schools in the clusters have no religious affiliation; "mixed" if it has a combination of schools with or without religious affiliation.

3.2.2.7 The ECLS-K Main School Sample

A total of 1,280 schools were selected from the main school frame for the ECLS-K, of which 934 were public and 346 were private schools. The characteristics of the school sample are presented in table 3-9.

3.2.2.8 Supplemental School Sample

As mentioned earlier, the public and private school frames were supplemented in the spring of 1998. The procedures for supplementing the frames were different for public schools, Catholic schools and non-Catholic private schools. These procedures are discussed below separately.

3.2.2.8.1 Public Schools

Each public school district having one or more schools sampled was sent a sampling frame-based list of all schools offering kindergarten. Districts were asked whether any school that was expected to offer kindergarten in academic year 1998–1999 was missing from the list. For each school identified by the district, school name, address, telephone number, grade span, and kindergarten enrollment were obtained. Districts were also contacted that fell within the boundaries of the ECLS-K PSUs, but for which the CCD file listed no schools offering kindergarten, unless it was clear from their name that they were strictly secondary school districts (e.g., Middlebury Union High School District). The information obtained from the school districts was checked against the ECLS-K public school frame to confirm that these schools were truly new or newly eligible. Bona fide new schools were given a chance of being sampled. A new school's chance of selection was conditioned on the school district's probability of selection. Overall, 252 new public schools were identified. Of these, 19 were selected, using systematic sampling with probability proportional to size where the MOS was the same as it was for schools sampled from the main sample. Thus, a total of 953 public schools were included in the sample (934 + 19).

Table 3-9. Number of sample schools, by school characteristics: School year 1998–99

Characteristic	Total	Public	Private
Total	1,280	934	346
Region			
Northeast	238	166	72
Midwest	297	215	82
South	420	309	111
West	325	244	81
Type of locale			
Large central city	245	164	81
Mid-size central city	252	176	76
Urban fringe of large city	386	273	113
Urban fringe of mid-size city	98	78	20
Large town	32	25	7
Small town	107	80	27
Rural	160	138	22
Kindergarten enrollment			
< 25	210	55	155
25 – 49	224	110	114
50 – 99	467	400	67
100 – 149	236	228	8
150 – 199	88	86	2
200 – 249	26	26	0
250 – 299	15	15	0
> 300	14	14	0
School affiliation			
Public	934	934	†
Catholic	117	†	117
Non-Catholic, religious	143	†	143
Nonreligious, private	86	†	86
National school lunch program[1]			
Low (<=25% eligible students)	284	284	†
Medium low (>25% and <=50%)	169	169	†
Medium high (>50% and <=75%)	122	122	†
High (>75%)	118	118	†
Unknown	241	241	†

† Not applicable.
[1] National school lunch program applies only to public schools and hence the counts of schools in the program do not add up to 1,280 schools.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 1999.

3.2.2.8.2   Private Schools

The procedure for obtaining new school information from Catholic dioceses was exactly the same as for public schools. Since a diocese could cut across county or even state lines, each school identified by a diocese had to be associated with the correct county, and hence the correct PSU, before checking to see whether it was truly new. Since dioceses might cross PSU boundaries, a new Catholic school's chance of being sampled had to be conditioned on the diocese's probability of selection within the PSU where the new school was located. There were 126 new Catholic schools identified, and 6 were selected using systematic sampling with probability proportional to size. When combined with the main sample, the final Catholic school sample size was 123 (117 + 6).

3.2.2.8.3   Non-Catholic Private Schools

The search for non-Catholic private schools was considerably more complicated. Three classes of schools that had previously not been given a chance of selection from the PSS were reconsidered. Those were schools that had an unknown grade span because they had not responded to the 1995–96 PSS, those that responded but did not report offering kindergarten, and those that appeared for the first time on the 1997–98 PSS file. Together these accounted for 2,544 potential new non-Catholic private schools. Beyond these additions from PSS, procedures similar to those used by the Bureau of the Census in the PSS area frame search were followed. These procedures included collecting lists of schools from different sources, matching them against the PSS list frame to remove duplicates, and further screening by telephone to verify new school status. The majority of new schools found by the Bureau of the Census for PSS came from telephone book yellow page listings. The yellow pages search was the main source of new non-Catholic private schools in the ECLS-K as well, yielding an additional 8,861 possible new private schools. Since the number of kindergartners enrolled in these schools was unknown, a minimum kindergarten enrollment was assumed for sampling purposes (typically 24, unless the name was suggestive of day care, in which case 12 was assumed).

The supplemental frame contained 11,405 private schools. A sample of 279 schools was selected, using systematic sampling with a probability proportional to these imputed enrollments. Each sampled school was contacted by telephone and screened to ascertain whether the school was public or private, whether it would be open in academic year 1998–1999; and whether it would offer kindergarten.

If the school met all of these conditions and was not Catholic, the school was eligible and released for data collection.

A second supplemental procedure involved contacting local education agencies (LEAs) and local government offices for information on non-Catholic private schools. This procedure was done only in the smallest ECLS-K PSUs, on the theory that if these PSUs had coverage problems their large weights were likely to introduce a larger bias in the estimates. All LEAs within these PSUs were contacted by telephone. For each city/town within the PSU, a list of local government offices was compiled using the blue pages. Successive government offices were called within a city or town until one was found that could provide information on private schools. As with the yellow pages, new schools identified by LEAs and local government offices were unduplicated against the PSS file before being added to the new school frame. Since kindergarten enrollment was unknown, it was imputed as described in the previous paragraph and sampling was performed using systematic sampling with probability proportional to size. The LEA search resulted in the identification of 30 new private schools after unduplication, of which 14 were sampled. The local government search yielded 19 new schools, of which 8 were sampled. Finally, three additional new private schools were reported by field staff based on personal knowledge. Of these, two schools were sampled. The same screening procedures to ascertain whether the school was public or private; whether it would be open in academic year 1998–1999; and whether it would offer kindergarten were then applied to these sampled schools.

The total number of non-Catholic private schools that were sampled was 303. After the screening procedures were applied, only 109 of these schools were eligible. These 109 schools are referred to as the supplemental sample of non-Catholic private schools.

The final ECLS-K school sample for the base year was 1,413 schools, including 953 public schools, 123 Catholic schools, and 337 non-Catholic private schools. Of these, 136 schools (72 percent private) were later found to be ineligible because they did not have any kindergarten programs; three schools participated in fall-kindergarten, but not in spring-kindergarten (1 public and 2 private); 259 schools (38 percent private) refused to participate in both fall and spring; and 65 schools (42 percent private) refused to participate in the fall but were converted to cooperating schools in the spring during the spring refusal conversion. At the end of the base year, 1,014 schools were still participating in the ECLS-K.

3.2.3 Sampling Children, Parents, and Teachers Within Schools

The goal of the student sample design was to obtain an approximately self-weighting sample of students to the extent possible while achieving the minimum required sample size for APIs (the only subgroup that needed to be oversampled to meet the study's precision goals). Two independent sampling strata were formed within each school, one containing API students and the second all other students. Within each stratum, students were selected using equal probability systematic sampling, using a higher rate for the API stratum. In general, the target number of children sampled at any one school was 24. The actual sample size per school ranged from 1 to 28. If one twin was selected into the sample then both twins were included, raising the maximum number of children to sample from 24 to 28 in a small number of schools. Once the sampled children were identified, parent contact information was obtained from the school and was used to identify a parent or guardian for the parent interview.

During the fall-kindergarten data collection, a census of kindergarten teachers was taken at each school. In spring-kindergarten, new teachers who had joined the schools and teachers in schools participating after the fall were added to the census of teachers. In the spring-first and spring-third grade data collections, the only teachers included were the teachers of the sampled children. For every data collection, each sampled child was linked to his or her teacher. A child could be linked to only one general education teacher. In cases where a child had more than one general education teacher, a 'primary' teacher was identified for the child. In addition, special education teachers and service providers were linked to sample cases who received such services. As with the general education teachers, a child would be linked to only one special education teacher or service provider. Details on the linking of teachers to the children are found in chapter 4.

3.3 Fall-First Grade Subsample

The fall data collection consisted of a 30 percent sample of schools containing approximately 25 percent of the base year students eligible to participate in the second year. The goal of this subsample was to measure the extent of summer learning loss and the factors that contribute to such loss and to better disentangle school and home effects on children's learning

3.3.1 PSU Sample

A subsample of ECLS-K PSUs was selected for the fall-first grade data collection. All 24 of the self-representing PSUs were retained. Of the 76 non-self-representing PSUs, 38 were retained by sampling one PSU per stratum with equal probability.

3.3.2 School Sample

Base year schools in the 62 fall-first grade sampled PSUs were stratified by frame source (original public, original private, supplemental public, and supplemental private as described in section 3.2.2.8) and arranged in their original selection order. A 30 percent equal probability sample of schools was drawn in the 24 self-representing PSUs and a 60 percent sample of schools was drawn in the 38 non-self-representing PSUs. In total 311 schools that had cooperated in either fall- or spring-kindergarten were selected. The characteristics of the base year cooperating schools selected for fall-first grade are presented in table 3-10.

3.3.3 Child Sample

Fall-first grade data collection consisted of the direct child assessment and the parent interview. Data collection was attempted for every eligible child found still attending the school in which he or she had been sampled during kindergarten. "Eligible" was defined as a base year respondent (i.e., a child who had either a fall- or spring-kindergarten child assessment or parent interview or was excluded from assessment because of a disability or because the child belonged in the language minority (not Spanish) group. Base year nonrespondents were not sampled and were handled by adjusting the weights (see section 7.2.1.2.1 for details of adjustment for base year nonresponse).

Because of the additional burden of school recruiting, the cost of collecting data for a child who had transferred from the school in which he or she was originally sampled exceeds that for a child who stayed enrolled. To contain these costs, a random 50 percent of children were subsampled to be followed for fall-first grade data collection in the event that they had transferred.

Table 3-10. Characteristics of base year cooperating schools selected for fall-first grade: School year 1999–2000

Characteristic	Total	Public	Private
Total	311	228	83
Region			
Northeast	57	39	18
Midwest	83	59	24
South	99	77	22
West	72	53	19
Type of locale			
Large city	62	42	20
Midsize city	59	45	14
Urban fringe of large city	86	61	25
Urban fringe of midsize city	18	14	4
Large town	15	12	3
Small town	28	19	9
Rural	43	35	8
School affiliation			
Public	228	228	†
Catholic	29	†	29
Other religious	33	†	33
Nonreligious, private	21	†	21
School type			
Regular	292	222	70
Ungraded	1	1	0
No grade beyond kindergarten	18	5	13

† Not applicable.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1999 and spring 2000.

Except for children who were repeating kindergarten, all base year children sampled in schools with a high grade of kindergarten are de facto movers. Since many of these movers might move *en masse* to the same first-grade school, steps were taken to follow these children at a higher rate. Using the information collected during spring-kindergarten, a list of destination schools was compiled for each such school. The destination school having the most movers was designated as primary, unless no such school had more than three movers. Children who moved *en masse* into a primary destination school in fall-first grade were treated as "nonmovers" and were not subsampled, that is, they continued to be followed and were part of the ECLS-K sample. All other movers were sampled at the rate of 50 percent.

As discussed above, a random 50 percent of children were subsampled to be followed if they moved out of the kindergarten school. Sampling was done with equal probability. Prior to sampling, children were stratified into groups of nonmovers, movers with information identifying their new schools, and movers without such identifying information. A flag was created for each child indicating whether the child had been sampled to be followed.

3.4 Spring-First Grade Sample

The ECLS-K spring-first grade data collection targeted all base year respondents and not just the fall-first grade subsample. Hence, the sample includes children who were assessed and whose parents were interviewed in fall- or spring-kindergarten, as well as the 70 children who could not be assessed in fall- or spring-kindergarten because of a disability or because they belonged in the language minority (not Spanish) group. In addition, the spring student sample was freshened to include current first-graders who had not been enrolled in kindergarten in 1998–99 and therefore had no chance of being included in the ECLS-K base year kindergarten sample. This group includes children who skipped kindergarten altogether in 1998–99, children who attended a kindergarten program outside of the U.S. in 1998–99, and children who were in first grade in 1998–99 and repeating it in 1999–2000. While all students still enrolled in their base year schools were recontacted, only a 50 percent subsample of base year sampled students who had transferred from their kindergarten school was followed for data collection.

3.4.1 Subsampling Movers

In spring-first grade all children in a random 50 percent subsample of base year schools were flagged to be followed for data collection if they transferred from their base year school. (This is in contrast to fall-first grade where a random 50 percent of children in each of the 30 percent of schools subsampled were flagged.) In order to maximize the amount of longitudinal data, care was taken during spring-first grade sampling to ensure that any child who had been flagged to be followed in fall-first grade would continue to be followed.

In selecting the spring-first grade 50 percent subsample of schools where movers would be flagged for followup, the three primary strata were self-representing PSUs, non-self-representing PSUs that had been selected for fall-first grade, and non-self-representing PSUs that had not been selected for

fall-first grade. Within these major strata, schools were grouped by frame source (original public, original private, supplemental public, and supplemental private). Finally within each frame source, schools were stratified by whether the school participated in the base year study, and arranged in original selection order. Schools that had been part of the 30 percent fall-first grade sample were automatically retained. Then equal probability sampling methods were employed to augment the sample to the desired 50 percent of schools. The net result of these procedures was that every base year selected school had a 50 percent chance of having its ECLS-K movers followed during spring-first grade, and any mover who had been followed in fall-first grade would still be followed in spring-first grade.

3.4.2   Sample Freshening

As noted earlier, a sample freshening procedure was used to make it possible to produce estimates of all children enrolled in first grade in the spring of 2000. The spring-first grade student freshening used a half-open interval sampling procedure (Kish 1965). The procedure was implemented in the same 50 percent subsample of ECLS-K base year schools where movers were flagged for followup. Each of these schools was asked to prepare an alphabetic roster of students enrolled in first grade and the names of ECLS-K kindergarten-sampled children were identified on this list. Beginning with the name of the ECLS-K first kindergarten-sampled child, school records were checked to see whether the student directly below in the sorted list attended kindergarten in the United States in fall 1998. If not, (1) that child was considered to be part of the freshened sample and was linked to the base year sampled student (i.e., was assigned that student's probability of selection), and (2) the record search procedure was repeated for the next listed child, and so forth. When the record search revealed that a child had been enrolled in kindergarten the previous year, that child was not considered part of the freshened sample and the procedure was resumed with the second base year ECLS-K sampled student name, and so on.[8] Student freshening brought 165 first graders into the ECLS-K sample, which increased the weighted survey estimate of the number of first graders in the United States by about 2.6 percent.

The student freshening procedure was not entirely free of bias. A first grader would have no chance of being in the ECLS-K first grade sample if he or she was enrolled in a school where neither the child nor any of his or her classmates had attended kindergarten in the United States in fall 1998. This would be a rare circumstance and is not thought to be an important source of bias. A more significant

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[8] The student roster was "circularized" (i.e., the first name on the roster was considered to follow the last name on the roster in the implementation of the procedure).

source of potential bias is nonresponse. One source of nonresponse inherent to the freshening plan was that the procedure only involved students who had not transferred from the school in which they had been sampled during the base year. Another source of nonresponse that also affected the freshening procedure were schools that refused to provide or could not provide the necessary information, such as alphabetic roster of students enrolled in first grade or whether students had attended kindergarten the previous year. The school freshening completion rate is slightly higher for public schools than for private schools. Of the 494 schools eligible for freshening, 380 are public schools and 114 are private schools. Ninety four percent of the public schools and 93 percent of the private schools participated in the freshening process.

3.5   Spring-Third Grade Sample

The procedures used in spring-first grade to subsample movers reduced the loss in sample size and reduced data collection costs since movers cost considerably more to interview than nonmovers. These procedures were also used for the ECLS-K third-grade data collection with some modifications. One reason for modifying the procedures was that some children had already moved out of their original school, and some of the movers were sampled and some were not. In addition, there were concerns about special domains of interest and methods that might be used to increase the sample size for the children in these groups. Results from the first-grade collection were used to address these third-grade sample design issues.

3.5.1   Estimates from Spring-First Grade

Table 3-11 presents data on the outcome of the spring-first grade data collection activities, by subgroups of interest and by mover status. In this table and subsequent tables, school affiliation and type of locale are those of the original sample schools. Race/ethnicity and language characteristics of the children are from the ECLS-K base year data, which are available for all children. Data from first grade are only available for first-grade respondents. For children sampled in first grade, data are from spring-first grade. The table shows that overall 26 percent (5,477) of the children moved from the school they were sampled in, about 48 percent (2,620) of these movers were sampled, and the unweighted completion rate for movers was 83 percent (1,967 mover respondents). For nonmovers, the completion rate was

Table 3-11. Spring-first grade data collection results by mover status: School year 1999–2000

| | All sampled children | | | | | | | | Mover status | | | | | | | | |
| | | | | | | | | | Movers | | | | | Nonmovers | | | |
Subgroup[1]	Total[2]	Respond[3]	Not respond[4]	Ineligible	Unweighted completion rate[5]	Movers not sampled	Total movers	Percent moved	Respond[3]	Not respond[4]	Ineligible	Percent sampled	Unweighted completion rate[5]	Respond[3]	Not respond[4]	Ineligible	Unweighted completion rate[5]
All	21,331	17,324	899	251	95.1	2,857	5,477	25.7	1,967	403	250	47.8	83.0	15,357	496	1	96.9
School affiliation																	
Public	16,761	13,661	710	221	95.1	2,169	4,189	25.0	1,466	334	220	48.2	81.4	12,195	376	1	97.0
Private	4,570	3,663	189	30	95.1	688	1,288	28.2	501	69	30	46.6	87.9	3,162	120	0	96.3
Catholic	2,354	2,031	66	12	96.9	245	433	18.4	150	26	12	43.4	85.2	1,881	40	0	97.9
Non-Catholic	2,216	1,632	123	18	93.0	443	855	38.6	351	43	18	48.2	89.1	1,281	80	0	94.1
Type of locale																	
Rural	2,509	2,227	86	14	96.3	182	428	17.1	194	39	13	57.5	83.3	2,033	47	1	97.7
Non-Rural	18,822	15,097	813	237	94.9	2,675	5,049	26.8	1,773	364	237	47.0	83.0	13,324	449	0	96.7
Race/ethnicity 1[6]																	
Hispanic	3,777	2,988	164	81	94.8	544	1,048	27.7	349	75	80	48.1	82.3	2,639	89	1	96.7
Black	3,229	2,468	150	69	94.3	542	1,066	33.0	374	81	69	49.2	82.2	2,094	69	0	96.8
Asian/Pacific Islander	1,579	1,291	61	18	95.5	209	359	22.7	114	18	18	41.8	86.4	1,177	43	0	96.5
Other	12,746	10,577	524	83	95.3	1,562	3,004	23.6	1,130	229	83	48.0	83.1	9,447	295	0	97.0
Race/ethnicity 2[6]																	
Hispanic	3,698	2,926	160	81	94.8	531	1,023	27.7	340	72	80	48.1	82.5	2,586	88	1	96.7
Black	3,229	2,468	150	69	94.3	542	1,066	33.0	374	81	69	49.2	82.2	2,094	69	0	96.8
Asian/Pacific Islander	1,867	1,537	69	20	95.7	241	429	23.0	144	24	20	43.8	85.7	1,393	45	0	96.9
Other	12,537	10,393	520	81	95.2	1,543	2,959	23.6	1,109	226	81	47.9	83.1	9,284	294	0	96.9
Language minority																	
Non-English	5,372	4,317	228	107	95.0	720	1,397	26.0	472	98	107	48.5	82.8	3,845	130	0	96.7
English	15,959	13,007	671	144	95.1	2,137	4,080	25.6	1,495	305	143	47.6	83.1	11,512	366	1	96.9

[1] Characteristics of the schools (school affiliation and type of locale) are from the original sample schools.

[2] The total number of children excludes 68 children who responded in fall-kindergarten and became ineligible in spring-kindergarten, and includes 139 children sampled in first grade who responded.

[3] A respondent is a child with assessment data or parent interview data, or a child who could not be assessed due to a disability.

[4] Nonrespondents include those who did not participate fully and movers who could not be located.

[5] The unweighted completion rate was computed as the number of respondents divided by the sum of respondents and nonrespondents.

[6] Race/ethnicity 1 was the strict definition of API (RACE=5-Asian, or 6-Native Hawaiian or other Pacific Islander), while race/ethnicity 2 was the broader definition (RACE=5-Asian, or 6-Native Hawaiian or other Pacific Islander or WKASIAN=1-Child is Asian, or WKPACISL=1-Child is Native Hawaiian or other Pacific Islander). Variables are from the ECLS-K base year data file.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 kindergarten (ECLS-K), fall 1999 and spring 2000.

97 percent (15,357 nonmover respondents). A child was considered a respondent in these computations if either the child assessment or the parent interview was completed for spring-first grade or the child was not assessed due to a disability. The completion rate in this table was computed as the number of respondents divided by the sum of respondents and nonrespondents. Nonrespondents include those who did not participate fully and movers who could not be located. For first grade, 269 of the movers who were sampled for follow-up could not be located, or about 11 percent of all movers eligible for the first grade data collection.

The mover rates show the types of variation that had been expected, with higher mover rates for Black and Hispanic children, for example. A total of 39 percent of the children in non-Catholic private schools moved to other schools when they advanced from kindergarten to first grade (855 movers as shown in table 3.11). Seventy-six percent of children who moved from kindergarten in private schools to first grade in public schools attended non-Catholic private schools in kindergarten, about three times the number of children who moved from Catholic to public schools.

One of the concerns in using the kindergarten to first-grade mover rates to make estimates for future transitions was whether the mover rates for the 1-year time period between kindergarten and first grade were reasonable when applied to the transition between first and third grade. One might argue that a 2-year period should result in a higher mover rate than the 1-year rate. However, parents may be more reluctant to change the school for a child between first and third grade than between kindergarten and first grade. Kindergarten is also special for other reasons. For example, the availability of full- and part-day classes may be an important factor in the choice of the kindergarten. There are no other data sources that could be used to examine differential mover rates between years. As a result, the 1-year moving rates in table 3-11 were applied to the 2-year period between first and third grade after adding another 5 percent to the rates to account for the 2-year period. An exception was made for children who attended non-Catholic private schools in the base year and had the highest rates of moving among all the domains examined. This was assumed to be a special case for kindergarten and the average mover percentage was applied to these children for the third grade.

The other main concern was whether the extremely high completion rate for nonmovers (97 percent) could be duplicated in future years. To be more conservative and to account for the fact that nonrespondents from earlier rounds (i.e., base year respondents were included in the third-grade sample whether or not they responded in first grade) were included in subsequent rounds of data collection, it was assumed that a 95 percent completion rate would be achieved for nonmovers in third grade.

3.5.2 Third-Grade Sample Design

The basic plan for third grade was the plan implemented for first grade where only 50 percent of the children who moved from the original sample schools were followed into their new schools. This plan was modified for third grade as described below. To be eligible for the third-grade sample, a child had to have been a base year respondent or sampled in first grade. Children who moved out of the country or died were excluded (i.e., ineligible). The following children were fielded for third grade:

- All the children responding in the base year who remained in their original schools, where the original schools also included destination schools (described later).

- All the children who moved from an original school in a previous wave of data collection and were retained in the subsample of movers for that wave. For example, if a child moved between kindergarten and first grade and was part of the 50 percent subsample that was followed, then the child would be retained for future rounds without subsampling as long as the child remained eligible.

- A subsample of 50 percent of the children who moved from their original school at any time after the base year. For example, a child who moved between first grade and third grade would be subject to subsampling and had a 50 percent chance of being included in the third-grade followup. In alternatives discussed later, differential subsampling rates were introduced.

To prevent an accumulation of nonresponse, the ECLS-K design does not use the approach of many longitudinal studies that exclude sampled units from future rounds if they did not respond in a particular wave. Instead, the basic plan was modified so that all eligible base-year respondents who were sampled in the first-grade followup would be eligible for the third-grade followup even if they did not respond in the first grade. Even though the participation rate for first-grade nonrespondents might be lower compared with first-grade respondents in the subsequent followups, the effort was an attempt to increase overall response rates by including first-grade nonrespondents in third grade. The approach is also consistent with the analytic use of the data for the ECLS-K, since many analyses may include less than complete wave responses. For example, a change in scores from kindergarten to third grade for subgroups is an important analytic objective, and it can be estimated without complete data at each wave.

A second procedure that was part of the modification of the basic plan for the third-grade followup was an extension of a procedure that was used in the first-grade followup to deal with schools that ended with kindergarten (i.e., kindergarten was the highest grade offered). A school was called a destination school if at least 4 students from a school ending in kindergarten attended this school in first grade. For the third grade 28 original schools ended in second grade, and 3 of the destination schools

identified in first grade ended in second grade. In total, 3 percent of all eligible first graders in the ECLS-K sample attended schools ending in second grade. As was done for the first-grade sample, children in the destination schools were treated as nonmovers for the third-grade sample. As nonmovers, they were all followed into their new schools, resulting in a 2 percent increase of the third-grade sample size over that which would result if 50 percent of these children were subsampled out as movers.

3.5.3   Expected Sample Size

Table 3-12 gives the expected sample sizes of children in third grade by subgroups of interest and mover status for the basic plan. In this table, a respondent is defined as a child with either a complete child assessment or parent interview, or a child who could not be assessed because of a disability. This table shows that the expected number of children with completed child assessments or parent interviews in the third grade was 14,304 under the assumed mover rates (differential by subgroups as shown in the table), subsampling rate (47 percent instead of 50 percent to account for ineligibility in third grade), and completion rate (95 percent). The estimates for the selected groups of high interest are given in the rows below. The third from last column is the estimated design effect resulting from sampling movers and nonmovers differentially. It does not include any other factors such as clustering. The next to last column is an estimate of the number of new schools that would enter the ECLS-K sample. The last column is an estimate of the total number of schools that sampled children would be attending, assuming 1.5 movers attended the same school on average.

Table 3-12. Expected sample size for selected subgroups for third grade, by mover status: School year 2001–02

Subgroup[1]	Sampled from first grade			Mover[2]		Completion rate[2]		Sample of new movers	Total responding (expected)			Subsample design effect[4]	New third grade schools[5]	Total schools
	Total	Movers	Nonmovers	Rate	Sampled[3]	Movers	Nonmovers		Total	Movers	Nonmovers			
All children	18,223	2,370	15,853	—	—	—	—	2,284	14,304	3,860	10,444	†	1,523	4,144[6]
School affiliation														
Public	14,371	1,800	12,571	30	47	81	95	1,772	11,270	2,909	8,361	1.17	1,182	—
Private	3,852	570	3,282	33	47	88	95	512	3,034	951	2,083	1.14	341	—
Catholic	2,097	176	1,921	23	47	85	95	211	1,728	330	1,398	1.13	—	—
Non-Catholic	1,755	394	1,361	31	47	89	95	198	1,420	528	892	1.27	—	—
Type of locale														
Rural	2,313	233	2,080	22	47	83	95	216	1,914	374	1,540	1.09	—	—
Non-rural	15,910	2,137	13,773	32	47	83	95	2,080	12,402	3,482	8,920	1.17	—	—
Race/ethnicity 1[5]														
Hispanic	3,152	424	2,728	33	47	82	95	420	2,438	695	1,743	1.18	†	†
Black	2,618	455	2,163	38	47	82	95	386	1,965	692	1,274	1.17	†	†
Asian/Pacific Islander	1,352	132	1,220	28	47	86	95	159	1,089	251	838	1.17	†	†
Other	11,101	1,359	9,742	29	47	83	95	1,308	8,829	2,218	6,611	1.14	†	†

See notes at end of table.

Table 3-12. Expected sample size for selected subgroups for third grade, by mover status: School year 2001–02—Continued

Subgroup[1]	Sampled from first grade			Mover[2]		Completion rate[2]		Sample of new movers	Total responding (expected)			Subsample design effect[4]	New third grade schools[5]	Total schools
	Total	Movers	Nonmovers	Rate	Sampled[3]	Movers	Nonmovers		Total	Movers	Nonmovers			
Race/ethnicity 2[5]														
Hispanic	3,086	412	2,674	33	47	83	95	411	2,389	679	1,711	1.18	†	†
Black	2,618	455	2,163	38	47	82	95	386	1,965	692	1,274	1.17	†	†
Asian/Pacific Islander	1,606	168	1,438	28	47	86	95	189	1,290	306	984	1.16	†	†
Other	10,913	1,335	9,578	29	47	83	95	1,288	8,675	2,179	6,497	1.15	†	†
Language minority														
Non-English	4,545	570	3,975	31	47	83	95	579	3,557	952	2,605	1.17	†	†
English	13,678	1,800	11,878	31	47	83	95	1,706	10,747	2,912	7,835	1.15	†	†

— Not available.

† Not applicable.

[1] Characteristics of the schools (school affiliation and type of locale) are from the original sample schools.

[2] The mover rates and the completion rates for movers are those used in the computation of expected sample size, and are differential by subgroups. Since no "total" rates were used in the computation, they are not available.

[3] The sampling rate for movers is set at 47 percent (instead of 50 percent) to account for ineligibility of students in future rounds.

[4] The design effects in this column are the results of sampling movers and nonmovers differentially. They do not include the effect of clustering.

[5] The number of new third-grade schools is estimated as 1.5 schools per sampled new mover.

[6] 2,621 schools from kindergarten/first grade plus the new third-grade schools.

[7] Race/ethnicity 1 was the strict definition of API (RACE=5-Asian or 6-Native Hawaiian or other Pacific Islander), while race/ethnicity 2 was the broader definition (RACE=5-Asian or 6-Native Hawaiian or other Pacific Islander or WKASIAN=1-Child is Asian or WKPACISL=1-Child is Native Hawaiian or other Pacific Islander). Variables are from the ECLS-K base year data file.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 kindergarten (ECLS-K), spring 2002.

3.5.4 Protecting the Language Minority Children

Special attention was paid to language minority and API children to ensure that the sample sizes would be large enough to support analytic goals in developing the sampling plans for the third grade. Children in the language minority group are children whose home language is non-English or who were screened using the Oral Language Development Scale (OLDS) prior to assessments during the base year (or first grade for freshened children).[9] Two classifications of APIs are shown in tables 3-11 and 3-12. The first classification was identified using a strict definition of API, i.e., if the child was identified only as API by the composite race variable (RACE = 5-Asian or 6-Native Hawaiian or other Pacific Islander). The second classification was identified using a broader definition, i.e., if a child was identified only as API as in the strict definition (RACE = 5-Asian or 6-Native Hawaiian or other Pacific Islander) or if a child has positive answers to the API race identification variables (WKASIAN = 1-Child is Asian or WKPACISL = 1-Child is Native Hawaiian or other Pacific Islander). The variables RACE, WKASIAN and WKPACISL are in the base year data file. The broader definition of API yields a larger population of children.

After reviewing the expected yields without oversampling, it was decided to increase only the sample size for children belonging to the language minority group. Beginning in third grade, these children would not be subsampled for followup if they moved from their original school. Instead, data collection would be attempted for all language minority children. Table 3-13 is analogous to table 3-12 but is adjusted for this approach of retaining all movers in the language minority group (in practice the subsampling rates are shown as 95 percent because some children became ineligible).

One consequence of protecting this subgroup is to increase the sample size and precision for the subgroup. The design effect due to subsampling is slightly lower under this plan because a smaller proportion of the movers were subsampled than under the basic plan (only the movers that were already subsampled in first grade are subsampled). Another consequence is that the number of schools that the sampled children attended increased. Because all language minority children were followed, table 3-13 shows an expected increase of 395 schools in third grade (1,918 – 1,523 = 395).

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[9] Information about home language came from the parent interview and whether or not children were screened with the OLDS was based on information provided by their schools (see the *Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) Base Year Public-Use Data Files and Electronic Code Book: User's Manual* (NCES 2001-029r) (Tourangeau, Burke, et al. 2004).

Table 3-13.   Expected sample size for third grade, by mover status, if standard subsampling rates were used and if language minority children were preserved: School year 2001–02

Sampling approach	Sampled from first grade			Mover[1]		Completion rate[1]		Sample of new movers	Total responding (expected)			Subsample design effect[3]	New third grade schools[4]	Total schools[5]
	Total	Movers	Nonmovers	Rate	Sampled[2]	Movers	Nonmovers		Total	Movers	Nonmovers			
Using standard subsampling rates	18,223	2,370	15,853	—	—	—	—	2,285	3,864	10,440	14,304	†	1,523	4,144
Non-English	4,545	570	3,975	31	47	83	95	579	952	2,605	3,557	1.17	†	†
English	13,678	1,800	11,878	31	47	83	95	1,706	2,912	7,835	10,747	1.15	†	†
Preserving the language minority group	18,223	2,370	15,853	—	—	—	—	2,877	4,354	10,440	14,794	†	1,918	4,539
Non-English	4,545	570	3,975	31	95	83	95	1,171	1,442	2,605	4,047	1.04	†	†
English	13,678	1,800	11,878	31	47	83	95	1,706	2,912	7,835	10,747	1.15	†	†

— Not available.

† Not applicable.

[1] The mover rates and the completion rates for movers are those used in the computation of expected sample size, and are differential by subgroups. Since no "total" rates were used in the computation, they are not available.

[2] The sampling rate for movers is set at 47 percent (instead of 50 percent) to account for ineligibility of students in future rounds. If the language minority group is preserved, it is set at 95 percent.

[3] The design effects in this column are the results of sampling movers and nonmovers differentially. They do not include the effect of clustering.

[4] The number of new third-grade schools is estimated as 1.5 schools per sampled new mover.

[5] 2,621 schools from kindergarten/first grade plus the new third-grade schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2002.

3.5.5 Precision Requirements

When the precision estimates were computed from the kindergarten sample at the end of the base year, higher than expected design effects for assessment scores were observed. The design effects for most other statistics, such as proportions of children with a particular characteristic, were moderate and within the range expected (1.6 to 6.9 for proportions greater than 30 percent for an average of 4.0). The design effects for assessment scores (4.5 to 9.5 for an average of 6.9) were investigated and found to be correct and unrelated to data collection artifacts. For example, interviewer effects were found to be negligible and did not bias assessment scores. The design effects for test scores were much larger than the average of 3.8 that was expected at the design stage. For all students, the design effects for math and reading scores were about 6.5, while for general knowledge the design effects were even larger, at 7.7. For design effects from the base year, see chapter 4 of the *ECLS-K Base Year Public-Use Data Files and Electronic Code Book: User's Manual* (NCES 2001–029r) (Tourangeau, Burke, et al. 2004). These larger design effects are one component that affects the ability of the survey to meet the precision requirements as described in section 3.1.

The spring-third grade estimates of design effects are similar to those in the earlier rounds and are larger than had been predicted prior to any data collection. The longitudinal estimates have design effects that are not as large as might be expected given the larger cross-sectional design effects. In fact, the correlations for mean test scores are as high as 0.8 to 0.9. The higher than expected correlations make estimates of changes in scores over time more precise, thus it is possible to meet the precision requirements for estimates of change with smaller sample sizes. Table 3-14 shows that the sample sizes for the key analytic subgroups (public, Catholic, non-Catholic, Hispanic, Black, Asian/Pacific Islander, other races together, and language minority) were expected to be at least 1,000.[10] Samples of this size were expected to be sufficient for estimating most characteristics. For example, test scores were expected to have a coefficient of variation of about 3 percent with samples of 1,000. More details on estimates of design effects can be found in chapter 4 of the *ECLS-K User's Manual for the First Grade Public-Use Data Files and Electronic Code Book* (NCES 2002-135) (Tourangeau et al. 2002) and the *ECLS-K User's Manual for the Third Grade Public-Use Data File and Electronic Code Book* (NCES 2004-001) (Tourangeau, Brick, et al. 2004).

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[10] The sample sizes for key analytic groups are the totals for each group, not for each cell in table 3-14.

Table 3-14. Characteristics of third-grade respondents—number of third-graders by subgroup: School year 2001–02

Subgroup[1]	Expected[2]			Achieved		
	Total	Language minority	Not language minority	Total	Language minority	Not language minority
Total	14,794	4,047	10,747	15,305	4,041	11,264
School affiliation						
Public	11,643	3,356	8,287	12,070	3,374	8,696
Private	3,151	691	2,460	3,235	667	2,568
Catholic	1,625	373	1,252	1,817	383	1,434
Non-Catholic	1,526	318	1,208	1,418	284	1,134
Type of locale						
Rural	1,712	210	1,502	2,005	222	1,783
Non-rural	13,082	3,837	9,245	13,300	3,819	9,481
Race/ethnicity 1[3]						
Hispanic	2,773	2,165	608	2,752	2,156	596
Black	2,188	128	2,060	2,007	118	1,889
Asian/Pacific Islander	1,165	962	203	1,174	947	227
Other	8,668	792	7,876	9,372	820	8,552
Race/ethnicity 2[3]						
Hispanic	2,716	2,130	587	2,691	2,116	575
Black	2,188	128	2,060	2,007	118	1,889
Asian/Pacific Islander	1,369	1,057	312	1,404	1,056	348
Other	8,520	732	7,788	9,203	751	8,452

[1] Characteristics of the schools (school affiliation and type of locale) are from the original sample schools.
[2] The expected sample size was computed using assumed mover rates (differential by subgroups as shown table 3-12), a 47 percent subsampling rate (instead of 50 percent to account for ineligibility in third grade), and a 95 percent completion rate.
[3] Race/ethnicity 1 was the strict definition of API (RACE=5-Asian, or 6-Native Hawaiian or other Pacific Islander), while race/ethnicity 2 was the broader definition (RACE=5-Asian, or 6-Native Hawaiian or other Pacific Islander or WKASIAN=1-Child is Asian, or WKPACISL=1-Child is Native Hawaiian or other Pacific Islander). Variables are from the ECLS-K base year data file.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2002.

3.5.6   Spring-Third Grade Sampling Outcome

To summarize, the sample of children for spring-third grade consists of all children who were base year respondents and children who were brought into the sample in spring-first grade through

the sample freshening procedure. Sample freshening was not implemented in third grade; hence no new students entered the sample.

While all students still enrolled in their base year schools were recontacted, slightly more than 50 percent of the base year sampled students who had transferred from their kindergarten school were followed for data collection. This subsample of students was the same 50 percent subsample of base year movers followed in spring-first grade, including the movers whose home language was not English (language minority students). Children who were followed in spring-first grade were retained in the sample (i.e., the mover followup still targeted the same 50 percent subsample of children in the base year schools). In addition, children whose home language was not English and who had moved between spring-first grade and spring-third grade were all retained rather than being subsampled at the 50 percent rate. If they had moved before first grade, they were not to be followed. This modification to the mover followup procedure provided a larger sample of children whose home language is not English for analytic purposes. The mover followup activities that originally targeted a 50 percent subsample of children in base year schools resulted in a 54 percent subsample with the addition of language minority children.

Tables 3-14 (count) and 3-15 (percent) show the characteristics of the achieved third-grade sample compared with the expected third-grade sample. The total number of children in the language minority group is virtually the same as the expected number while the total number of children in the other group is about 5 percent larger than the expected number. In computing the expected sample size, the same mover rate was assumed for both groups of children. The third-grade sample shows that the non-language minority children moved at a lower rate (42 percent) than the language minority children (44 percent) resulting in a slightly larger sample of non-language minority children. The agreement between the expected and achieved sample sizes is rather remarkable given the numerous assumptions required. The actual percent distribution of third-graders within each subgroup is as expected with the exception of the Catholic and non-Catholic private schools where the percent of children in Catholic schools is higher than that of children in non-Catholic private schools. This may be due to the lower completion rate of children in non-Catholic private schools compared with children in Catholic private schools (93 percent and 97 percent, respectively). Elsewhere among the children in the language minority group, the difference between the expected distribution and the actual distribution is less than 1 percent. Elsewhere among the children not in the language minority group, the difference is less than 3 percent.

Table 3-15. Characteristics of third-grade respondents—percent distribution by subgroup: School year 2001–02

Subgroup[1]	Expected[2]			Achieved[2]		
	Total	Language minority	Not language minority	Total	Language minority	Not language minority
Total	100.0	100.0	100.0	100.0	100.0	100.0
School affiliation						
Public	78.7	82.9	77.1	78.9	83.5	77.2
Private	21.3	17.1	22.9	21.1	16.5	22.8
Catholic	51.6	54.0	50.9	56.2	57.4	55.8
Non-Catholic	48.4	46.0	49.1	43.8	42.6	44.2
Type of locale						
Rural	11.6	5.2	14.0	13.1	5.5	15.8
Non-rural	88.4	94.8	86.0	86.9	94.5	84.2
Race/ethnicity 1[3]						
Hispanic	18.7	53.5	5.7	18.0	53.4	5.3
Black	14.8	3.2	19.2	13.1	2.9	16.8
Asian/Pacific Islander	7.9	23.8	1.9	7.7	23.4	2.0
Other	58.6	19.6	73.3	61.2	20.3	75.9
Race/ethnicity 2[3]						
Hispanic	18.4	52.6	5.5	17.6	52.4	5.1
Black	14.8	3.2	19.2	13.1	2.9	16.8
Asian/Pacific Islander	9.3	26.1	2.9	9.2	26.1	3.1
Other	57.6	18.1	72.5	60.1	18.6	75.0

[1] Characteristics of the schools (school affiliation and type of locale) are from the original sample schools.
[2] The expected sample size was computed using assumed mover rates (differential by subgroups as shown table 3-12), a 47 percent subsampling rate (instead of 50 percent to account for ineligibility in third grade), and a 95 percent completion rate.
[3] Race/ethnicity 1 was the strict definition of API (RACE=5-Asian, or 6-Native Hawaiian or other Pacific Islander), while race/ethnicity 2 was the broader definition (RACE=5-Asian, or 6-Native Hawaiian or other Pacific Islander, or WKASIAN=1-Child is Asian, or WKPACISL=1-Child is Native Hawaiian or other Pacific Islander)). Variables are from the ECLS-K base year data file.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2002.

Table 3-16 shows the third-grade data collection results by mover status (analogous to table 3-11). In this table, the total number of children is 21,357, which is larger than the total in table 3-11 by 26 children; these are children sampled in first grade who did not have completed assessment data or parent interview in first grade (hence not included in table 3-11), but participated in the third-grade study (hence included in table 3-16). Overall the unweighted completion rate for third grade is 79 percent for movers and 95 percent for nonmovers, compared with the expected completion rate of 83 and 95 percent. The rate of base year respondents who moved out of their original sample schools is 42 percent (compared with the expected overall moving rate of 47 percent). The achieved sample size shown in table 3-14 is a function of both the completion rate and the mover rate. Even though the actual completion rate for movers is lower than expected, the actual mover rate is also lower than expected. Fewer movers resulted in a larger sample size. Note that in all tables in this chapter a respondent is defined as a child with completed assessment data or completed parent interview data or a child who could not be assessed due to a disability, so that the completion rate calculated here is not the same as the completion rate in chapter 6 of this report or chapter 5 of the *ECLS-K User's Manual for the Third Grade Public-Use Data File and Electronic Code Book* (NCES 2004-001) (Tourangeau, Brick, et al. 2004) which is instrument-specific.

Table 3-16.　Spring-third-grade data collection results by mover status: School year 2001–02

Subgroup[1]	Spring-third grade response status						Movers-sampled						Nonmovers			
	Total[2]	Respond[3]	Not respond	Ineligible	Not sampled	Unweighted completion rate	Respond[3]	Not respond	Ineligible	Percent moved	Percent sampled	Unweighted completion rate	Respond[3]	Not respond	Ineligible	Unweighted completion rate
All	21,357	15,305	1,524	364	4,164	90.9	3,583	931	361	42.3	53.9	79.4	11,722	593	3	95.2
School affiliation																
Public	16,784	12,070	1,236	312	3,166	90.7	2,726	760	311	41.5	54.5	78.2	9,344	476	1	95.2
Private	4,573	3,235	288	52	998	91.8	857	171	50	45.4	51.9	83.4	2,378	117	2	95.3
Catholic	2.356	1,817	115	14	410	94.0	329	62	14	34.6	49.7	84.1	1,488	53	0	96.6
Non-Catholic	2,217	1,418	173	38	588	89.1	528	109	36	56.9	53.4	82.9	890	64	2	93.3
Type of locale																
Rural	2,478	2,005	162	20	291	92.5	304	102	19	28.9	59.4	74.9	1,701	60	1	96.6
Non-rural	18,879	13,300	1,362	344	3,873	90.7	3,279	829	342	44.1	53.5	79.8	10,021	533	2	94.9
Race/ethnicity 1[4]																
Hispanic	3,777	2,752	274	145	606	90.9	756	193	144	45.0	64.3	79.7	1,996	81	1	96.1
Black	3,229	2,007	267	81	874	88.3	604	186	81	54.0	49.9	76.5	1,403	81	0	94.5
Asian/Pacific Islander	1,579	1,174	139	37	229	89.4	298	92	37	41.5	65.1	76.4	876	47	0	94.9
Other	12,772	9,372	844	101	2,455	91.7	1,925	460	99	38.7	50.3	80.7	7,447	384	2	95.1
Race/ethnicity 2[4]																
Hispanic	3,698	2,691	271	144	592	90.9	739	191	143	45.0	64.4	79.5	1,952	80	1	96.1
Black	3,229	2,007	267	81	874	88.3	604	186	81	54.0	49.9	76.5	1,403	81	0	94.5
Asian/Pacific Islander	1,867	1,404	151	40	272	90.3	351	102	40	41.0	64.4	77.5	1,053	49	0	95.6
Other	12,563	9,203	835	99	2,426	91.7	1,889	452	97	38.7	50.1	80.7	7,314	383	2	95.0
Language minority																
Non-English	5,372	4,041	412	203	716	90.7	1,162	291	203	44.2	69.8	80.0	2,879	121	0	96.0
English	15,985	11,264	1,112	161	3,448	91.0	2,421	640	158	41.7	48.3	79.1	8,843	472	3	94.9

[1] Characteristics of the schools (school affiliation and type of locale) are from the original sample schools.

[2] The total number of children excludes 68 children who responded in fall-kindergarten and became ineligible in spring-kindergarten, and includes 165 children sampled in first grade who were eligible.

[3] A respondent is a child with assessment data or parent interview data, or a child who could not be assessed due to a disability.

[4] Race/ethnicity 1 was the strict definition of API (RACE=5-Asian or 6-Native Hawaiian or other Pacific Islander), while race/ethnicity 2 was the broader definition (RACE=5-Asian or 6-Native Hawaiian or other Pacific Islander or WKASIAN=1-Child is Asian or WKPACISL=1-Child is Native Hawaiian or other Pacific Islander). Variables are from the ECLS-K base year data file.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2002.

3.6 **Spring-Fifth Grade Sample**

For the fifth-grade data collection, different options for subsampling movers were explored to reduce the sample size in order to contain the cost of data collection. The original plan would use the same procedures for third grade to subsample and follow 50 percent of children who moved in fifth grade or earlier and retain all language minority children who had not been subsampled out before fifth grade. Three alternative plans were developed to decrease the sample sizes by reducing the subsampling rates. One of the alternatives was adopted as the final plan. The final subsampling rates maximize the amount of longitudinal data available for key analytic groups.

A new feature of the fifth-grade sample is the subsampling of children for the administration of the mathematics or science questionnaires. While all children retained for the fifth-grade data collection had child-level questionnaires filled out by their reading teachers, half were subsampled to have child-level questionnaires filled out by their mathematics teachers and the other half had child-level questionnaires filled out by their science teachers. This affects only the computation of the combined child-parent-teacher weights as discussed in section 7.2.4.

3.6.1 **Options for Subsampling Movers**

All sampling options considered for fifth grade were based on the beginning sample of 21,357 children: 21,192 base year respondents who were still eligible after the base year, and 165 children sampled in first grade as part of the freshening procedure (see section 3.4.2). The first decision regarding the fifth-grade sample was to exclude the following groups of children from the fifth-grade survey, irrespective of other subsampling procedures that might be implemented: (1) children who had become ineligible in an earlier round (because they had died or moved out of the country); (2) children who were subsampled out in previous rounds because they had moved out of the original schools and were not subsampled to be followed; (3) children whose parents emphatically refused to cooperate (hard refusals) in any of the data collection rounds since spring-kindergarten; and (4) children eligible for the third-grade sample for whom there are neither first-grade nor third-grade data (i.e., no direct assessment data and no parent interview data from first grade and third grade). The children who met any of these conditions were not eligible for sampling in the fifth grade for any of the sampling options considered. In total, 5,214 children were excluded from the fifth-grade survey; they are distributed as shown in table 3-17.

Table 3-17. Number of children eligible after the base year but excluded from the fifth-grade data
collection: School year 2003–04

Characteristics[1]	Beginning sample size after the base year	Total number of children excluded	Mover subsampled out in first or third grade[2]	Ineligible in first or third grade	Hard refusal	Eligible for third grade sample, with no first or third grade data
Total	21,357	5,214	4,117	122	571	404
School affiliation						
Public	16,771	4,000	3,129	98	433	340
Private	4,570	1,198	988	23	132	55
Catholic	2,354	485	405	7	52	21
Non-Catholic	2,216	713	583	16	80	34
Unknown	16	16	0	1	6	9
Type of locale						
Rural	2,480	381	288	5	51	37
Non-rural	18,733	4,824	3,829	113	518	364
Unknown	144	9	0	4	2	3
Race/ethnicity						
Hispanic	3,782	811	584	47	82	98
Black	3,229	1,061	867	12	88	94
Asian/Pacific Islander	1,580	313	225	20	46	22
Other	12,678	2,995	2,430	41	343	181
Unknown	88	34	11	2	12	9
Language minority						
Not English	5,372	1,000	684	84	124	108
English	15,985	4,214	3,433	38	447	296

[1] Characteristics are from the most recent data available for the child (e.g., if a child was not subsampled in third grade and had data from first grade, then the characteristics of the child come from first grade).
[2] These are statistical movers, not operation movers as discussed in chapter 4.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

In the original plan, 50 percent of children who moved in fifth grade or earlier would be subsampled to be followed, and all language minority children who had not been subsampled out before fifth grade would be retained. This plan protects the language minority sample, as had been done in third grade.

In the first alternative plan, language minority movers would be subsampled for followup depending on the amount of data that they had from previous rounds. If they had both spring-first grade and spring-third grade data, then 50 percent would be subsampled and followed if they had only one data point after the base year, 25 percent would be subsampled and followed. Similarly, 25 percent of other movers would be subsampled and followed if they had both first- and third-grade data, and 12.5 percent would be subsampled and followed if they had only one data point besides base year data.

In the second alternative plan, only children with complete longitudinal data would be fielded, i.e., base year respondents who had first-grade and third-grade data. Of these children, 50 percent of language minority children who moved in fifth grade (or earlier) would be subsampled for followup, and 25 percent of other movers (in fifth grade or earlier) would be subsampled for followup. Children who were sampled in first grade through the sample freshening procedure would not be retained in the sample.

The third and last option, adopted for the fifth-grade study, called for using rates that are approximately equal to those given below for subsampling base year respondents who are movers in fifth grade (or earlier):

- 33 percent for non-language minority (LM) movers with full longitudinal data;

- 25 percent for non-LM movers with third-grade but not first-grade data;

- 15 percent for non-LM movers with first-grade but not third-grade data;

- 75 percent for LM movers with full longitudinal data;

- 50 percent for LM movers with third-grade but not first-grade data; and

- 25 percent for LM movers with first-grade but not third-grade data.

For subsampling freshened children (i.e., children sampled in first grade) who are movers in fifth grade (or earlier) the rates proposed were the following:

- 33 percent for non-LM movers with full longitudinal data;

- 15 percent for non-LM movers with third-grade but not first-grade data;

- 15 percent for non-LM movers with first-grade but not third-grade data;

- 75 percent for LM movers with full longitudinal data;

- 25 percent for LM movers with third-grade but not first-grade data; and

- 25 percent for LM movers with first-grade but not third-grade data.

Table 3-18 shows the expected fifth-grade sample size separately for language minority children and by mover status for the different subsampling plans, the estimated design effect due to the subsampling of base year children, the effective sample size, and the expected number of children with a

completed fifth-grade assessment, assuming that 90 percent of children would be assessed successfully. The completion rate of 90 percent took into account children who had moved and whether they would be located. According to the third-grade collection, the unweighted completion rate for child assessment was 95 percent for nonmovers and 63 percent for movers, with an overall unweighted completion rate of 86 percent. Since fewer movers would be included in fifth grade compared with third grade, the assumption was for a slightly higher completion rate for the child assessment.

Table 3-18.   ECLS-K options for subsampling movers for fifth grade: School year 2003–04

Characteristic	Sample size	Design effect	Effective sample size	Expected number of children assessed[1]
Original plan				
Total	14,135	1.13	12,509	12,722
Non-language minority: Nonmover	4,907	—	4,342	4,416
Non-language minority: Mover	4,856	—	4,297	4,371
Language minority: Nonmover	1,595	—	1,412	1,436
Language minority: Mover	2,777	—	2,458	2,499
Option 1				
Total	11,336	1.30	8,720	10,202
Non-language minority: Nonmover	4,908	—	3,775	4,417
Non-language minority: Mover	3,219	—	2,476	2,897
Language minority: Nonmover	1,595	—	1,227	1,435
Language minority: Mover	1,614	—	1,242	1,453
Option 2				
Total	10,308	1.26	8,181	9,277
Non-language minority: Nonmover	4,767	—	3,783	4,290
Non-language minority: Mover	3,067	—	2,434	2,760
Language minority: Nonmover	768	—	610	691
Language minority: Mover	1,706	—	1,354	1,536
Option 3				
Total	12,635	1.24	10,190	11,372
Non-language minority: Nonmover	4,908	—	3,958	4,417
Non-language minority: Mover	3,784	—	3,052	3,406
Language minority: Nonmover	1,595	—	1,286	1,436
Language minority: Mover	2,348	—	1,894	2,113

— Not available.

[1] The expected number of children assessed is computed using an assumed completion rate of 90 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 kindergarten (ECLS-K), spring 2004.

3.6.2 Expected Sample Size

Table 3-19 shows the expected sample sizes of children in fifth grade by subgroups of interest based on the third mover subsampling option adopted for fifth grade. The format of this table is different from table 3-12 for third grade. While the mover subsampling rate for third grade was constant, the subsampling rates vary according to the different groups described earlier. It is also difficult to estimate the number of schools in the fifth-grade sample because schools that were in the sample prior to fifth grade may drop out because of the reduction in the sample size and new schools may enter due to new movers.

Table 3-19. Expected sample size for selected subgroups for fifth grade, by mover status: School year 2003–04

Subgroup[1]	Beginning fifth-grade sample			After subsampling movers			Total responding		
	Total	Movers	Nonmovers	Total	Movers	Nonmovers	Total	Movers	Nonmovers
All children	16,143	4,320	11,823	12,635	6,132	6,503	11,372	5,519	5,852
School affiliation									
Public	12,771	3,340	9,431	10,009	4,821	5,187	9,008	4,339	4,668
Private	3,372	980	2,392	2,627	1,311	1,316	2,364	1,180	1,184
Catholic	1,869	373	1,496	1,434	611	823	1,291	550	741
Non-Catholic	1,503	607	896	1,193	700	493	1,073	630	444
Type of locale									
Rural	2,099	388	1,711	1,558	617	941	1,402	555	847
Non-rural	14,044	3,932	10,112	11,077	5,515	5,562	9,969	4,964	5,005
Race/ethnicity									
Hispanic	2,971	958	2,013	2,579	1,472	1,107	2,321	1,325	996
Black	2,168	757	1,411	1,658	881	776	1,492	793	698
Asian/Pacific Islander	1,267	382	885	1,104	618	487	994	556	438
Other	9,737	2,223	7,514	7,294	3,161	4,133	6,564	2,845	3,719
Language minority									
Non-English	4,372	1,472	2,900	3,943	2,348	1,595	3,549	2,113	1,436
English	11,771	2,848	8,923	8,692	3,785	4,908	7,823	3,406	4,417

[1] Characteristics of the schools (school affiliation and type of locale) are from the original sample schools.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 kindergarten (ECLS-K), spring 2004

3.6.3 Sample Outcome and Precision Requirements

The fifth-grade sample of 16,143 excludes the base year respondents identified in section 3.6.1 who were not subject to data collection in the fifth grade, i.e., children who had become ineligible in

an earlier round (because they had died or moved out of the country); children who were subsampled out in previous rounds because they had moved out of the original schools and were not subsampled to be followed; children whose parents emphatically refused to cooperate (hard refusals) in any of the data collection rounds since spring-kindergarten; and children eligible for the third-grade data collection for whom there are neither first-grade nor third-grade data (i.e., no direct assessment data and no parent interview data from first grade and third grade). As discussed in section 3.1, a sample in fifth grade of about 10,000 children would be adequate to meet the precision requirements overall and for most subgroups. A sample of about 800 to 1,000 children in a subgroup would be achieved for most of the subgroups with an overall sample of 10,000 children and these would approximately meet the precision goals described in section 3.1.

Table 3-20 (count) and table 3-21 (percent) show the characteristics of the achieved fifth-grade sample compared with the expected fifth-grade sample. The numbers of fifth-grade respondents for all of the identified subgroups of interest exceed 1,000, except for children in non-Catholic private schools and API children. For most of the key analytic groups the numbers of respondents are much larger than 1,000. For API children, the number of respondents is 970, which exceeds the minimum target of 800 and is very close to 1,000. The number of respondents in non-Catholic private schools is 957. The sample of 11,820 respondents attended 2,008 public schools and 356 private schools.

Two thirds of the public schools attended by the fifth-grade sample (1,355) are transfer schools, and almost half of the private schools (166) are transfer schools. The large number of transfer schools corresponds to the heavy movement of the ECLS-K children between schools.

Table 3-20.   Characteristics of fifth-grade respondents—number of fifth-graders by subgroup: School year 2003–04

Subgroup[1]	Expected[2]			Achieved		
	Total	Language minority	Not language minority	Total	Language minority	Not language minority
Total	11,372	3,549	7,823	11,820	3,405	8,415
School affiliation						
Public	9,008	2,969	6,039	9,412	2,845	6,567
Private	2,364	580	1,784	2,408	560	1,848
Catholic	1,291	325	966	1,451	330	1,121
Non-Catholic	1,073	255	818	957	230	727
Type of locale						
Rural	1,402	198	1,204	1,659	199	1,460
Non-rural	9,969	3,350	6,619	10,161	3,206	6,955
Race/ethnicity						
Hispanic	2,321	1,894	427	2,244	1,821	423
Black	1,492	108	1,384	1,352	91	1,261
Asian/Pacific Islander	994	836	158	970	799	171
Other	6,564	710	5,854	7,254	694	6,560

[1] Characteristics of the schools (school affiliation and type of locale) are from the original sample schools.
[2] The expected sample size was computed using assumed mover rates, differential subsampling rates, and a 90 percent completion rate.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 3-21 is analogous to table 3-20 but shows the percent distribution instead of counts. The achieved sample is about 4 percent larger than the expected sample, with the language minority sample about 4 percent smaller than the expected sample. As in third grade, language minority children moved at a higher rate (48 percent) than non-language minority children (37 percent) resulting in the larger sample of non-language minority children.

As shown in table 3-21, the agreement between the expected and achieved fifth-grade samples is as seen in third grade. Children in non-Catholic private schools responded at a lower rate than children in Catholic schools, causing the achieved sample size for children in non-Catholic schools to be lower than expected. For all other characteristics, the difference between expected and achieved sample sizes is less than 1 percent for language minority children and around 3 percent or less for non-language minority children.

Table 3-21.   Characteristics of fifth-grade respondents—percent distribution by subgroup: School year 2003–04

Subgroup[1]	Expected[2]			Achieved		
	Total	Language minority	Not language minority	Total	Language minority	Not language minority
Total	100.0	100.0	100.0	100.0	100.0	100.0
School affiliation						
Public	79.2	83.7	77.2	79.6	83.6	78.0
Private	20.8	16.3	22.8	20.4	16.4	22.0
Catholic	54.6	56.0	54.1	60.3	58.9	60.7
Non-Catholic	45.4	44.0	45.9	39.7	41.1	39.3
Type of locale						
Rural	12.3	5.6	15.4	14.0	5.8	17.3
Non-rural	87.7	94.4	84.6	86.0	94.2	82.7
Race/ethnicity						
Hispanic	20.4	53.4	5.5	19.0	53.5	5.0
Black	13.1	3.0	17.7	11.4	2.7	15.0
Asian/Pacific Islander	8.7	23.6	2.0	8.2	23.5	2.0
Other	57.7	20.0	74.8	61.4	20.4	78.0

[1] Characteristics of the schools (school affiliation and type of locale) are from the original sample schools.
[2] The expected sample size was computed using assumed mover rates, differential subsampling rates, and a 90 percent completion rate.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 3-22 shows the details on the number of sampled students by their response and mover status for subgroups at the end of the fifth grade. Of the 16,143 students, 40 percent were movers and 42 percent of the movers were subsampled for followup in fifth grade. Overall, the unweighted completion rate for fifth grade is 96 percent with 85 percent of movers responding and 99 percent of nonmovers responding. A respondent is defined as a child with completed assessment (or excluded from assessment due to a disability) or completed parent interview data, so that the completion rate here is not the same as the instrument-specific completion rate in chapter 6.

Based on the achieved sample, the sampling and data collection procedures developed in the initial stages and modified throughout the course of the study did produce samples that met or exceeded requirements for the vast majority of key analytic groups. However, the introduction of the more intensive subsampling of children who moved to achieve the desired cost savings did result in some increases in the design effects for the estimates, as was expected. See chapter 4 of the *ECLS-K Combined User's Manual*

for the ECLS-K Fifth-Grade Public-Use Data Files and Electronic Codebook (NCES 2006–032) (Tourangeau et al. forthcoming) for a discussion of design effects.

Table 3-22.   Spring-fifth-grade data collection results by mover status: School year 2003–04

Subgroup[1]	Spring-fifth grade response rates						Movers-sampled						Nonmovers			
	Total[2]	Respond[2]	Not respond	Ineligible	Not sampled	Unweighted completion rate	Respond[3]	Not respond	Ineligible	Percent moved	Percent sampled	Unweighted completion rate	Respond[3]	Not respond	Ineligible	
All	16,143	11,820	519	41	3,763	95.8	2,272	396	41	40.1	41.9	85.2	9,548	123	0	98.7
School affiliation																
Public	12,771	9,412	433	39	2,887	95.6	1,758	332	39	39.3	42.4	84.1	7,654	101	0	98.7
Private	3,372	2,408	86	2	876	96.6	514	64	2	43.2	39.8	88.9	1,894	22	0	98.9
Catholic	1,869	1,451	40	0	378	97.3	234	26	0	34.1	40.8	90.0	1,217	14	0	98.9
Non-Catholic	1,503	957	46	2	498	95.4	280	38	2	54.4	39.1	88.1	677	8	0	98.8
Type of locale																
Rural	2,099	1,659	44	2	394	97.4	157	36	2	28.1	33.1	81.3	1,502	8	0	99.5
Non-rural	14,044	10,161	475	39	3,369	95.5	2,115	360	39	41.9	42.7	85.5	8,046	115	0	98.6
Race/ethnicity 1																
Hispanic	2,971	2,244	136	14	577	94.3	658	127	14	46.3	58.1	83.8	1,586	9	0	99.4
Black	2,168	1,352	69	4	743	95.1	325	58	4	52.1	34.2	84.9	1,027	11	0	98.9
Asian/Pacific Islander	1,267	970	74	10	213	92.9	293	62	10	45.6	63.1	82.5	677	12	0	98.3
Other	9,737	7,254	240	13	2,230	96.8	996	149	13	34.8	34.2	87.0	6,258	91	0	98.6
Language minority																
Non-English	4,372	3,405	242	33	692	93.4	1,140	222	33	47.7	66.8	83.7	2,265	20	0	99.1
English	11,771	8,415	277	8	3,071	96.8	1,132	174	8	37.3	30.0	86.7	7,283	103	0	98.6

[1] Characteristics of the schools (school affiliation and type of locale) are from the original sample schools.
[2] A respondent is a child with assessment data or parent interview data, or a child who could not be assessed due to a disability.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

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4. DATA COLLECTION METHODS

The following sections discuss the data collection procedures in the fifth-grade data collection phase of the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K). Section 4.1 gives an overview of the data collection methods. Detailed information is provided on roles and responsibilities in the study (section 4.2), study training procedures (section 4.3), fall preassessment school contacts (section 4.4), spring-fifth grade data collection (section 4.5), and data collection quality control procedures (section 4.6).

4.1   Overview of Data Collection Methods

The ECLS-K fifth-grade data collection was conducted in the fall and spring of the 2003–04 school year. Fall data collection included contacting sampled schools to schedule appointments to conduct the child assessments in the spring of the school year, verify the parent consent procedures, link children to their teachers, identify children who had withdrawn from the school, and obtain locating information about their new schools. Spring data collection instruments included the administration of direct child assessments and parent interviews and the collection of teacher and school questionnaires, student record abstracts, and facilities checklists. The activities to locate children and gain cooperation of the schools into which they transferred began in the fall and continued during the spring data collection. The content and timeline of the fifth–grade data collection is shown in exhibit 4-1.

The mode of data collection was computer-assisted personal interviewing (CAPI) for the child assessments; telephone and in-person computer-assisted interviewing (CAI) was the mode of data collection for the parent interview; and self-administered questionnaires were used to gather information from teachers, school administrators, and student records. Field staff completed the facilities checklist.

Exhibit 4-1.   Timeline of fifth-grade data collection: School year 2003–04
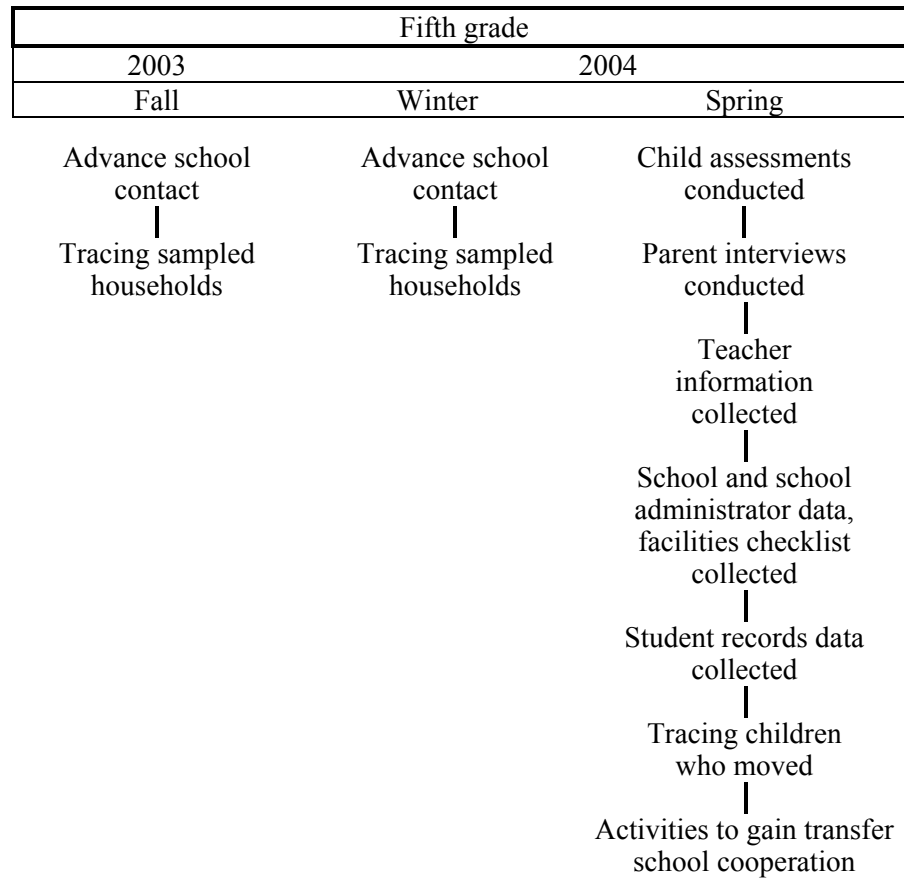
Fifth grade		
2003	2004	
Fall	Winter	Spring

Advance school contact
|
Tracing sampled households

Advance school contact
|
Tracing sampled households

Child assessments conducted
|
Parent interviews conducted
|
Teacher information collected
|
School and school administrator data, facilities checklist collected
|
Student records data collected
|
Tracing children who moved
|
Activities to gain transfer school cooperation

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

4.2   Roles and Responsibilities in the ECLS-K Study

4.2.1   School's Role

During school recruitment, the schools were asked to designate a staff member to be the school coordinator to assist the ECLS-K staff with all school arrangements.

Since the child assessments were administered at the schools, schools needed to provide appropriate space for conducting the assessments.

4.2.2   School Coordinator's Role

A school coordinator was designated by the principal to facilitate the ECLS-K activities in the school. The school coordinator played a significant role in the smooth functioning and successful completion of the ECLS-K child assessments in each cooperating school. He or she knew the *personality* of the school, the most opportune times to schedule the assessments, the available locations where the one-on-one assessments could be conducted, and the best way to notify students, their parents, and their teachers of the assessment.

The coordinator was asked to assist the ECLS-K in four ways:

■   Notify selected students, their teachers, and their parents of the study;

■   Arrange for suitable space for the assessment activities;

■   Provide information on sampled children, such as their grade and teachers' names; and

■   Distribute teacher and school questionnaires.

4.2.3   Supervisor's Role

There were a total of 81 supervisors during the fifth-grade data collection who oversaw field staff conducting both the parent interviews and child assessments. The supervisors' responsibilities were as follows:

■   Contact each school assigned to them to

     1.   Arrange for space to conduct the assessment;

     2.   Schedule the spring assessment in original schools;

     3.   Discuss parental contact information and consent procedures;

     4.   Link children to teachers and domains; and

     5.   Identify children who had withdrawn from the school;

■   Follow up and track receipt of parental consent forms, as necessary;

■   Update the Field Management System (FMS) regularly and report to their field manager;

- Transmit updated FMS data to the home office;

- Pick up e-mail regularly; and

- Return all materials at the end of the field period.

4.2.4 Assessor's Role

A team of three to four assessors worked with each supervisor in a work area. The primary responsibilities of the ECLS-K assessors were to conduct the computer-assisted one-on-one child assessments and parent interviews. There were a total of 258 assessors, with 16 having conducted the parent telephone interview only (these 16 assessors are referred to as *interviewers* rather than assessors in the remainder of this chapter). The remaining 242 conducted both the parent interview and the child assessments.

In addition to these responsibilities, some assessors were asked by their supervisor to assist with various other activities that took place in the school. These included, but were not limited to, preparing parental consent forms (if required), collecting teacher questionnaires, and assisting with various other recordkeeping tasks.

4.2.5 Field Manager's Role

Six experienced regional field managers were assigned to oversee the work of the 81 supervisors. The field managers held weekly telephone conference calls with each supervisor assigned to them. If a supervisor had an immediate problem, he or she was encouraged to call the field manager at any time.

Depending on the stage of the field period, the telephone conference calls between supervisors and field managers reviewed those activities that were in the planning stage, in progress, or in the process of being completed. These discussions included the following topics:

- Status of telephone contacts with original and transfer schools;

- Status of assessments scheduled in original schools by work area;

- Status of parent consent and followup in original and transfer schools;

- Status of linking children to teachers;

- Status of children who were withdrawn from the school;

- Any refusal cases;

- Receipt of all school materials; and

- Overall and individual costs in the work area.

Exhibit 4-2 presents the fifth-grade field organization and the number of staff in each position.

Exhibit 4-2.   Fifth-grade field organization
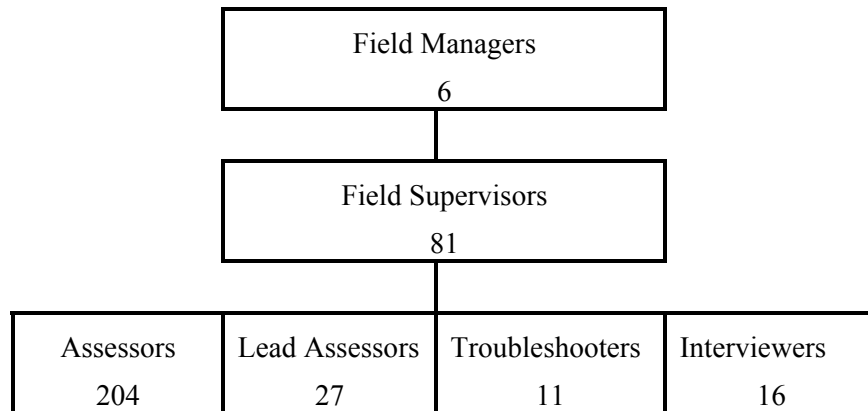
| Field Managers |
| 6 |

| Field Supervisors |
| 81 |

| Assessors | Lead Assessors | Troubleshooters | Interviewers |
| 204 | 27 | 11 | 16 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

4.3   Field Staff Training

Several in-person training sessions were conducted to prepare staff for the fifth-grade data collection. In the fall of 2003, supervisors were trained to contact original schools and recruit transfer schools. In the spring of 2004, three training sessions were held: one to train trainers, one for field supervisors, and one for assessors. All training sessions were conducted using scripted training manuals to ensure that all trainees received the same information. Training sessions consisted of interactive lectures, scripted role plays, interactive exercises, and self-administered exercises. Interactive lectures were lectures with discussion and questions occurring periodically during the lecture. Scripted role plays usually consisted of pairs of trainees each pretending to be, for example, the assessor and the child or the

interviewer and the parent. Such role plays gave trainees a chance to become more familiar with their materials and duties. Interactive exercises were group exercises led by the trainer in which all trainees participated. Self-administered exercises were, as the name suggests, completed by trainees working independently. Because of the complexity of the ECLS-K, trainees were required to become familiar with the functionality of their laptop computers and with the programs installed on them. Trainees were also required to become familiar with the different child assessment materials. See chapter 2 of the *ECLS-K Psychometric Report for the Third Grade* (NCES 2005–062) (Pollack et al. 2005) for a description of the child assessment materials. The following sections discuss the fall and spring trainings.

4.3.1 Advance Contact and Recruitment Training

During the fall 2003, advance contact was made with the schools in order to remind them about the study and to collect information that would be helpful in the spring 2004 national data collection. The advance effort not only reduced the burden on supervisors in the spring but also reacquainted schools with the study's procedures and gave supervisors a chance to encourage the schools' participation. The major fall tasks were to contact schools to set appointments for the child assessments in the spring, to verify the parent consent procedures, to link children to teachers and domains, and to identify children who had withdrawn from the school and obtain locating information about their new schools. Field supervisors were trained for 3 days in September 2003 to contact original sampled schools and transfer schools to set up the data collection in the spring. A total of 39 field supervisors and 2 field managers completed advance contact and recruitment training. Topics included an overview of study activities to date, verifying parent consent procedures, identifying and locating children who moved from the schools they attended in the first grade, identifying the teachers of ECLS-K children and linking them to those children, and exercises on scheduling schools efficiently within a work area.

As in the third-grade training, advance contact and recruitment training was conducted using the automated FMS. The FMS is a database that is used throughout the data collection period to enter information about the sampled children, parents, teachers, and school and to monitor production on all data collection activities. The FMS contains information essential to conducting and monitoring the progress of the data collection. For example, it contains the names and addresses of each school, the principal's name and telephone number, the name and telephone number of the school coordinator, the first and last day of classes, the school hours, and the names of the sampled children in the school. For children, it contains information on their names and their parents' names, whether they have any

accommodations or need to use a hearing aid or glasses, as well as other information. Information of the same sort is also collected about the teachers and parents. For example, the FMS contains the name, address, and telephone number of each parent. For each parent, the name of the sampled child (or children) is also listed. For teachers, the FMS contains their names, schools, and the sampled children in their classrooms. It also indicates whether the teacher was a regular or a special education teacher, and what subject the regular teacher taught and in how many classrooms. To monitor production, the FMS contains case disposition codes and case assignment information. During training presentations, the field supervisors entered information into the FMS, thus acquiring hands-on experience with the FMS and all field procedures prior to beginning data collection. The field supervisors also completed role-play exercises that involved entering information into the FMS.

4.3.2 Spring-Fifth Grade Training

Field supervisors, interviewers, and assessors were trained for the spring-fifth grade data collection in two sessions in February 2004. The first session was trainers' training and certification. The second and largest training involved the training of the supervisors and assessors. Before the February in-person training session, supervisors and assessors completed 8 hours of home study training on the study design, field procedures, and computer keyboard skills. Staff conducting only the parent interviews did not have a pre-session home study to complete.

4.3.2.1 Trainers' Training and Certification

The purpose of trainers' training was to (1) introduce lead and co-trainers to the training materials; (2) evaluate the flow, language, exercises, and time allotment of the training sessions; and (3) certify trainers on the child assessment. Some, but not all, co-trainers and runners (staff who assisted trainees who experienced difficulties with the CAI application and helped with the management and distribution of training materials) were also certified on the child assessment. Experienced trainers with in-depth knowledge of the ECLS-K conducted the trainer training sessions. Not only had these trainers developed the CAI specs, but they had also worked with expert consultants to develop the child assessments and the assessment materials. In addition, they conducted nine assessments on nonsampled children in October 2003 in order to become certified on the assessments of the ECLS-K prior to the launch of the national data collection (see section 4.3.2.2).

Approximately 16 lead trainers, 16 co-trainers, and 16 runners were trained at trainers' training in a single room. As noted earlier, experienced trainers conducted the parent interview and the child assessment training sessions. In addition, a data display person responsible for running the electronic data display and two runners assisted in the training. Trainers' training was conducted for 4 days in January 2004 in Rockville, Maryland. The trainers' training agenda covered many of the same topics that were presented during the assessment and parent interview training for the national data collection, as well as some additional topics on the trainers' tasks and responsibilities. Exhibit 4-3 is the trainers' training agenda. In addition, trainers were certified on the child assessment following the procedures described in section 4.3.2.2. The only difference between trainer certification and field staff certification was that trainers were certified on an entire child assessment and the field staff were certified on approximately half of a child assessment.

Exhibit 4-3.   Spring-fifth grade Trainer Training Agenda: School year 2003–04

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
1	**1/28/2004**					
	9:00-9:30	1	Study Introduction	Interactive Lecture	Lead Trainer	No
	9:30-10:00	2	Parent Interview Introduction	Interactive Lecture	Lead Trainer	Yes
			BREAK			
	10:15-12:15	3	Parent Interactive #1	Interactive Role Play	Lead Trainer	Yes
	12:15-1:30		**LUNCH**			
	1:30-2:30	5	Parent Interact #2 (with Twins)	Interactive Role Play	Co-Trainer	Yes
	2:30-2:45		**BREAK**			
	2:45-3:45	5	Parent Interact #2 (with Twins) (con't)	Interactive Role Play	Co-Trainer	Yes
	3:45-5:00	8	Child Assessment and Certification Overview	Interactive Lecture	Lead Trainer	No
2	**1/29/2004**					
	9:00-10:00	9	Introduction and Self-description Questionnaire	Interactive Lecture	Lead Trainer	Yes
	10:00-10:15	10	Reading—Routing and Low Form	Interactive Lecture	Lead Trainer	Yes

See note at end of exhibit.

Exhibit 4-3.   Spring-fifth grade Trainer Training Agenda: School year 2003–04—Continued

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
	10:15-10:30		**BREAK**			
	10:30-11:00	10	Reading—Routing and Low Form (con't)	Interactive Lecture	Lead Trainer	Yes
	11:00-11:15	11	Reading—Routing and Low Form (practice/exercises)	Individual Practice		Yes
	11:15-12:00	12	Reading—Routing and Middle Form	Interactive Lecture	Co-Trainer	Yes
	12:00-1:00		**LUNCH**			
	1:00-1:15	13	Reading—Routing and Middle Form (practice/exercises)	Individual Practice		Yes
	1:45-2:00	15	Reading—High Form (practice/exercises)	Individual Practice		Yes
	2:00-2:45	16	Math—Routing and Low Form	Interactive Lecture	Lead Trainer	Yes
	2:45-3:00	17	Math—Routing and Low Form (practice/exercises)	Individual Practice		Yes
	3:00-3:15		**BREAK**			
	3:15-4:00	18	Math—Routing and Middle Form	Interactive Lecture	Co-Trainer	Yes
	4:00-4:15	19	Math—Routing and Middle Form (practice/exercises)	Individual Practice		Yes
	4:15-4:45	20	Math—High Form	Interactive Lecture	Lead Trainer	Yes
	4:45-5:00	21	Math—High Form (practice/exercises)	Individual Practice		Yes
3	**1/30/2004**					
	9:00-9:45	22	Science—Routing and Low Form	Interactive Lecture	Lead Trainer	Yes
	9:45-10:00	23	Science—Routing and Low Form (practice/exercises)	Individual Practice	Lead Trainer	Yes
	10:00-10:15		**BREAK**			
	10:15-11:00	24	Science—Routing and Middle Form	Interactive Lecture	Co-Trainer	Yes
	11:00-11:15	25	Science—Routing and Middle Form (practice/exercises)	Individual Practice	Lead Trainer	Yes
	11:15-11:45	26	Science—High Form	Interactive Lecture	Lead Trainer	Yes

See note at end of exhibit.

Exhibit 4-3.   Spring-fifth grade Trainer Training Agenda: School year 2003–04—Continued

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
	11:45-12:00	27	Science—High Form (Practice/exercises)	Individual Practice		Yes
	12:00-1:00		**LUNCH**			
	1:00-1:30	28	Food Consumption Questionnaire	Interactive Lecture	Co-Trainer	Yes
	1:30-2:00	29	Height and Weight Lecture		Co-Trainer	
	2:00-2:30	30	Height and Weight Practice	Individual Practice		Yes
	2:30-3:00	31	Closing Interactive	Interactive Lecture	Lead Trainer	Yes
	3:00-3:15		**BREAK**			
	3:15-4:45	32	Full Child Interactive	Interactive Lecture	Lead Trainer	Yes
	4:45-5:15	33	Maximizing the Child's Performance	Interactive Lecture	Co-Trainer	No

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
4	**1/31/2004**					
	9:00-10:00		Training responsibilities	Discussion		No
	10:00-12:00		Wave 1: Child respondents			No
	12:00-1:00		**LUNCH**			No
	1:00-3:00		Wave 2: Child respondents			No
	3:00-5:00		Wave 3: Child respondents			No

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Field Supervisor Training. Field supervisors had 3 days of training before the assessor training in Los Angeles, California. New supervisors for spring data collection attended the first and second day of training and all supervisors, including those who conducted fall advance school contacts, attended the third day. Field supervisors were also trained to use the FMS, and the field supervisors entered information into the FMS during training presentations. Eighty-one field supervisors completed training. The topics covered in the field supervisor training session included reviewing materials from the fall school contact and recruitment, role playing to practice contacting school coordinators; identifying and locating children who moved from their third-grade schools, identifying the regular and special education teachers of ECLS-K children and linking them to those children and domains, distributing and following up on teacher and school administrator questionnaires, completing the facilities checklist, and conducting quality control observations. Exhibit 4-4 presents the field supervisor training agenda.

Exhibit 4-4.   Spring-fifth grade field supervisor training agenda: School year 2003–04

ECLS-K Round 5 Training				
National Supervisor Training				
Day	Time	Session #	Topic	Type of session
1	2/13/05			
	8:30-9:00	1	Study Overview	Interactive Lecture
	9:00-9:45	2	School Contacts and Materials	Interactive Lecture
	9:45-10:15	3	Advance School Contact Activities	Interactive Lecture
	10:15-10:30		**BREAK**	
	10:30-12:00	4	Call to the School Coordinator	Interactive Lecture
	12:00-1:00		**LUNCH**	
	1:00-1:45	5	School Coordinator Exercises	Interactive Exercises
	1:45-2:30	6	School Coordinator Role Plays	Dyad Role Plays
	2:30-3:15	7	Additional Preassessment Activities	Interactive Lecture
	3:15-3:30		**BREAK**	
	3:30-4:30	8	Identifying Transfer Children	Interactive Lecture
	4:30-5:30	9	Identifying Transfer Children' Exercises	Interactive Exercises
2	2/14/04			
	8:30-9:30	10	Assessment Day Responsibilities	Interactive Lecture
	9:30-10:30	11	School/Teacher Questionnaires	Interactive Lecture
	10:30-10:45		**BREAK**	
	10:45-11:15	12	School/Teacher Questionnaires Exercises	Interactive Exercises
	11:15-12:00	13	Strategies for Obtaining Completed School/Teacher Questionnaires	Interactive Lecture
	12:00-1:00		**LUNCH**	
	1:00-1:45	14	Strategies for Obtaining Completed School/Teacher Questionnaires Role Plays	Dyad Role Plays
	1:45-3:30	15	Refielding Transfer Children	Interactive Lecture
	3:30-3:45		**BREAK**	
	3:45-4:30	16	Refielding Transfer Children' Exercises	Interactive Exercises
	4:30-5:30	17	Solo Practice on the FMS	Self-administered Exercises

See note at end of exhibit.

Exhibit 4-4.   Spring-fifth grade field supervisor training agenda: School year 2003–04—Continued

National Supervisor Training				
Day	**Time**	**Session #**	**Topic**	**Type of session**
3	**2/15/04**			
	8:30-9:30	18	Case Management	Interactive Lecture
	9:30-10:30	19	Parent Interview Field Issues	Interactive Lecture
	10:30-10:45		BREAK	
	10:45-11:15	20	Refusal Conversion Workshop	Interactive Lecture
	11:15-12:00	21	Refusal Conversion Role Plays	Dyad Role Plays
	12:00-1:00		LUNCH	
	1:00-1:45	22	Quality Control	Interactive Lecture
	1:45-2:30	23	Quality Control Exercises	Interactive Exercises
	2:30-3:00	24	Assigning Disposition Codes	Interactive Lecture
	3:00-3:15		BREAK	
	3:15-4:00	25	Assigning Disposition Codes Exercises	Interactive Exercises
	4:00-5:30	26	Administrative Issues	Interactive Lecture

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Assessor Training. The assessor training sessions were conducted in Los Angeles, California. Assessor training lasted for 5 days; field supervisors were also trained to perform all assessor activities; bilingual assessors were trained for half a day to conduct the parent interview in Spanish. Two hundred forty-two assessors, 16 parent interviewers, and 81 field supervisors completed training. Assessor training included an overview of study activities to date, interactive lectures on the direct child assessments and the parent interview, role-play scripts to practice parent interviews and direct child assessments, direct child assessment precertification exercises on each form of the direct child domain assessments, techniques for parent refusal avoidance, and strategies for building rapport with children. A major goal of the assessor training was to train field staff in the proper procedures to conduct the direct child assessments. The sessions provided trainees with practical experience with all the direct child assessment materials and procedures and the CAI programs before data collection. Trainees practiced entering information into the CAI system on laptop computers during training sessions on conducting the direct child assessments and parent interview role-play scripts. Exhibit 4-5 presents the assessor training agenda.

Exhibit 4-5.   Spring-fifth grade assessor training: School year 2003–04

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
1	**2/17/2004**					
	8:30-9:00	1	Study Introduction	Interactive Lecture	Lead Trainer	No
	9:00-9:30	2	Parent Interview Introduction	Interactive Lecture	Lead Trainer	Yes
	9:30-11:45	3	Parent Interactive #1	Interactive Role Play	Lead Trainer	Yes
	10:00-10:15		**BREAK**			
	11:45-1:00		**LUNCH** (includes Welcome)			
	1:00-2:00	4	Parent Dyad #1	Dyad Role Play	Lead Trainer	Yes
	2:00-3:00	5	Parent Interact #2 (with Twins)	Interactive Role Play	Co-Trainer	Yes
	3:00-3:15		**BREAK**			
	3:15-5:30	6	Parent Dyad #2	Dyad Role Plays	Lead Trainer	Yes

See note at end of exhibit.

Exhibit 4-5.   Spring-fifth grade assessor training: School year 2003–04—Continued

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
2	**2/18/2004**					
	8:30-9:45	7	Final evaluation role play	Dyad Role Plays	Lead Trainer	Yes
	9:45-10:00		**BREAK**		Lead Trainer	
	10:00-11:15	8	Child Assessment and Certification Overview	Interactive Lecture	Lead Trainer	No
	11:15-12:15	9	Introduction and Self-description Questionnaire	Interactive Lecture	Lead Trainer	Yes
	12:15-1:15		**LUNCH**			
	1:15-2:00	10	Reading—Routing and Low Form	Interactive Lecture	Lead Trainer	Yes
	2:00-2:45	11	Reading—Routing and Low Form (practice/exercises)	Individual Practice		Yes
	2:45-3:30	12	Reading—Routing and Middle Form	Interactive Lecture	Co-Trainer	Yes
	3:00-3:15		**BREAK**			
	3:30-4:15	13	Reading—Routing and Middle Form (practice/exercises)	Individual Practice		Yes
	4:15-4:45	14	Reading—High Form	Interactive Lecture	Lead Trainer	Yes
	4:45-5:30	15	Reading—High Form (practice/exercises)	Individual Practice		Yes

See note at end of exhibit.

Exhibit 4-5.   Spring-fifth grade assessor training: School year 2003–04—Continued

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
3	**2/19/2004**					
	8:30-9:15	16	Math—Routing and Low Form	Interactive Lecture	Lead Trainer	Yes
	9:15-10:00	17	Math—Routing and Low Form (practice/exercises)	Individual Practice		Yes
	10:00-10:15		**BREAK**			
	10:15-11:00	18	Math—Routing and Middle Form	Interactive Lecture	Co-Trainer	Yes
	11:00-11:45	19	Math—Routing and Middle Form (practice/exercises)	Individual Practice		Yes
	11:45-12:15	20	Math—High Form	Interactive Lecture	Lead Trainer	Yes
	12:15-1:15		**LUNCH**			
	1:15-2:30	21	Math—High Form (practice/exercises)	Individual Practice		Yes
	2:30-3:15	22	Science—Routing and Low Form	Interactive Lecture	Lead Trainer	Yes
	3:15-3:30		**BREAK**			
	3:30-4:15	23	Science—Routing and Low Form (practice/exercises)	Individual Practice	Lead Trainer	Yes
	4:15-4:45	24	Science—Routing and Middle Form	Interactive Lecture	Co-Trainer	Yes
	4:45-5:30	25	Science—Routing and Middle Form (practice/exercises)	Individual Practice	Lead Trainer	Yes

See note at end of exhibit.

Exhibit 4-5.   Spring-fifth grade assessor training: School year 2003–04—Continued

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
4	**2/20/2004**					
	8:30-9:00	26	Science—High Form	Interactive Lecture	Lead Trainer	Yes
	9:00-9:45	27	Science—High Form (Practice/exercises)	Individual Practice		Yes
	9:45-10:15	28	Food Consumption Questionnaire	Interactive Lecture	Co-Trainer	Yes
	10:15-10:30		**BREAK**			
	10:30-11:00	29	Height and Weight Lecture		Co-Trainer	
	11:00-11:30		Height and Weight Practice	Individual Practice		Yes
	11:30-12:15	31	Closing Interactive	Interactive Lecture	Lead Trainer	Yes
	12:15-1:15		**LUNCH**			
	1:15-3:00	32	Full Child Interactive	Interactive Lecture	Lead Trainer	Yes
	3:00-3:15		**BREAK**			
	3:15-3:45	33	Maximizing the Child's Performance	Interactive Lecture	Co-Trainer	No
	3:45-5:30	34/35	Full Child Role Plays 1 & 2	Dyad Role Plays		Yes

See note at end of exhibit.

Exhibit 4-5.   Spring-fifth grade assessor training: School year 2003–04—Continued

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
5	**2/21/2004**					
	8:30-8:45	36	Transmission	Interactive Lecture	Lead Trainer	Yes
	8:45-9:45	37	Full Child Practice	Individual Practice		Yes
	9:45-10:00		**BREAK**			
	10:00-11:15	W1	Wave 1 Live Respondents	Observation		Yes
			CAPILAB/Review Assignments	Workshop		
	11:30-12:45	W2	Wave 2 Live Respondents	Observation		Yes
			CAPILAB/Review Assignments	Workshop		
			Live Assessment Debriefing	Discussion		
	11:30-2:30		**LUNCH**			
	1:00-2:15	W3	Wave 3 Live Respondents	Observation		Yes
			CAPILAB/Review Assignments	Workshop		
			Live Assessment Debriefing	Discussion		
	2:30-3:45	W4	Wave 4 Live Respondents	Observation		Yes
			CAPILAB/Review Assignments	Workshop		
			Live Assessment Debriefing	Discussion		

See note at end of exhibit.

Exhibit 4-5.   Spring-fifth grade assessor training: School year 2003–04—Continued

Day	Time	Session #	Topic	Type of session	Trainer	On Computer?
6	2/22/2004		SPANISH TRAINING			
	8:30-9:30	38	Gaining Cooperation	Interactive Role Play	Lead Trainer	No
	9:30-11:00	39	Parent Interactive #1	Interactive Role Play	Lead Trainer	No
	10:15-10:30		**BREAK**			
	11:00-12:00	40	Parent Dyad #1	Dyad Role Play		No
	12:00-1:00		**LUNCH**			
	1:00-2:00	40	Parent Dyad #2	Dyad Role Play	Lead Trainer	No

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

4.3.2.2 Certification of the Child Assessors

Assessors and field supervisors conducted child assessments. Training to administer the assessment battery included exercises that took into account the different ways children may answer questions. Ambiguous answers were included in both training interactives and role plays to provide practice in coding a variety of responses. Particular attention was paid to the question-by-question specifications (QxQs) for constructed response/open-ended questions so that a clear understanding of coding guidelines was established. These guidelines were reviewed frequently during training so that trainees were prepared for answers that were not phrased exactly as found in the scoring rubrics.

Training on the specific subdomains was implemented in four parts. The first two parts involved precertification activities and the second two parts involved certification activities. The precertification activities involved an interactive lecture in which the trainer reviewed the specific items within the subdomain (i.e., reading, mathematics, and science test forms) using the QxQs and a standardized training script and individual practice, which addressed both item administration skills and accurate coding of responses. The certification activities involved written certification exercises and a live certification session during which each trainee conducted a portion of the assessment with an actual child respondent.

The first part of the precertification training for each subdomain was an interactive lecture using the QxQs, which highlighted the constructed response/open-ended assessment items. Although conceivably children could produce a variety of answers for any item, there are only 54 questions (25 percent of the items) in the entire assessment that were open-ended items and would be expected to have the most variation. A constructed response/open-ended question is a short answer question that is scored against a specific criterion or a scoring rubric (scoring guide). These types of questions require the assessor to interpret and use multiple criteria in evaluating the responses. The assessor compared a child's response to a scoring rubric in order to determine if the child's response was correct or incorrect. Most of the open-ended assessment items were in the reading and science domains.

The second part of the precertification training involved independent review and individual practice in administering the assessment domain. Once an interactive lecture was completed, the trainees practiced administering the subdomain that had just been presented. The practice was not scripted. However, trainees were instructed to concentrate on practicing item administration skills, such as reading verbatim from the laptop computer screen and gesturing. Trainers observed trainees during the individual

practice, recorded the results of the individual practice in the Trainee Evaluation Form and gave each trainee specific feedback on performance. The trainer reviewed the item administration skills with the trainee and provided additional instruction to trainees requiring additional practice.

The third part of the training on each subdomain involved written certification exercises. These exercises concentrated on the open-ended questions and were designed to evaluate the trainees' ability to accurately select the appropriate response codes. Each exercise presented a constructed response/open-ended question with a variety of responses (some from the scoring rubric as well as some variations on those), and the assessor was required to code each response as either correct or incorrect. Training staff scored these exercises and feedback was given to the trainee on coding accuracy. Most trainees passed the written exercises on their first attempt. Less than a quarter of the trainees (77 trainees or 24 percent) did not pass at least one element of the reading certification exercises on the first attempt. The mathematics and science certification exercises were considerably easier for trainees; only two trainees were required to repeat any mathematics exercise and 55 trainees (17 percent) were required to repeat the science yellow certification exercise. This variability was due to the complexity of the fifth-grade reading scoring rubrics and the unfamiliarity of the exercises themselves (reading exercises were distributed first, with mathematics and science exercises on later days). The trainees who did not pass the written certification exercises completed specified remedial training steps prescribed by training staff. All of the trainees who had to re-take the exercises after the remedial evening session achieved a passing score. No field staff were released because of failure on the certification exercises.

Training staff implemented a variety of remedial training steps for individual trainees and trainees collectively. The QxQs and interactive lectures were reviewed as necessary and the trainee(s) practiced the subdomain test again. The help laboratory was made available after the daily training session to provide additional instruction and help to trainees before the live portion of the child assessment certification.

The culmination of the child assessments training was administering the cognitive assessment battery to children. This allowed the trainees to experience what it is like in the field and to put into practice all their new skills. Training staff who were already certified on the assessment observed trainees as they administered parts (e.g., a routing test and a level test) of the assessment to fifth grade-aged children. Feedback on trainee performance was given using the Assessment Certification Form. Supervisors and assessors were certified on the child assessment by administering approximately half of a cognitive assessment to a child while being observed by certified evaluators. As evaluators observed the

assessment, they completed the appropriate sections of the Assessment Certification Form. This form had both the trainee and the evaluator's names recorded on the cover as well as the date the evaluation was conducted.

The Assessment Certification Form had two sections: section 1 (exhibit 4-6) rated the trainee on key skill areas, such as building rapport, using neutral praise, responding to behaviors presented by the child, appropriate pacing, and avoiding coaching. The evaluator marked each skill area that the trainee did not demonstrate appropriately.

Exhibit 4-6. Section 1 of the Assessment Certification Form: School year 2003–04

Evaluator: As the assessment is administered, record whether or not the assessor successfully performed the following behaviors. Check "No" if the assessor makes 3 or 4 errors and needs to make improvements.

SECTION 1: Rapport building and working with the child

Q:	Did the assessor...	No
1.	Establish rapport with the child?	
2.	Use appropriate response to DK responses from the child?	
3.	Use neutral praise?	
4.	Respond to behaviors presented by child?	
5.	Avoid coaching the child?	
6.	Appropriately pace the assessment?	

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Section 2 listed specific questions from each routing and subdomain form. The instructions for completing section 2 are shown in exhibit 4-7. For each of the listed questions observed, the evaluator recorded both the child's response and noted if the trainee did not demonstrate the specified required administration skills for that question. The required administration skills included reading questions verbatim, using appropriate probes, and using appropriate hand motions (gesturing). For each question on which the evaluator observed that the trainee did not demonstrate the required administration skill(s), he or she checked a box, indicating which skill was not performed.

Exhibit 4-7. Instructions for Section 2 of the Assessment Certification Form: School year 2003–04

SECTION 2: Specific Assessment Activities

Supervisor/Evaluator: Code the items as the assessor administers the assessment.

Code the child's response as the item is administered.

If the item requires probing, check the box if the assessor **does not** use the appropriate probe.

Check the box in the "Verbatim" column if the assessor **does not** read the item exactly as worded on the screen.

Check the box in the "Gesturing" column if the assessor **does not** use appropriate hand motions.

For each validation code item, check the box in the "Validation" column if the response coded by the assessor **is not** what you have coded.

As mentioned earlier, during the practice child assessment, the evaluator simultaneously coded the child's response to the open-ended assessment items listed in the Assessment Certification Form. These open-ended items were flagged in the CAI program for quality control review and a screen showing how the trainee coded each of those answers to the questions was accessed at the end of the assessment for review with the evaluator as shown in exhibit 4-8.

Exhibit 4-8.   Quality review screen: School year 2003–04
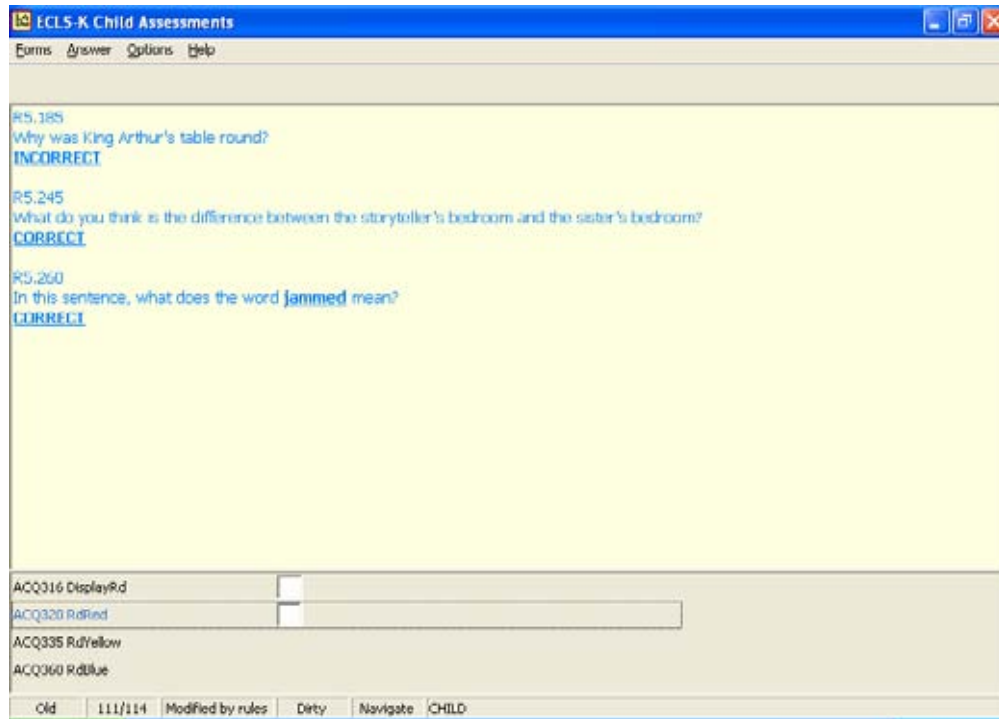
ECLS-K Child Assessments

Forms Answer Options Help

R5.185
Why was King Arthur's table round?
INCORRECT

R5.245
What do you think is the difference between the storyteller's bedroom and the sister's bedroom?
CORRECT

R5.260
In this sentence, what does the word jammed mean?
CORRECT

ACQ316 DisplayRd
ACQ320 RdRed
ACQ335 RdYellow
ACQ360 RdBlue

Old   111/114   Modified by rules   Dirty   Navigate   CHILD

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Exhibit 4-9 presents an example of a question from the Assessment Certification Form, which required the evaluator to evaluate the required assessment administration skills: reading verbatim, using appropriate gesturing, using the appropriate probe, and accurately coding the child's response to this open-ended question. The evaluator checked the boxes only if the assessor *did not* demonstrate the correct behavior. For all questions observed by the evaluator and listed in the Assessment Certification Form, the evaluator recorded if the assessor did not read verbatim or gesture appropriately. Evaluators only marked a box when the assessor did not use the appropriate probe for those questions that displayed probes (a box labeled "Assessor Used Inappropriate Probe?" in the Assessment Certification Form). Also, the evaluators only marked the box if their response code did not match the assessors' for open-ended questions (a box labeled "Validation Code Did Not Match" was presented in the Assessment Certification Form).

Exhibit 4-9. Sample question from Assessment Certification Form: School year 2003–04

	DID NOT READ QUESTION VERBATIM	GESTURED INAPPRO-PRIATELY	VALIDATION CODE DID NOT MATCH

R5.245 What do you think is the difference between the storyteller's bedroom and the sister's bedroom?**
 	
IF STUDENT SAYS, " A mess" OR "A lot of junk", PROMPT: "How is it **different**?"
 	
CORRECT 1
    STORY TELLER'S BEDROOM IS:
      (BIGGER MESS/MORE
        MESS/MESSIER)
      (MORE JUNK/JUNKIER)
      (IS A MORE DISGUSTING SPOT)
      CORRECT ANSWER MUST INVOLVE
        A COMPARISON
INCORRECT... 2
    (STORY TELLER'S BEDROOM IS
      CLEAN/AS MESSY AS SISTER'S BEDROOM)
    DETAILS ABOUT THE SISTER'S
      BEDROOM
      EXAMPLES:
        (PIZZA UNDER THE DESK)
        (SOCKS ON THE LIGHT)
        (MESS/ALSO A MESS)
        (JUNK/ A LOT OF JUNK)
REFUSED 777
DON'T KNOW 999
 	
ASSESSOR USED INAPPROPRIATE PROBE? ☐
	☐	☐	☐

At the end of the "live" child assessment, after the child had been escorted from the room, the evaluator and the trainee reviewed each trainee's overall performance on the half of the cognitive assessment that he or she conducted. After discussing the ratings in section 1, the trainee accessed the quality control screen. The trainee and evaluator reviewed their codes for each open-ended question asked in section 2 of the Assessment Certification Form.

The evaluator then scored the certification assessment using the scoring form shown in exhibit 4-10. The evaluator first counted the number of boxes checked in section 1: Rapport Building of the Assessment Certification Form and recorded that number in the appropriate row of Form A of the

Certification Scoring Form. The evaluator then counted the number of check marks for each section of the assessment that was observed and recorded those numbers in the appropriate boxes of Form A. Exhibit 4-11 presents an example of a completed Form A. In this example, the evaluator observed one trainee who administered Reading Routing, Reading Yellow and Math Routing. The evaluator recorded zero (0) check marks for section I, zero (0) check marks for Reading Routing, one (1) check mark for Reading Yellow, and zero (0) check marks for Math Routing. The total check marks recorded was one (1).

The evaluator then calculated the number of possible points for the sections of the assessment observed using the Total Possible Points Chart displayed in exhibit 4-12. This chart was necessary for the assessment certification because each trainee only conducted half of the cognitive assessment with a child respondent; this chart helped the evaluator use the correct denominator for calculating the score. For each section of the assessment observed, the evaluator circled the last question recorded in the Assessment Certification Form and wrote the number of possible points in the appropriate box in the second section of the scoring form (Form B) (see exhibit 4-13). Continuing with the example started earlier, the evaluator observed all of Reading Routing (6 possible points), all of Reading Yellow (21 possible points), and all of Math Routing (8 possible points). In addition, section 1 contributes 6 possible points. Based on these sections of the assessment, the total number of possible points for this trainee is 41.

Finally, the evaluator determined the proportion correct by using the Proportion Correct Chart displayed in exhibit 4-14. Continuing the example, the evaluator found the *column* on the Proportion Correct Chart that displayed the total possible points for the trainee based on the portions of the assessment observed (41) and the *row* on the Proportion Correct Chart that displayed the total check marks recorded for the trainee (1), and recorded the proportion from the corresponding box on the Proportion Correct Chart in the box under Step 6 (exhibit 4-15) on the scoring form (.98). Once the evaluator completed the scoring, the trainee was rated as *Certified*, *Remedial Action*, or *Failed*.

Exhibit 4-10. Certification Scoring Form: School year 2003–04

Certification Scoring

Step 1: Record the number of check marks from *Section 1: Rapport Building* and *Section 2: Specific Assessment Activities* in the appropriate boxes of Form A.

Step 2: Sum each row and record total in *Row Totals* column of Form A.

Step 3: Sum *Row Totals* column (including number of check marks from *Section 1)* and record in *Total check marks* box of Form A.

Form A: Checks Marks Recorded in Sections 1 and 2

Assessment	Routing Form	Red Form	Yellow Form	Blue Form	Row Totals
Reading					
Mathematics					
Science					
Number of check marks from *Section 1: Rapport Building:*					
Total Check Marks:					

Step 4: Using the Total Possible Points Chart, circle the last question in the assessment certification form for each routing and sub-domain that the trainee completed. Put the number to the right of the item in the appropriate box of Form B. For example, the Trainee completed Reading Routing and through item R5.245 of Reading Red, the total number of possible points is 20 (6 for Routing and 14 for Red). Record 6 in the Reading row under *Routing Form* and record 14 under *Red Form* and 20 in the *Row Totals* column of Form B.

Step 5: Sum *Row Totals* column (including *Possible Points for Section 1*) and record in *Total Possible Points* box of Form B.

Form B: Total Possible Points

Assessment	Routing Form	Red Form	Yellow Form	Blue Form	Row Totals
Reading					
Mathematics					
Science					
Possible Points for *Section 1: Rapport Building:*					6
Total Possible Points:					

Step 6: Use Proportion Correct Chart to determine the proportion correct and write that proportion in this box:

Result: If *Proportion correct* is greater than or equal to .85, Assessor is Certified.
If *Proportion correct* is between .70 and .85, Assessor requires Remedial Action (Complete Remedial Task Chart below)
If *Proportion correct* is less than .70, Assessor Failed.

See note at end of exhibit.

Exhibit 4-10. Certification Scoring Form: School year 2003–04—Continued

Remedial Task Chart		
Circle the number of the task(s) needing improvement. Discuss remedial action with the assessor.		
TASK	**#**	**REMEDIAL ACTION**
APPROPRIATE PACE	1	PRACTICE/REVIEW JOB AIDS
AVOID COACHING	2	REVIEW THE JOB AIDS
READ VERBATIM	3	PRACTICE READING FROM THE SCREEN
GESTURING APPROPRIATELY	4	PRACTICE GESTURING
USE APPROPRIATE PROBES	5	REVIEW THE JOB AIDS/Q-BY-Qs
VALIDATION CODE DID NOT MATCH	6	REVIEW THE Q-BY-Qs

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Exhibit 4-11. Example of Form A for Trainee 1: School year 2003–04

Form A: Checks Marks Recorded in Sections 1 and 2					
Assessment	Routing Form	Red Form	Yellow Form	Blue Form	Row Totals
Reading	0		1		1
Mathematics	0				0
Science					
Number of check marks from *section 1: Rapport Building:*					0
Total Check Marks:					1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Exhibit 4-12. Total Possible Points Chart: School year 2003–04

Total Possible Points Chart

Reading

Routing		Red		Yellow		Blue	
Item #	Total Points	Item #	Total Points	Item #	Total Points	Item #	Total Points
R5.055	3	R5.185	4	R5.270	4	R5.405	3
R5.060	6	R5.215	7	R5.285	7	R5.415	6
		R5.235	10	R5.305	10	R5.460	8
		R5.245	14	R5.335	12	R5.470	11
		R5.250	17	R5.340	15	R5.480	14
		R5.260	20	R5.365	18	R5.530	17
				R5.375	21	R5.535	20

Mathematics

Routing		Red		Yellow		Blue	
Item #	Total Points	Item #	Total Points	Item #	Total Points	Item #	Total Points
M5.045	3	M5.125	3	M5.185	2	M5.275	4
M5.070	5	M5.135	5	M5.205	6	M5.285	6
M5.085	8	M5.155	7	M5.210	9	M5.325	9
		M5.160	9	M5.235	13	M5.335	12
		M5.170	11	M5.245	15	M5.340	16
				M5.265	18	M5.360	19
						M5.365	23

Science

Routing		Red		Yellow		Blue	
Item #	Total Points	Item #	Total Points	Item #	Total Points	Item #	Total Points
S5.015	3	S5.125	3	S5.205	2	S5.285	4
S5.020	6	S5.140	6	S5.215	5	S5.290	6
S5.040	9	S5.160	8	S5.225	8	S5.295	10
S5.085	11	S5.170	11	S5.230	11	S5.300	12
		S5.180	14	S5.235	13	S5.310	15
				S5.250	15	S5.325	18

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Exhibit 4-13.   Example of Form B: School year 2003–04

Form B: Total Possible Points					
Assessment	Routing Form	Red Form	Yellow Form	Blue Form	Row Totals
Reading	6		21		28
Mathematics	7				7
Science					
Possible Points for *section 1: Rapport Building:*					6
Total Possible Points:					41

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Exhibit 4-14.   Proportion Correct Chart: School year 2003–04

	69	70	72	73	74	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	92	93
1	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
2	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
3	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.97	0.97	0.97	0.97	0.97	0.97	0.97
4	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96	0.96
5	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.95	0.95
6	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.94
7	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
8	0.88	0.89	0.89	0.89	0.89	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
9	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90
10	0.86	0.86	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.89	0.89	0.89	0.89	0.89	0.89
11	0.84	0.84	0.85	0.85	0.85	0.86	0.86	0.86	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88
12	0.83	0.83	0.83	0.84	0.84	0.84	0.84	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86	0.86	0.86	0.86	0.87	0.87	0.87	0.87
13	0.81	0.81	0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84	0.84	0.84	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86
14	0.80	0.80	0.81	0.81	0.81	0.82	0.82	0.82	0.82	0.83	0.83	0.83	0.83	0.83	0.84	0.84	0.84	0.84	0.84	0.84	0.85	0.85
15	0.78	0.79	0.79	0.79	0.80	0.80	0.81	0.81	0.81	0.81	0.81	0.82	0.82	0.82	0.82	0.83	0.83	0.83	0.83	0.83	0.84	0.84
16	0.77	0.77	0.78	0.78	0.78	0.79	0.79	0.79	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.81	0.82	0.82	0.82	0.82	0.83	0.83
17	0.75	0.76	0.76	0.77	0.77	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.80	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.82	0.82
18	0.74	0.74	0.75	0.75	0.76	0.76	0.77	0.77	0.77	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.79	0.80	0.80	0.80	0.80	0.81
19	0.72	0.73	0.74	0.74	0.74	0.75	0.75	0.76	0.76	0.76	0.77	0.77	0.77	0.77	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.80
20	0.71	0.71	0.72	0.73	0.73	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.76	0.76	0.77	0.77	0.77	0.78	0.78	0.78	0.78
21	0.70	0.70	0.71	0.71	0.72	0.72	0.73	0.73	0.73	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.76	0.76	0.77	0.77	0.77
22	0.68	0.69	0.69	0.70	0.70	0.71	0.71	0.72	0.72	0.73	0.73	0.73	0.73	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.76
23	0.67	0.67	0.68	0.68	0.69	0.70	0.70	0.71	0.71	0.71	0.72	0.72	0.72	0.73	0.73	0.73	0.74	0.74	0.74	0.74	0.75	0.75
24	0.65	0.66	0.67	0.67	0.68	0.68	0.69	0.69	0.70	0.70	0.70	0.71	0.71	0.71	0.72	0.72	0.72	0.73	0.73	0.73	0.74	0.74
25	0.64	0.64	0.65	0.66	0.66	0.67	0.68	0.68	0.68	0.69	0.69	0.70	0.70	0.70	0.71	0.71	0.71	0.72	0.72	0.72	0.73	0.73
26	0.62	0.63	0.64	0.64	0.65	0.66	0.66	0.67	0.67	0.68	0.68	0.68	0.69	0.69	0.69	0.70	0.70	0.70	0.71	0.71	0.72	0.72
27	0.61	0.61	0.63	0.63	0.64	0.64	0.65	0.65	0.66	0.66	0.67	0.67	0.67	0.68	0.68	0.69	0.69	0.69	0.70	0.70	0.71	0.71
28	0.59	0.60	0.61	0.62	0.62	0.63	0.64	0.64	0.65	0.65	0.65	0.66	0.66	0.67	0.67	0.67	0.68	0.68	0.69	0.69	0.70	0.70
29	0.58	0.59	0.60	0.60	0.61	0.62	0.62	0.63	0.63	0.64	0.64	0.65	0.65	0.65	0.66	0.66	0.67	0.67	0.67	0.68	0.68	0.69
30	0.57	0.57	0.58	0.59	0.59	0.61	0.61	0.62	0.62	0.63	0.63	0.63	0.64	0.64	0.65	0.65	0.66	0.66	0.66	0.67	0.67	0.68

NOTE: Proportion correct = (Total Possible Points – Number of Check Marks)/Total Possible Points. EXAMPLE: If an assessor received 3 check marks out of a total of 24 possible points, the proportion correct is .88. This Assessor would be certified.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Exhibit 4-15.   Example of Proportion Correct Chart: School year 2003–04

Step 6:	Use Proportion Correct Chart to determine the proportion correct and write that proportion in this box:
	.98

Table 4-1 presents the results of the training certification. There were 242 assessors and 81 field supervisors for a total of 323 trainees who were certified; 16 assessors were only trained to complete parent interviews. Trainees scoring 85 percent or above were certified as qualified to administer the child assessments. Trainees who scored between 70 and 84 percent were required to complete remedial training and have an additional certification conducted before beginning assessments.

Table 4-1.   Results of child assessment certification, fifth grade: School year 2003–04

Trainees	Number	Percent
Total	323	100
Score on certification form		
85 percent or above	320	99.0
70–84 percent	3	1.0
Below 70 percent	0	0

The majority of the trainees (99.0 percent) scored above 85 percent on the certification form, with only 1.0 percent (n=3) scoring between 70 and 84 percent. None of the trainees failed to meet the 70 percent threshold on the Assessment Certification Form. All trainees who needed remedial training were certified qualified to administer the child assessments after they conducted a second assessment on a fifth grade-aged child who was not part of the ECLS-K sample.

The three trainees who required remedial action were assigned remedial training, exercises, and practice assessments to perform on an age-appropriate child in their area. Their supervisor observed the practice assessment and certified them. The scoring form specifies the type of remedial training activities that were assigned based on the type of problems observed by the evaluator (see exhibit 4-16). Once the remedial training activities were completed, the field supervisor or field manager was responsible for conducting an additional certification assessment with the trainee with a fifth grade-aged child not in the ECLS-K sample prior to being able to start work.

Exhibit 4-16.   Certification Scoring Form: School year 2003–04

Remedial Task Chart		
Circle the number of the task(s) needing improvement. Discuss remedial action with the assessor.		
TASK	**#**	**REMEDIAL ACTION**
APPROPRIATE PACE	1	PRACTICE/REVIEW JOB AIDS
AVOID COACHING	2	REVIEW THE JOB AIDS
READ VERBATIM	3	PRACTICE READING FROM THE SCREEN
GESTURING APPROPRIATELY	4	PRACTICE GESTURING
USE APPROPRIATE PROBES	5	REVIEW THE JOB AIDS/Q-BY-Qs
VALIDATION CODE DID NOT MATCH	6	REVIEW THE Q-BY-Qs

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

4.3.2.3   Parent Interview Training and Certification

Training assessors to conduct the parent interview also included interactive lectures and role plays that were designed not only to review the intent of the questions but also to demonstrate the different ways that parents may answer questions. Ambiguous answers were included in both training interactive lectures and role-play scripts to provide practice in probing and handling a variety of responses. Parent interview QxQs were carefully reviewed throughout training so that assessors/interviewers would be prepared for a variety of responses from parents. The culmination of parent interviewer training was a final certification role play designed to test all the protocols and techniques reviewed during training. The final role play was conducted using a scripted parent interview and the final parent role play evaluation form. The final role-play script was designed to test the trainee's understanding of the interview content, proper interviewing techniques, including probing, and accurate response recording in CATI. Trainees were paired up and each completed half of a parent interview as the interviewer. As they conducted the interview as the respondent, trainees completed the evaluation form that consisted of a checklist to evaluate key areas, such as contacting and selecting the respondent, asking the questions verbatim, probing properly, and following the correct question path. Two points were given for each item performed correctly. Trainees had to score at least 30 out of a possible 36 points to pass.

Table 4-2 presents the results of the parent certification.

Table 4-2.   Results of parent interview certification, fifth grade: School year 2003–04

Trainees	Number	Percent
Total	308	100
Score on certification form		
85 percent or above	294	95.5
70–84 percent	14	4.5
Below 70 percent	0	0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

All trainees who expected to conduct parent interviews completed the parent certification procedures. The majority of trainees (95.5 percent or 294 trainees) were successfully certified on the parent interview. Parent certification scores were not reported for sixteen trainees. The 14 trainees who did not pass the parent certification at training worked with their supervisors to improve the areas in which they lacked skills. These staff completed another parent certification role play with their supervisor. All 14 staff were certified on the parent interview after the remedial training.

4.4   Fall Preassessment School Contact

Beginning in September 2003, all participating ECLS-K schools (i.e., schools that participated in previous rounds of data collection) were contacted by telephone to prepare for the spring data collection. When children were identified as having transferred to another school, the child's new school (and district, if necessary) was recruited. As noted in section 4.3.1, the advance contact served several purposes. It reminded schools about the study and reacquainted them with the study's procedures; it provided supervisors the opportunity to persuade the schools to participate; and it allowed the collection of information necessary for the spring 2004 national data collection. There were four primary tasks to be accomplished during the fall contact. These were to schedule appointments to conduct the child assessments in the spring; to verify parent consent procedures; to identify the children's teachers; and to identify children who had withdrawn from the school and obtain locating information about their new schools. The fall contact activities are described below.

4.4.1   Advance Mailings

In September 2003, an advance package was mailed via Federal Express to all participating ECLS-K schools, i.e., schools that participated in third grade, asking them to prepare for the preassessment contact telephone call. The schools were asked to identify a school staff coordinator to serve as a liaison with the study (in original sampled schools, this person was usually the coordinator from the previous rounds of data collection). A package containing study materials was sent to the schools. The package contained the following materials and was customized by school type—original or transfer schools:

Original school advance package:

■   A letter printed on ECLS-K letterhead reminding school staff about the study, describing the fifth-grade data collection, and alerting the school coordinator of the advance contact in the fall;

■   A School Summary Sheet (original schools) —a two-page document providing a brief review of the study to date and the fifth-grade data collection activities;

■   A Study Findings Sheet (original schools)—a summary of findings about children from the previous rounds of data collection; and

■   An ECLS-K Study Children Form and Instructions—a listing of all the sampled children and instructions for completing the form with specific information such as the children's continued attendance at the school, their grade, their teachers' names, classroom numbers, receipt of special education services, and receipt of assessment accommodations/exclusions before the preassessment call.

Transfer schools:

■   A letter printed on ECLS-K letterhead introducing school staff to the study, describing the fifth-grade data collection, and alerting the school coordinator of the advance contact in the fall;

■   A School Summary Sheet (transfer schools)—a two-page document providing a brief overview of the study and the fifth-grade data collection activities;

■   A Study Findings Sheet—a summary of findings about children from the previous rounds of data collection; and

■   An ECLS-K Study Children Form and Instructions—a listing of all the sampled children and instructions for completing the form with specific information such as the children's continued attendance at the school, their grade, their teachers' names,

classroom numbers, receipt of special education services, and receipt of assessment accommodations/exclusions before the preassessment call.

4.4.2 Fall Preassessment School Coordinator Contact

The preassessment contacts were made by telephone from September through December 2003. The preassessment school contacts were successful in meeting all four tasks described above. Contacting original sampled schools to set up the spring assessment and identifying children who withdrew from their spring-third grade school and moved into their fifth-grade transfer school, enabled the identification of schools that were ineligible for fifth-grade data collection. Schools were determined to be ineligible for fifth-grade data collection if no ECLS-K sampled children were currently enrolled. Original sampled schools became ineligible because fourth grade was the highest grade in the school or because the school had closed, that is, was no longer operational. More transfer schools were determined to be ineligible as children transferred out of them into other schools.

During the preassessment contact, the field supervisor contacted the school coordinator to collect some basic information about the school and some detailed information about each ECLS-K sampled child. The field supervisor used the School Information Form to collect basic information about the school, such as school start and end dates, vacation and holiday schedules, and parking directions. The form was also used to determine if the school was a year-round school, taught fifth grade, or required new parent consent, and to obtain information on class organization. The supervisor used the Child Work Grid (exhibit 4-17) to collect basic information about the child such as his or her grade, the name and classroom number of the child's primary teacher to link the child to a teacher, and whether the child had an Individualized Education Program (IEP) or its equivalent. In addition, in original sample schools, the assessment date was scheduled; assessment dates for new transfer schools were scheduled in the spring.

Reviewing parent consent with the school. Because parental consent was obtained in the base year and re-obtained in the third-grade year, field supervisors did not raise parental consent with the school coordinator unless the school district required it. However, if the school was a transfer school then the supervisor did ask the school coordinator whether it was necessary to obtain parental consent. If the schools required current consent forms or changed the type of consent that was required (e.g., from implicit to explicit), parent letters and consent forms were either mailed to the school for distribution to parents or sent directly to parents by Westat depending on the schools' preference. Parent cover letters

Exhibit 4-17.   Child Work Grid, spring-fifth grade: School year 2003–04

SUPERVISOR VERSION - BLANK

Round 6 ECLS-K Child Work Grid

R6 Region: _____   R6 Workarea: _____   Page _____ of _____

School ID: _____   School name: _____   Year round school? _____

1	2	3	4	5	6	7	8	9	
		Child Here? screen	**Child Locating screen**	**Child Here? screen**	**Child Work Grid screen**	**Child Work Grid screen**	**Teacher Info/Link Child screen**	**Child Work Grid screen**	
Student name/ID	**Follow status**	**Is this child still attending this school?** If <u>no</u>-complete column 4 and go to the next child listed If <u>yes</u>-skip to column 5	**What school did the child transfer to?** (name/address/phone)	**What grade is this child in?**	**Does this child have an IEP or its equivalent?** If <u>no:</u> skip to column 9 If <u>yes:</u> complete columns 7, 8 and 9.	**Does the IEP specify that the child cannot take part in standardized assessments?**	**What is the name and classroom number of this child's special education teacher?**	**Does the child require any of the accommodations or exclusions listed on the Instruction Sheet (page 2)?** If yes, which ones?	**Continue with column 12 on the back of this page for each child listed.**

See note at end of exhibit.

Exhibit 4-17. Child Work Grid, spring-fifth grade: School year 2003–04—Continued

					Respond for the Math teacher if column 11 = M. Respond for the Science teacher if column 11 = S		
10	11	12	13	14	15	16	17
		Teacher Info/Link Child screen	Teacher Info/Link Child screen	Teacher Info/Link Child screen	Teacher Info/Link Child screen	Teacher Info/Link Child screen	Teacher Info/Link Child screen
Student name/ID	Domain Flag S=Science M=Math	What is the first and last name of this child's Reading teacher?	What time does this child's Reading class meet? Record as XX:XX am/pm	What is the classroom number of this child's Reading class?	What is the first and last name of this child's Math OR Science teacher?	What time does this child's Math OR Science class meet? Record as XX:XX am/pm	What is the classroom number of this child's Math OR Science class?

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

and consent forms were available in English and Spanish. Overall, 16 percent of all schools contacted required an updated parental consent. Of the schools requiring updated parental consent, approximately 50 percent required explicit consent from the parents.

Collecting information about ECLS-K sampled children. Field supervisors primarily used the Child Work Grid to collect information from the school coordinator about the ECLS-K sampled children. The school coordinator was asked to complete the school version of the form to expedite the call. Field supervisors collected information from the school coordinators about the ECLS-K sampled children still enrolled in the school, including the child's current grade, the name and classroom for the child's regular teacher in order to link the child to a teacher, and whether or not the child had an Individualized Education Program (IEP) (see exhibit 4-18). If the child had an IEP, then the name and classroom of the child's special education teacher was noted, along with whether the child required any accommodations to participate in the direct cognitive assessment. Through this process, 1,088 children were identified with IEPs and 793 special education teachers were linked to these children. The accommodations to the fifth-grade direct cognitive assessment were the same as those for the third-grade direct cognitive assessment (see section 4.5.2). Field supervisors contacted the teachers of the ECLS-K children as necessary for any of this information. Field supervisors also identified the respondent for the student record abstract for each child.

If a child was identified as having transferred out of the school, the field supervisor asked the school coordinator to provide the names, addresses, and telephone numbers of these transfer schools Of those children who transferred, only a subset was followed to their new school (see section 3.6.1 in chapter 3 for more detail on how mover children were subsampled). If the new school belonged to a district that was new to the study, the district was mailed a letter with the new school name. A field supervisor contacted the district by telephone and recruited the district into the study before any contact was made with the school. If the district was already cooperating, the district was notified by mail and the new school was contacted and recruited directly. Field supervisors also verified with the school that no child who had previously transferred had returned to the school.

Exhibit 4-18.   Individualized Education Program (IEP) process, spring fifth-grade: School year 2003–04

WHO WILL BE ASSESSED?

DOES CHILD HAVE IEP OR IFSP ON FILE?

Yes
Does IEP specify that child cannot participate in standardized assessments?

No
Use Standard Assessment Procedures

Yes
Exclude child from assessment

No
Does child require an assessment accommodation?

Link child to a regular and special education teacher

Yes
Is the required assessment accommodation offered by ECLS-K?

No
Use standard assessment procedures

Yes
Assessment conducted with provision of accommodation. Is the accommodation an IEP?

No
Exclude child from assessment

Link child to a regular and special education teacher

Yes
Link child to a regular and special education teacher

No
Child is linked to a regular teacher only

ACCOMMODATIONS OFFERED BY ECLS-K

ACCOMMODATIONS NOT OFFERED BY ECLS-K

SETTINGS
SCHEDULING/TIMING
HEALTH CARE AIDES (PERSONAL ATTENDANTS)
ASSISTIVE DEVICES
IEP

BRAILLE ADMINISTRATION
ENLARGED PRINT
SIGN LANGUAGE ADMINISTRATION

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Contacting families of homeschooled children. As part of the fall preassessment contact, children in the ECLS-K sample who were homeschooled in previous rounds were identified. The status of home-schooled children who were identified in rounds 1 through 4 was verified with their parents and updated as necessary. In addition, during the preassessment contact some schools identified homeschooled children. Their status was also verified with their parents during data collection. Parents of these children were contacted by telephone in September through December 2003 to determine if the child was still homeschooled or had enrolled in a school. If the child had enrolled in a school, the new school was contacted and recruited into the study. Parents of children who were still schooled at home were notified about the next round of data collection in the spring.

Identifying the key child in classrooms with multiple study children. In grade 5, the design of the child-level teacher questionnaire was changed to include collecting data about the child's reading class and mathematics or science class. In previous rounds, children were taught primarily in self-contained classrooms and teachers only reported classroom level information once for the classroom. Due to the grade 5 design change, the teacher-child links were restructured to include the domain (reading, mathematics, or science) and a classroom identifier (e.g., room number and the time the class meets). A unique link number was created for each teacher/child/domain/class combination. In order to reduce data collection burden for teachers who were linked to multiple sample children in the same class, a "Key Domain Child" was identified for each separate subject and class that each teacher taught. The teachers were asked to report classroom level information only once in the questionnaire for the key domain child and child-level information for all sampled children in their class. Field supervisors collected the teacher-child-domain-classroom link information about each child and entered the information into the FMS. The information was used to generate the hardcopy teacher questionnaires (see section 5.4.3 for more information).

4.4.3 Fall Preassessment Contact Results

The goals for the fall preassessment contact with schools were the following: (1) set appointments for the spring assessment in original sample schools, (2) identify schools that ended at fourth grade to determine the school to which the sample children transferred, (3) identify children who changed schools since third grade, (4) link children to teachers and domains (i.e., reading, mathematics, science) for the advance school and teacher questionnaire mailings, and (5) contact as many transfer schools as possible within the field period to ascertain whether the child was still there and recruit the

school into the study. It was not expected that every transfer school identified within the fall contact could be contacted within the fall field period because of the numbers of children that were expected to move. It was also expected that additional schools would be contacted during the spring round because children were expected to continue to move between fall and spring of the school year.

Approximately 30 percent of the ECLS-K sampled children transferred to other schools between the spring of third grade and beginning of fifth grade (i.e., fall 2003). At the start of the fall 2003 field period, there were 1,016 transfer schools identified prior to the fall contact. An additional 744 transfer schools were identified during the fall contact field period (September–December) for a total of 1,760 transfer schools at the end of the field period. All of the transfer schools identified during the fall were contacted at least once during the field period to ascertain if the child was still enrolled. During the fall preassessment contact, 4,039 children were identified as movers and processed in preparation for the spring data collection. Table 4-3 presents the status of these 4,039 movers after the fall preassessment contact.

Table 4-3. Status of movers identified during fall preassessment contact: School year 2003–04

Status	Total	Percent
Total	4,039	100
Fielded for assessment in spring	2,381	58.9
Assess in school	2,261	55.9
Assess in home	120	2.9
Unlocatable	279	6.9
Moved to nonsampled PSU	128	3.2
Moved outside of U.S.	27	<1
Subsample not followed	1,220	30.0
End of field period	4	<1

NOTE: Movers who had a status of "Fielded for assessment in spring" were treated like the nonmover cases during the spring data collection. Those with a status of "Unlocatable" could not be located during the fall preassessment contact; additional attempts to locate them continued in spring data collection. Cases identified as "Moved to nonsampled PSU" or "Moved to outside of U.S." were not fielded for the spring data collection because they had moved out of the designated data collection area. Cases with a status of "Subsample not followed" were not fielded in the spring because the sampling plan called for collecting data from only a subsample of movers (see chapter 3, section 3.6.1). These cases were not in the subsample to be followed. Only 4 cases with a status of "End of field period" were not contacted in the fall because the schools were either new to the school sample frame with limited information available to contact them or in school districts new to the sample that required an additional contact at the district level before the schools could be contacted for spring data collection. These cases were closed out and rolled over for contact in the spring.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The fall preassessment contact protocol was completed for 100 percent of the original ECLS-K schools and 97 percent of the transfer schools (both those identified before and during the fall field period) within the fall field period. Twenty percent of schools were identified as out of scope, since they did not contain any sampled students (9 percent of original sampled schools and 25 percent of transfer schools). All of the schools that children transferred to as a result of the school ending at fourth grade, closing, or merging with another school were identified within the field period. Tables 4-4 through 4-6 present the production reports for the fall preassessment contact for original sample and transfer schools.

Table 4-4. Fall preassessment contact productivity report, by week: School year 2003–04

Week	Week ending	Total schools completed	Original	Transfer
1	9/10/03	9	6	3
2	9/17/03	103	78	25
3	9/24/03	284	211	73
4	10/11/03	511	360	151
5	10/8/03	766	510	256
6	10/15/03	1001	650	351
7	10/22/03	1233	737	496
8	10/29/03	1463	800	663
9	11/5/03	1637	842	795
10	11/12/03	1826	867	959
11	11/19/03	2047	908	1139
12	11/26/03	2171	927	1244
13	12/3/03	2240	933	1307
14	12/10/03	2333	940	1393
15	12/17/03	2392	949	1443

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 4-5. Fall preassessment contact production report—original schools: School year 2003–04

Week #	Week ending	Response rate (percent)	Total number	Out of scope	In scope	No action	Pending	Complete	Refusal	Final refusal	Not contacted within field period
1	9/10/03	0.6	967	3	964	948	9	6	0	1	0
2	9/11/03	8.1	993	31	962	635	247	78	1	1	0
3	9/24/03	22.2	1,004	55	949	403	331	211	2	2	0
4	10/0/03	38.0	1,016	69	947	218	634	360	3	2	0
5	10/8/03	54.2	1,026	85	941	99	328	510	2	2	0
6	10/15/03	67.8	1,048	90	958	46	256	650	3	3	0
7	10/22/03	77.4	1,044	92	952	22	187	737	3	3	0
8	10/29/03	83.9	1,048	94	954	13	135	800	3	3	0
9	11/5/03	88.2	1,050	95	955	8	99	842	3	3	0
10	11/12/03	90.7	1,051	95	956	5	78	867	3	3	0
11	11/19/03	94.9	1,051	95	957	2	41	908	3	3	0
12	11/26/03	96.8	1,052	94	958	2	22	927	2	5	0
13	12/3/03	97.4	1,052	94	958	2	16	933	1	6	0
14	12/10/03	98.1	1,052	94	958	0	9	940	0	9	0
15	12/17/03	99.1	1,052	94	958	0	0	949	0	9	0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 4-6.   Fall preassessment contact production report—transfer schools, by week: School year 2003–04

Week #	Week ending	Response rate (percent)	Total number	Out of scope	In scope	No action	Pending	Complete	Refusal	Final refusal	Not contacted within field period
1	9/10/03	0.3	1,166	2	1,164	1,160	1	3	0	0	0
2	9/11/03	2.1	1,223	25	1,198	1,133	40	25	0	0	0
3	9/24/03	5.9	1,293	57	1,236	1,096	65	73	1	1	0
4	10/0/03	11.5	1,407	92	1,315	1,071	91	1,511	1	1	0
5	10/8/03	18.5	1,537	155	1,382	997	127	256	1	1	0
6	10/15/03	25.3	1,606	218	1,388	873	156	351	4	4	0
7	10/22/03	3409	1,708	288	1,420	710	201	496	7	6	0
8	10/29/03	46.5	1,785	359	1,426	451	299	663	8	5	0
9	11/5/03	54.8	1,847	396	1,451	346	292	795	10	8	0
10	11/12/03	65.7	1,898	438	1,460	214	266	959	11	10	0
11	11/19/03	78.1	1,922	463	1,459	106	191	1,139	12	11	0
12	11/26/03	84.2	1,957	480	1,477	70	142	1,244	6	15	0
13	12/3/03	88.4	1,972	494	1,478	41	108	1,307	4	18	0
14	12/10/03	94.1	1,988	508	1,480	19	42	1,393	3	23	0
15	12/17/03	97.4	1,997	516	1,481	0	0	1,443	0	22	16

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

4.4.4 Tracing Activities during Fifth-Grade Data Collection

In June 2003 an attempt was made to obtain a current address for all eligible households using Telematch, a company that searches for current address information through its many databases. Telematch provided updated information, either a new or partial address, a new or partial telephone number, or both, for over half the households. For the remaining households, Telematch provided no new information beyond what was already contained Westat's tracing and locating files. Table 4-7 presents the results of the spring Telematch search.

Table 4-7. Tracing results for spring 2003

Result	Number	Percent
Total households searched	13,390	100.0
Households located and entered into tracing database	7,641	57.4
No new information provided	5,749	42.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

In order to ensure that as many of the sampled children as possible were contacted in the spring, locating efforts were conducted from June through early August 2003. Staff in Westat's Telephone Research Center (TRC) traced the 829 children who could not be located during previous rounds of data collection. TRC staff used the Internet, telephone directories, and other means to locate these children and their households. When children and/or households were found, the new school and contacting information was entered into the tracing system database for fielding in the spring. Table 4-8 presents the results of the summer tracing effort.

Table 4-8. Results of the Telephone Research Center's locating efforts for cases with a status of *unlocatable* at the beginning of fifth grade: School year 2003–04

Result	Number	Percent
Total cases worked	827	100.0
Located and entered into database	305	36.8
Unlocatable	519	62.6
Final refusal	5	.06

NOTE: "Unlocatable" means that the children and their households could not be found using the available tracing and locating strategies; "final refusal" means that the child's family indicated that they did not want to participate.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

In mid-September 2003, all eligible households were mailed a letter asking the head of the household to record their current address and current school information for the sampled child on an enclosed postcard. In mid-October staff in Westat's Telephone Research Center (TRC) began calling households that had not returned the postcard. By the end of December 2003, over 75 percent of the households had responded. Table 4-9 presents the results of the fall tracing contacts.

Table 4-9.   Results of the fall household tracing contact: School year 2003–04

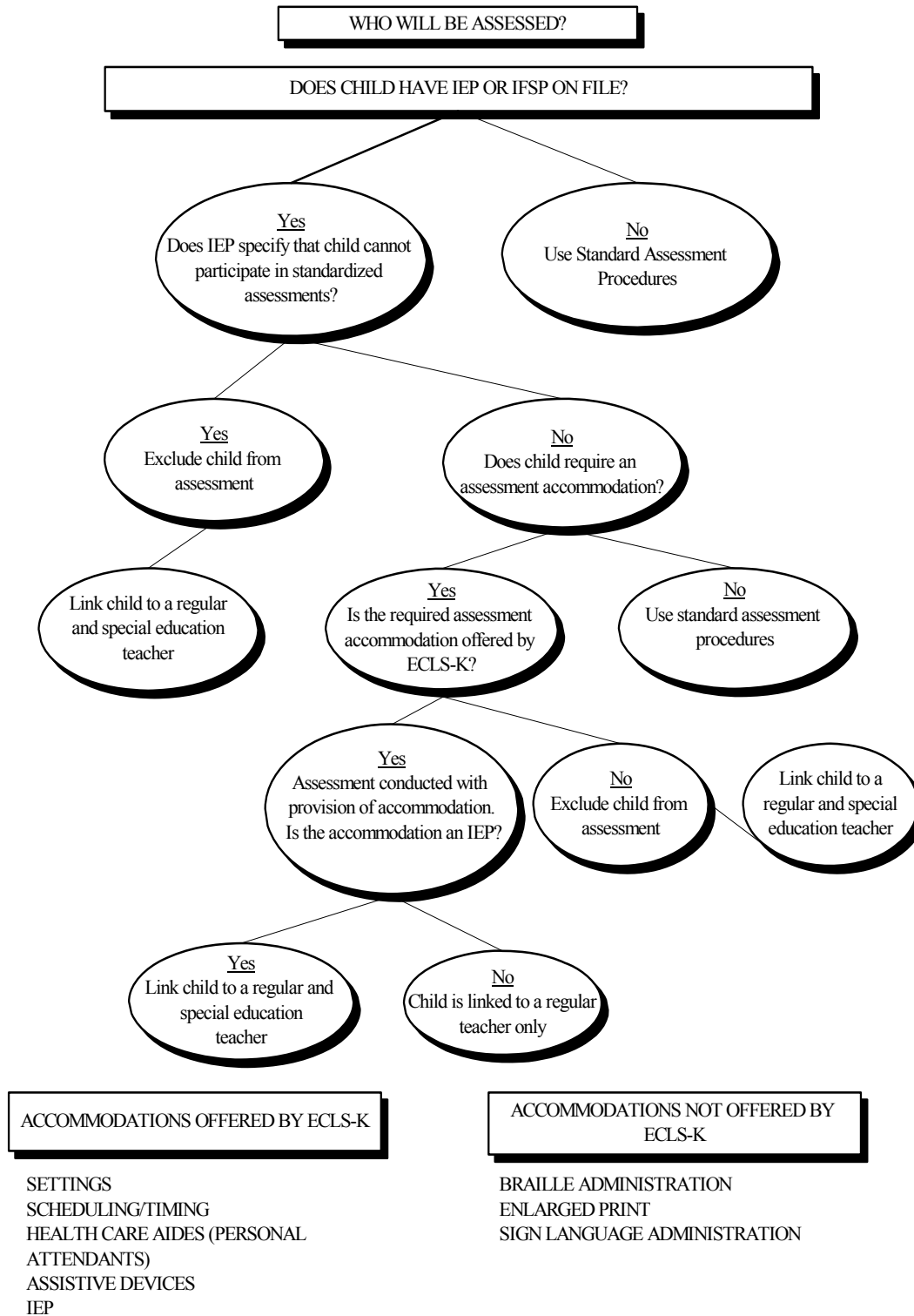| Result	Total	Percent
Total households contacted	13,379	100.0
New locating information provided	2,457	18.4
No new locating information provided	7,612	56.9
Refused	83	0.6
No response to contact	3,227	24.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

4.5   Spring-Fifth Grade Data Collection

All children who were assessed during the base year or for whom a parent interview was completed in the base year were eligible to be assessed in the spring-fifth grade data collection, with four exceptions: They were (1) children who became ineligible in an earlier round (because they died or moved out of the country), (2) children who were subsampled out in previous rounds because they moved out of the original schools and were not subsampled to be followed, (3) children whose parents emphatically refused to cooperate (hard refusals) in any of the data collection rounds since spring-kindergarten, and (4) children in the fifth-grade sample for whom there were neither first-grade nor third-grade data. Eligibility for the study was not dependent on the child's current grade, that is, children were eligible whether they were promoted to fifth grade or were retained in fourth grade. In spring-fifth grade, the children attended 2,008 public schools and 356 private schools. Two-thirds of the public schools (1,355) and almost half of the private schools (166) were transfer schools.

As in previous rounds of data collection, the field staff were organized into work areas, each with a data collection team consisting of one field supervisor and two or more assessors. The data collection teams were responsible for all data collection activities in their work areas; they conducted the

direct child assessments and the parent interviews, collected all school and teacher questionnaire and completed checklists. The majority of field staff members in fifth grade were continuing from previous rounds of data collection; a few new staff were hired in areas where no experienced ECLS-K staff lived.

4.5.1 Spring Preassessment Activities

Based on the information collected in the fall of 2003, packets of hard-copy teacher and school administrator questionnaires were assembled and mailed to schools in January and February 2004, along with letters confirming the scheduled visits to the school. Teachers and school administrators were asked to complete the questionnaires for pickup by the field supervisor or lead assessor on assessment day. Letters were also mailed to parents at this time reminding them of the spring-fifth grade data collection activities.

Most preassessment contact with schools was by telephone starting in March 2004. Field supervisors contacted the school to confirm the assessment date and the receipt of the hard-copy questionnaires and to arrange for space to conduct the assessments. This follow-up call to the schools was essentially to confirm the logistics for the assessments.

4.5.2 Conducting the Direct Child Assessments

The direct child assessments were conducted from March through June 2004, the same time of year as in prior spring data collections. The school coordinator set the assessment date with a supervisor based on the school's schedule. Over three-quarters of the assessments were completed by the end of April, with 20.5 percent completed in May and 1.3 percent completed in June. There was no evidence that certain types of children or schools were assessed early or late in the field period. Table 4-10 presents the weekly completion rates for the child assessments. In year-round schools, assessment teams made multiple visits to the school, visiting when each track was in session to assess the sampled children. There were 501 (2.3 percent) sampled children in year-round schools.

Table 4-10. Weekly completion of the child assessments: School year 2003–04

Week #	Week starting	Completed assessments[1]	Cumulative completed assessments	Cumulative Percent of total
1	2/25/04	55	55	0.5
2	3/3/04	666	721	6.3
3	3/10/04	1,543	2,264	19.9
4	3/17/04	1,080	3,344	29.4
5	3/24/04	1,112	4,456	39.2
6	3/31/04	1,074	5,530	48.6
7	4/7/04	981	6,511	57.3
8	4/14/04	666	7,177	63.1
9	4/21/04	904	8,081	71.1
10	4/28/04	804	8,885	78.2
11	5/6/04	814	9,699	85.3
12	5/13/04	704	10,403	91.5
13	5/20/04	541	10,944	96.3
14	5/27/04	279	11,223	98.7
15	6/2/04	82	11,305	99.4
16	6/9/04	33	11,338	99.7
17	6/16/04	22	11,360	99.9
18	6/23/04	8	11,368	100.0

[1] Based on field production reports.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The direct child assessments were usually conducted in a school classroom or library. Before conducting the assessments, field supervisors and assessors set up the room for the assessments. They followed procedures for meeting children that were agreed upon during the preassessment contact with the school. Each child was signed out of his or her classroom prior to the assessment and signed back into the classroom upon the conclusion of the assessment. During the scheduling of schools in the fall, an attempt was made to conduct the direct child assessments at about the same point in time from the beginning of school year and the end of the year to increase the chances that exposure to instruction was about the same for all children. The fifth-grade direct child assessments averaged 97 minutes in length.

Table 4-11 displays the number of completed child assessments for each round of data collection, including spring-fifth grade. All of the assessments in spring-fifth grade were completed in English. The majority of the assessments (83.0 percent) were completed in original schools, and interestingly, the number of assessments in transfer schools decreased in spring-fifth grade. Only 17

Table 4-11. Completed child assessments by round of data collection: School years 1998–99, 1999–2000, 2001–02, and 2003–04

	Fall-kindergarten		Spring-kindergarten		Fall-first grade		Spring-first grade		Spring-third grade		Spring-fifth grade	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Child assessments completed	19,147	100	19,987	100	5,297	100	16,622	100	14,502	100	11,368	100
Assessed												
In English, no accommodation[1]	17,019	88.9	18,342	91.8	4,848	91.5	15,460	93.0	13,565	93.5	10,813	95.1
In Spanish	1,008	5.3	724	3.6	176	3.3	286	1.7	†	†	†	†
In other language	410	2.1	229	1.1	33	0.6	37	0.2	†	†	†	†
With accommodation[1]	515	2.7	579	2.9	195	3.7	761	4.6	814	5.6	465	4.1
Excluded	88	0.5	70	0.4	28	0.5	47	0.3	74	0.5	62	0.5
Partial complete	107	0.6	43	0.2	17	0.3	31	0.2	49	0.3	28	0.2
Child assessments completed	19,147	100	19,987	100	5,297	100	16,622	100	14,502	100	11,368	100
Original sampled school	19,147	100	19,463	97.4	4,867	91.9	14,830	89.2	10,820	74.6	9,439	83
Transfer school	0	0	524	2.6	430	8.1	1,792	10.8	3,682	25.5	1,929	17

†Not applicable.
[1]The term *accommodation* in this table is the field operational definition of accommodation, which includes the wearing of glasses and hearing aids. These types of aids were systematically tracked to ensure that every child had the same chance at a successful assessment. With this information, assessors could prompt a child (e.g., to get her glasses before being assessed).
NOTE: This table reflects final production numbers prior to statistical adjustment. This table does not include children who were subsampled out in fall- and spring-first grade and spring-third grade (see section 5.5.4.) These numbers should not be used to estimate student mobility.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998, spring 1999, fall 1999, spring 2000, spring 2002, and spring 2004.

percent of the sample was assessed in transfer schools in spring-fifth grade. Assessments of homeschooled children, or children in nonparticipating transfer schools, were held at the parent's home or another location, such as a library, of the parent's choosing.

Less than 1 percent of participating children in fifth grade required accommodations or were excluded from the direct child assessments. Children were excluded from the direct assessments if they had a disability, e.g., blindness, or deafness, that could not be accommodated by the ECLS-K direct assessments, or their Individualized Education Program prevented their participation in assessments or required an accommodation not offered by the ECLS-K assessments. Accommodations offered by the ECLS-K assessments were as follows: alternative setting, scheduling, or timing; health care aide present; or the use of a personal assistive device. Table 4-12 presents the number of children excluded from or requiring an accommodation to the direct child assessment procedures in the spring of fifth grade.

Table 4-12. Number of children excluded from or accommodated in the spring-fifth grade assessments: School year 2003–04

Category	Number of children
Exclusions	
Excluded for disability	63
Accommodation[1]	
Alternative setting accommodation	50
Scheduling/timing accommodation	64
Health care aide present	12
Personal assistive device	9

[1] The term *accommodation* in this table includes only those accommodations offered during the assessment such as an alternative setting.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

4.5.3 Conducting the Parent Interview

Parent interview procedures mirrored those of previous rounds of data collection. The parent interview was administered, primarily by telephone interview using CAI, between February and June 2004. Slightly over 50 percent of the parent interviews were completed in February and March, 43 percent were completed in April and May, and 6 percent were completed in June. The parent interview averaged 43 minutes. Table 4-13 presents the weekly completion of parent interviews.

Table 4-13. Weekly completion of parent interviews, spring-fifth grade: School year 2003–04

Week	Week starting	Completed interviews[1]	Cumulative completed interviews	Cumulative percent of total
1	2/25/04	46	46	0.4
2	3/3/04	675	721	6.6
3	3/10/04	1,218	1,939	17.7
4	3/17/04	1,286	3,225	29.5
5	3/24/04	1,201	4,426	40.5
6	3/31/04	1,083	5,509	50.4
7	4/7/04	917	6,426	58.7
8	4/14/04	737	7,163	65.5
9	4/21/04	724	7,887	72.1
10	4/28/04	660	8,547	78.1
11	5/6/04	460	9,007	82.3
12	5/13/04	456	9,463	8605
13	5/20/04	464	9,927	90.7
14	5/27/04	326	10,253	93.7
15	6/2/04	215	10,468	95.7
16	6/9/04	190	10,658	97.4
17	6/16/04	147	10,805	98.8
18	6/23/04	91	10,896	99.6
19	6/30/04	44	10,940	100.0

[1] Based on field production reports from the parent interview.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

As in previous rounds of data collection, the parent interview was conducted in person if the respondent did not have a telephone. Table 4-14 contains the number of parent interviews per round, including spring-fifth grade. In fifth grade, only 2.7 percent of all completed parent interviews were conducted in person; 8.1 percent of all completed parent interviews were conducted in a language other than English; 95.1 percent of the latter were conducted in Spanish.

In spring-fifth grade data, 10 percent of the parent cases were classified as final nonresponse. As in most field studies, the primary reasons for final nonresponse were parents who could not be located and parents who refused to complete the interview; 32.4 percent of the nonresponse parent cases were parents who could not be located, 43.9 percent were refusals and 23.8 percent were other nonresponse (e.g., language barrier).

Table 4-14.   Number and percent of completed parent interviews by data collection mode, language, and wave of data collection: School years 1998–99, 1999–2000, 2001–02, and 2003–04

	Fall-kindergarten		Spring-kindergarten		Fall-first grade		Spring-first grade		Spring-third grade		Spring-fifth grade	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Parent interviews completed	17,997	100	18,907	100	5,073	100	15,576	100	13,504	100	10,940	100
In person	618	3.4	619	3.3	211	4.2	456	2.9	319	2.4	295	2.7
By phone	17,379	196.6	18,288	96.7	4,862	95.8	15,120	97.1	13,185	97.6	10,645	97.3
Parent interviews completed	17,997	100	18,907	100	5,073	100	15,576	100	13,504	100	10,940	100
English	17,379	96.6	17,482	92.5	4,717	93.0	14,319	91.9	12,416	91.9	9,444	90.9
Spanish	618	3.4	1,321	7.0	351	6.9	1,071	6.9	932	6.9	846	7.7
Other language	0	0	81	0.4	0	0	75	0.5	41	0.3	39	0.4
Partial complete	0	0	23	0.1	5	0.1	111	0.7	115	0.9	111	1

NOTE: This table completes final production numbers prior to statistical adjustment.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998, spring 1999, fall 1999, spring 2000, spring 2002, and spring 2004.

4.5.4   Conducting Data Collection on Children Who Withdrew From Their Previous Round School

While contacting schools, field supervisors asked school coordinators to identify children who had withdrawn from the school since the spring of third grade. School staff were asked whether they knew the name and address of the school to which the child transferred, as well as any new information about the child's household address. For the children who had moved from their spring-third grade school and were not part of the sample to be followed, information was collected only from the school personnel and not from parents. For children who had withdrawn from their spring-third grade school and were identified to be followed (i.e., were part of the sample of movers), supervisors also consulted parents and other contacts for information on the children's new school. This information was entered into the FMS and processed at Westat for data collection.

Table 4-15 presents the status of the children who were identified as movers in fifth grade; 12,717 children were identified as having transferred from the school in which they were enrolled during the spring of base year, first grade, or third grade. The movers described in this table are defined as "operations movers" rather than "statistical movers" since cooperation must be secured from the transfer schools in order for data collection to proceed (see section 3.6.1 for a discussion of statistical movers.). There are two flags that describe movers. One flag is for statistical purposes and the other for operations purposes. The definitions for the two flags necessarily differ. For example, children who move into a destination school are flagged as a mover for operations purposes, since cooperation must be secured from the school to follow the child there, but the statistical flag is not set since these children are not movers in the statistical definition. Table 4-15 describes total movers across all rounds, which is the only way they were tracked; the chapter 3 tables describe the grade 5 movers from a statistical perspective. Of the 12,717 mover children in spring-fifth grade, 4,187 (32.9 percent) were in scope (i.e., children selected to be followed) and followed. The remaining 8,530 mover children were out of scope and were not followed; no child assessment or parent interview was conducted for these children.

Table 4-15. Number of children who moved in spring-fifth grade by completion category: School year 2003–04

Category	Spring-fifth grade	
	Number of children	Percent
Total movers[1]	12,717	100.0
Out-of-scope[2]	8,530	67.1
Did not follow[3]	7,880	92.4
Moved to outside of U.S.[3]	153	1.8
Deceased[3]	7	<1
Excluded from spring-fifth grade[4]	490	5.7
In-scope and followed[2]	4,187	32.9
Completed assessment[5]	3,299	78.8
Unlocatable[5]	281	6.7
Nonsampled primary sample unit[5]	395	9.4
Assessment refused[5]	149	3.6
Not assessed/absent[5]	63	1.5

[1] The movers described in this table are defined as "operations movers" rather than "statistical movers" since cooperation must be secured from the transfer schools in order for data collection to proceed.
[2] Percent based on total movers.
[3] Percent based on out-of-scope children.
[4] In fifth grade, four groups of children were excluded, irrespective of other subsampling procedures that were implemented. They are (1) children who became ineligible in an earlier round (because they died or moved out of the country); (2) children who were subsampled out in previous rounds because they moved out of the original schools and were not subsampled to be followed; (3) children whose parents emphatically refused to cooperate (hard refusals) in any of the data collections rounds since spring-kindergarten; and (4) children in the third-grade sample for whom there are neither first-grade nor third-grade data.
[5] Percent based on in-scope children.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Parent interviews were attempted for all in-scope children. However, different school and assessment data collection strategies were followed for children who moved, depending on where they moved and the cooperation status of their new school. School and assessment data collection was attempted for children who moved and were flagged as "follow" in spring-fifth grade in the following ways:

- Data collected for children moving into cooperating base year sampled schools included the child assessments in the school, school administrator questionnaire, regular and/or special education teacher questionnaires, facilities checklist, and student record abstract forms.

- Data collected for children moving into nonsampled schools in base year cooperating districts included the child assessments in the school, school administrator questionnaires, regular and/or special education teacher questionnaires, and student record abstract forms, if school permission was obtained. If school permission was not

obtained, the assessments were conducted in the home and no school or teacher data were collected.

■ For children moving into transfer schools that refused, schools in sampled districts that refused, or originally sampled schools that were ineligible when sampled because they did not have kindergarten classes, the direct child assessments were conducted in the home. No school or teacher data were collected.

■ For children moving into schools in nonsampled districts or dioceses:

- If the school was within the primary sampling unit (PSU), data collected included the child assessments in the school, school administrator questionnaire, regular and/or special education teacher questionnaires, facilities checklist, and student record abstract forms, if school permission was obtained. If school permission was not obtained, the assessments were conducted in the home and no school or teacher data were collected.

- If the school was outside a sampled PSU, no child, school, or teacher data were collected.

■ For children who were not enrolled in school in the spring (including children who were home schooled), data collected included the child assessments in the home if the child was in the sampled PSU. If the child was outside the sampled PSU, no child assessment or school or teacher data were collected.

As previously mentioned, 4,039 movers were identified during the fall preassessment contact. During spring-fifth grade, an additional 366 movers were identified. The identification of 92 percent of the fifth-grade movers during the fall contact accomplished two important goals: (1) allowed additional time to trace movers; and (2) reduced the burden of tracing a large number of movers during the spring-fifth grade data collection. Table 4-16 presents the final status of the children who were identified as movers in fifth grade; a total of 12,717 children were identified as having transferred from the school in which they were enrolled when they were sampled in kindergarten. Of the 12,717 children identified as movers in spring-fifth grade, 4,187 children were selected to be followed and were followed (32.9 percent of total movers). The remaining 8,530 mover children were out-of-scope for this round of data collection because they moved out of the country, were deceased, excluded from fifth grade because they had no first- or third-grade data, or were subsampled out; no child assessments or parent interviews were conducted for these children.

Table 4-16.   Number of children who moved by completion category: School years 1998–99, 1999–2000, 2001–02, and 2003–04

Category	Spring-kindergarten		Spring-first grade		Spring-third grade		Spring-fifth grade	
	Number of children	Percent	Number of children	Percent	Number of children	Percent	Number of children	Percent
Total movers[1]	1,568	100	5,759	100	9,889	100	12,717	100.0
Out of scope[2]	16	1	2,893	50.2	4,221	42.7	8,530	67.1
Did not follow[3]	0	0	2,848	98.4	4,102	97.2	7,880	92.4
Moved to outside of U.S.[3]	16	1	44	1.5	117	2.7	153	1.8
Deceased[3]	0	0	1	<.1	2	<.1	7	<.1
Excluded from fifth grade	†	†	†	†	†	†	490[4]	5.7
In-scope and followed[2]	1,552	98.9	2,866	49.8	5,668	57.3	4,187	32.9
Completed assessment[3]	510	32.8	1,792	62.5	3,682	65.0	3,299	78.8
Unlocatable[3]	501	32.3	271	9.5	607	10.7	281	6.7
Nonsampled primary sample unit[3]	282	18.2	454	15.8	871	15.4	395	9.4
Nonresponse	259	16.7	349	12.2	508	8.9	212	5.1

† Not applicable.
[1] The movers described in this table are defined as "operations movers" rather than "statistical movers" since cooperation must be secured from the transfer schools in order for data collection to proceed.
[2] Percent based on total movers.
[3] Percent based on out-of-scope children.
[4] In fifth grade, four groups of children were excluded, irrespective of other subsampling procedures that were implemented. They are (1) children who became ineligible in an earlier round (because they died or moved out of the country); (2) children who were subsampled out in previous rounds because they moved out of the original schools and were not subsampled to be followed; (3) children whose parents emphatically refused to cooperate (hard refusals) in any of the data collections rounds since spring-kindergarten; and (4) children in the third-grade sample for whom there are neither first-grade nor third-grade data.
[5] Percent based on in-scope children.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Of the children who moved in fifth grade and were selected to be followed, 66.9 percent moved into nonsampled schools, 5.3 percent moved into a school outside the PSU and 10.4 percent of the movers could not be located. Table 4-17 presents the fifth-grade movers by school and district status.

Table 4-17.   Children moving in fifth grade: School year 2003–04

Category	Number	Percent
Total movers eligible and followed	3,036	100
Moved into cooperating schools	459	15.1
Moved into nonsampled schools	2,030	66.9
Moved into schools/districts that refused	27	<1
Home schooled	41	1.4
Moved outside the primary sampling unit	162	5.3
Moved—could not be located	317	10.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

4.5.5   Teacher and School Data Collection

Data were collected from school administrators, regular classroom teachers, and special education teachers from February through June 2004. The school and teacher questionnaires were mailed to the school coordinators in January and February 2004. This schedule allowed additional time for these respondents to complete and return the instruments to Westat.

During the fall advance school contact, it became apparent that many fifth-grade teachers would be asked to report about many sampled children and multiple domains (e.g., reading and math or science) due to the modification to the fifth-grade teacher questionnaires (see section 2.5 for a detailed discussion). In fifth grade, there was still considerable clustering of students in classrooms and teachers would be repeating classroom level information across many questionnaires. Table 4-18 presents the number of child-level questionnaires and percent of teachers asked to complete them based on fall linkages of children to teachers and domains as well as the percent of teachers completing that number of questionnaires during spring data collection.

Table 4-18.   Number of child-level questionnaires and percent of teachers: School year 2003–04

Number of child-level questionnaires to complete	Percent of teachers expected from fall school contact	Percent of teachers completing questionnaires from spring-fifth grade
1 to 4 questionnaires	63.0	75.0
5 to 10 questionnaires	26.0	18.0
11 to 15 questionnaires	6.0	4.0
16 to 46 questionnaires	4.0	2.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

A procedure to reduce burden on teachers was developed to identify a "Key Child" for each domain and class. Teachers were asked to complete all items in the reading, mathematics, and science questionnaires for the designated key child, designated by a blue dot on the questionnaire cover, for the appropriate domains/classes. They were asked to complete only the child-level items, and not the classroom-level items, for the remaining children in that domain/class.

Using the child-teacher-domain-class linkage information collected in the fall, customized packages of questionnaires were assembled for each child's reading and mathematics or science teachers and/or special education teachers. The customized teacher questionnaire materials included the following:

- A Teacher Questionnaire cover letter;

- Teacher Questionnaire;

- A Reading Instruction Sheet attached to the child-level reading questionnaires for each separate reading class;

- A Math Instruction Sheet attached to the child-level math questionnaires for each separate math class;

- A Science Instruction Sheet attached to the child-level science questionnaires for each separate science class; and,

- A Special Education Instruction Sheet attached to the child-level special education questionnaires (if appropriate).

The Teacher Questionnaire Cover letter was a much simplified document from previous rounds. It laid out the teacher tasks in succinct language on one page and clearly described the questionnaires, including the questionnaire cover colors, to help the teacher easily identify each part of the package. A checklist of instructions, an easy step-by-step guide, was included to aid the teacher in

completing the questionnaires and returning them to the school coordinator. Domain instruction sheets (Reading, Mathematics, Science, and Special Education) included all the information the teacher required to correctly identify the class/domain. Teachers only received instruction sheets required for the sampled children in the domains they taught. All questionnaires were labeled with names and ID numbers. Teacher questionnaires were labeled with teacher name and ID number. Child questionnaires were labeled with: teacher name and ID number, child name and ID number, domain, reading, mathematics, or science; classroom; and class time. The key domain child questionnaires were labeled with a blue dot. Child-level questionnaires were assembled in bundles by domain and class identifier (e.g., reading, 9:15 am, mathematics, Room A) for each teacher. All materials and questionnaires for each teacher were placed in an envelope and the envelope labeled with the teacher name.

Teacher and school administrator packets were bundled together by school and mailed to the school coordinator for distribution. If the school and/or teacher and school administrator were not identified in the fall advance contact, then the supervisor gathered the relevant information during the preassessment call in the spring and mailed the packets at that time. During their visits to the schools, field supervisors also completed a facilities checklist for each sampled school.

Field supervisors began prompting for the return of questionnaires when they contacted schools to confirm the assessment schedule. During the field period, field supervisors followed up with school administrators and teachers by telephone and with visits to the schools to prompt for the return of the questionnaires. Field supervisors returned completed questionnaires to Westat.

In April 2004, the field supervisors were instructed to conduct intensive followup for missing school administrator questionnaires for schools with high minority student populations to reduce potential bias. There were 334 such schools identified. As a result of the followup efforts by the field supervisors, 324 of the 334 schools (97 percent) completed and returned the school administrator questionnaires.

4.5.5.1 Hard-Copy Data Retrieval

Retrieval Procedure. Data retrieval involved collecting missing items for some questionnaires that were otherwise complete. Based on analyses of the success of the third-grade data retrieval, critical items were determined only for the school administrator questionnaire and the Key

Domain child questionnaires for each class. The approach to retrieval for the school administrator questionnaire and child-level teacher questionnaires called for scanning and retrieval in the school. School coordinators, administrators, and teachers were informed in their letters that the supervisors would collect completed questionnaires on assessment day. No mailer for returning the questionnaires to the home office was provided to the schools. Respondents were asked to complete the instruments, seal them in envelopes, and give them to the school coordinator. Supervisors scanned the school administrator questionnaire and Key Child domain questionnaires on-site, and conducted retrieval as necessary. Exhibit 4-19 presents the critical items by questionnaire. Each of the teacher questionnaire items proposed for retrieval were completed in the Key Child instruments only, since these are class-level items.

Exhibit 4-19.   Critical items by questionnaire type: School year 2003–04

Instrument	Item	Question Number
School administrator (SAQ)	Grade level	Question 4
	School type/control	Questions 5, 6, 7
	Race/ethnicity	Question 8
	School lunch program eligibility/participation	Question 14
Key Domain child-level reading teacher questionnaires	Grades taught	Question 15
	Race/ethnicity	Question 16
	Sex	Question 17
	Gifted/talented, LEP, Disability, Absent	Question 18
Key Domain child -level mathematics teacher questionnaires	Grades taught	Question 5
	Race/ethnicity	Question 6
	Sex	Question 7
	Gifted/talented, LEP, Disability, Absent	Question 8
Key Domain child -level science teacher questionnaires	Grades taught	Question 4
	Race/ethnicity	Question 5
	Sex	Question 6
	Gifted/talented, LEP, Disability, Absent	Question 7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Data Retrieval Attempts. Field supervisors attempted to retrieve missing critical items and missing questionnaires in the schools in their assignments. They scheduled their retrieval efforts for the day the assessments were scheduled and attempted to find the respondents in person. Otherwise, they attempted these retrieval attempts by telephone. Field supervisors recorded any changes to missing critical items in blue pencil in the questionnaire. If the respondent did not know the answer, they recorded "DK" by the item; if the respondent refused to answer, they recorded "RF" by the item. Field supervisors

recorded the status of the questionnaire as one of the following:

- Questionnaire complete with no missing critical items: no data retrieval required.

- Questionnaire is missing one or more critical items: data retrieval required; one or more critical items collected.

- Questionnaire is missing one or more critical items: data retrieval required; no critical items were collected.

- Questionnaire refused: unit nonresponse.

Table 4-19 presents the results of attempts to retrieve critical items.

4.5.6 Incentives in the ECLS-K

In order to gain respondent cooperation and ensure participation throughout the various data collection phases of the ECLS-K study, various incentives were offered. The type of incentive, monetary or nonmonetary, depended on whether the respondent was a sampled child, parent, teacher, or school. Exhibit 4-20 delineates the types of incentives used in the ECLS-K.

Child Incentives. Children were given a small token at the end of the assessment to thank them for their cooperation in completing the assessment. In the spring-fifth grade, they were given a green lanyard with the ECLS-K sun log and study name. In addition, each month Westat mailed birthday cards to children whose birthdays fell within that month. Children were sent birthday cards throughout the calendar year, not just during the school year. By mailing these cards, children were not only thanked again for their participation, but parents were also reminded about the study. These periodic reminders are important in a longitudinal study, in which respondents may become apathetic toward the study during later rounds. Not only do these reminders encourage respondent participation, but they help the home office update addresses of families that have moved.

Table 4-19. Total number and percent of the final results of critical item retrieval: School year 2003–04

Questionnaire type	Cases needing no data retrieval			Data retrieval complete		Data retrieval refused		Refused	
	Total expected[1]	Number	Percent[2]	Number	Percent[2]	Number	Percent[3]	Number	Percent[2]
School administrator	2,442	607	24.9	472	19.3	1,045	42.8	318	13.0
Reading teacher questionnaire	12,308	9,737	79.1	625	5.1	517	4.2	683	5.5
Mathematics teacher questionnaire	5,751	4,743	82.5	322	5.6	317	5.5	369	6.4
Science teacher questionnaire	5,811	4,867	83.8	273	4.7	305	5.2	366	6.3

[1] This column represents the number of questionnaires expected from school and teacher respondents based on schools and teachers linked to sampled children.
[2] Percent based on number expected.
[3] Percent based on number complete, needing data retrieval.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Exhibit 4-20.　Types of incentives used in the ECLS-K: School year 2003–04

Respondent	Incentive
Child	■ ECLS-K lanyard
	■ Birthday card
Parent	■ Newsletters
	■ ECLS-K magnet with notepad
Teacher	■ $20 mailed with questionnaire package
	■ $7 for each completed child- level questionnaire
School—original	■ $50 mailed with school administrator questionnaire package
	■ $150 for cooperating schools
	■ $7 for each completed student records abstract
School—transfer	■ $50 mailed with school administrator questionnaire package
	■ $7 for each completed student records abstract

Parent Incentives. In the fall of 2003, a newsletter about the study was published and mailed to parents. The newsletter served to update respondents on the initial findings from the first grade year and inform them about the future rounds of data collection. Parent involvement with homework, teacher views on homework and the average time spent on homework were a few of the topics discussed. Not only did the newsletter update parents on the findings of the study and highlight its importance, but it also was an incentive for future rounds of participation. Respondents were able to see the results of their participation in the study.

Parents received an incentive for participating in the parent interview. At the end of the field period, thank-you letters were generated for every respondent who completed a parent interview. The letters, along with an ECLS-K magnet with attached notepad, were mailed to the respondents. Letters translated into Spanish were mailed to those respondents who completed the interview in Spanish.

Teacher Incentives. In order to maximize response rates, all teachers were mailed a $20 check with the questionnaire package. Teachers were also reimbursed $7 for each child for whom they completed a questionnaire, regardless of the number of questionnaires. Special education teachers were reimbursed in the same manner.

School Incentives. Schools were also paid a monetary incentive for participating in the ECLS-K. Because school staff are often very busy and may not be aware of the benefits of cooperating, the cooperating original sample schools were remunerated $200 for participating, of this $50 was mailed with the school administrator questionnaire package and $150 was mailed once the school assessment

work was begun. Transfer schools received the $50 with the school administrator questionnaire package. School staff who completed the student records abstract received $7 for each questionnaire completed.

All checks to schools, teachers, and school staff completing the SRAs were mailed weekly during the field period and were sent with thank-you letters. The checks to teachers and to staff completing the SRA were made out to the individual who completed the forms.

4.6　　　Data Collection Quality Control

The ECLS-K data are used by researchers to study children's school experience and its relation to student outcomes, and by educators and policymakers to inform policy decisions. It is important that the information used by these groups is based on sound research practice and that considerable attention be paid to identifying potential sources of error, quantifying this error, and designing techniques to either reduce the error or minimize its impact on survey estimates. The work carried out in support of the ECLS-K includes a variety of activities that are directed toward ensuring that the data are of high quality.

4.6.1　　　Maintaining Reliability on the Child Assessment

To ensure that assessors maintained the standard that they achieved at training, assessors were observed by their supervisor in the field at two different points in time. The first observation was to be conducted by the end of March and the second observation by the end of April. The supervisor completed the Assessment Observation Form, which rated the assessor on key areas of the assessment protocol. In the Assessment Observation Form, the supervisor simultaneously coded with the assessor those open-ended assessment items that required judgment by the assessor to determine whether the child's answer was correct. At the end of the assessment period, after the child was escorted from the room, the supervisor and the assessor reviewed the assessor's overall performance. The two also compared the way that they each handled the open-ended questions. If there were large discrepancies, they reviewed the QxQs for these items carefully.

4.6.1.1   Assessment Observation Form

The Assessment Observation Form had the names of the assessor and the supervisor, the case ID observed, the observation number, as well as the date the observation was conducted. The form had two sections: section 1 (shown in exhibit 4-21) was used by supervisors to rate the assessor on key overall skill areas, such as building rapport, using neutral praise, responding to behaviors presented by the child, pacing appropriately, and coaching. In section 1 the supervisor checked "No" for each skill area that the assessor did not demonstrate appropriately.

Exhibit 4-21.   Section 1 of the Assessment Certification Form: School year 2003–04

Evaluator: As the assessment is administered, record whether or not the assessor successfully performed the following behaviors. Check "No" if the assessor makes 3 or 4 errors and needs to make improvements.	

SECTION 1: Rapport building and working with the child

Q:	Did the assessor...	No
1.	Establish rapport with the child?	
2.	Use appropriate response to DK responses from the child?	
3.	Use neutral praise?	
4.	Respond to behaviors presented by child?	
5.	Avoid coaching the child?	
6.	Appropriately pace the assessment?	

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Section 2 listed specific questions from each routing and subdomain (e.g., mathematics) form. The instructions for completing section 2 are shown in exhibit 4-22. For each of the listed questions observed, the supervisor recorded both the child's response and if the assessor did not demonstrate the specified required administration skills for that question. The required administration skills included reading questions verbatim, using appropriate probes, and using appropriate hand motions. For each question in which the supervisor observed that the assessor did not demonstrate the required administration skill(s), he or she checked a box, indicating which skill was not performed.

Exhibit 4-22.   Instructions for Section 2 of the Assessment Observation Form: School year 2003–02

SECTION 2: Specific Assessment Activities

Supervisor/Evaluator: Code the items as the assessor administers the assessment.

Code the child's response as the item is administered.

If the item requires probing, check the box if the assessor **does not** use the appropriate probe.

Check the box in the "Verbatim" column if the assessor **does not** read the item exactly as worded on the screen.

Check the box in the "Gesturing" column if the assessor **does not** use appropriate hand motions.

For each validation code item, check the box in the "Validation" column if the response coded by the assessor **is not** what you have coded.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

As described earlier, during the observed assessment, the supervisor coded the child's response to those open-ended assessment items that required judgment on the part of the assessor. These open-ended items were flagged in the CAI program for quality control review, and a screen showing how the assessor coded each of the questions was accessed at the end of the assessment for review with the supervisor. The supervisor and assessor compared their codes to these open-ended questions. For each item where the coding did not match, the supervisor recorded this discrepancy by checking the corresponding box for that question in the Assessment Observation Form.

Exhibit 4-23 shows an example of a question from the Assessment Observation Form, which required the supervisor to evaluate the required assessment administration skills: reading verbatim, using appropriate gesturing, using appropriate probe, and accurately coding the child's response to this open-ended question. The supervisor was instructed to check the boxes only if the assessor did not demonstrate the correct behavior. For all questions that are observed by the supervisor and listed in the Assessment Observation Form, the supervisor recorded if the assessor did not read verbatim or gesture appropriately. Supervisors only recorded if assessors did not use the appropriate probe for those questions that display probes (a box labeled "Assessor Used Inappropriate Probe?" was presented in the Assessment Observation Form). Also, the supervisors only recorded if their response coding did not match the assessors' for those questions that are open-ended (a box labeled "Validation Code Did Not Match" was presented in the Assessment Observation Form).

Exhibit 4-23. Sample question from Assessment Certification Form: School year 2003–04

		DID NOT READ QUESTION VERBATIM	GESTURED INAPPRO-PRIATELY	VALIDATION CODE DID NOT MATCH

R5.245	What do you think is the difference between the storyteller's bedroom and the sister's bedroom?**
	
	 IF STUDENT SAYS, " A mess" OR "A lot of junk", PROMPT: "How is it **different**?"
	
	 CORRECT 1
	    STORY TELLER'S BEDROOM IS:
	       (BIGGER MESS/MORE
	          MESS/MESSIER)
	       (MORE JUNK/JUNKIER)
	       (IS A MORE DISGUSTING
	          SPOT)
	       CORRECT ANSWER MUST
	          INVOLVE A COMPARISON
	 INCORRECT... 2
	    (STORY TELLER'S BEDROOM IS
	       CLEAN/AS MESSY AS SISTER'S BEDR
	    DETAILS ABOUT THE SISTER'S
	       BEDROOM
	       EXAMPLES:
	          (PIZZA UNDER THE DESK)
	          (SOCKS ON THE LIGHT)
	          (MESS/ALSO A MESS)
	          (JUNK/ A LOT OF JUNK)
	 REFUSED 777
	 DON'T KNOW 999
		☐	☐	☐

ASSESSOR USED INAPPROPRIATE PROBE?				

At the end of the child assessment, after the child was escorted from the room, the supervisor and the assessor reviewed the assessor's overall performance. After discussing the ratings on section 1, the assessor accessed the quality control screen. The assessor and supervisor reviewed their codes for each open-ended question asked in section 2 of the Assessment Observation Form.

The supervisor then scored the assessment observation using the scoring form shown in exhibit 4-24. In the first part of the form (Form A), the supervisor counted the number of check marks recorded in section 1: Rapport Building and recorded that number in the appropriate row. The supervisor then recorded the number of check marks for each section of the assessment that was observed and entered those numbers in the appropriate box.

Exhibit 4-24.   Observation Scoring Form: School year 2003–04

Observation Scoring

Step 1:   Record the number of check marks from *Section 1: Rapport Building* and *Section 2: Specific Assessment Activities* in the appropriate boxes of Form A.

Step 2:   Sum each row and record total in *Row Totals* column of Form A.

Step 3:   Sum *Row Totals* column (including number of check marks from *Section 1)* and record in *Total check marks* box of Form A.

Form A: Checks Marks Recorded in Sections 1 and 2

Assessment	Routing Form	Red Form	Yellow Form	Blue Form	Row Totals
Reading					
Mathematics					
Science					
Number of check marks from *Section 1: Rapport Building:*					
Total Check Marks:					

Step 4:   Using Form B, circle the number in the form used for each assessment. For example, if the Red Form was used for reading, circle the number 6 in the *Routing Row* and the number 20 in the *Reading* row under *Red Form*. Record each circled number in the *Row Totals* column of Form B.

Step 5:   Sum *Row Totals* column (including *Possible Points for Section 1*) and record in *Total Possible Points* box of Form B.

Form B: Total Possible Points

Assessment	Routing Form	Red Form	Yellow Form	Blue Form	Row Totals
Reading	6	20	21	20	
Mathematics	8	11	18	23	
Science	11	14	15	18	
Possible Points for *Section 1: Rapport Building:*				6	
Total Possible Points:					

Step 6:   Use Proportion Correct Chart to determine the proportion correct and write that proportion in this box:

Result: If *Proportion correct* is greater than or equal to .85, Assessor is Certified.
If *Proportion correct* is between .70 and .85, Assessor requires Remedial Action (Complete Remedial Task Chart below)
If *Proportion correct* is less than .70, Assessor Failed.

See note at end of exhibit.

Exhibit 4-24.   Observation Scoring Form: School year 2003–04—Continued

Remedial Task Chart

Circle the number of the task(s) needing improvement. Discuss remedial action with the assessor.

TASK	#	REMEDIAL ACTION
APPROPRIATE PACE	1	PRACTICE/REVIEW JOB AIDS
AVOID COACHING	2	REVIEW THE JOB AIDS
READ VERBATIM	3	PRACTICE READING FROM THE SCREEN
GESTURING APPROPRIATELY	4	PRACTICE GESTURING
USE APPROPRIATE PROBES	5	REVIEW THE JOB AIDS/Q-BY-Qs
VALIDATION CODE DID NOT MATCH	6	REVIEW THE Q-BY-Qs

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Exhibit 4-25 shows an example of a completed Form A. In this example, the supervisor recorded one (1) check mark for section 1, zero (0) check marks for Reading Routing, zero (0) check marks for Reading Blue, one (1) check mark for Math Routing, zero (0) check marks for Math Yellow, zero (0) check marks for Science Routing, and one (1) check mark for Science Red. The total check marks recorded was three (3).

Exhibit 4-25.   Example of Form A: School year 2003–04

Form A: Checks Marks Recorded in Sections 1 and 2					
Assessment	Routing Form	Red Form	Yellow Form	Blue Form	Row Totals
Reading	0			0	0
Mathematics	1		0		1
Science	0	1			1
Number of check marks from *section 1: Rapport Building:*					1
Total Check Marks:					3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The supervisor then calculated the number of possible points for the sections of the assessment observed using the second section of the scoring form (Form B) (exhibit 4-26). Continuing with the example started earlier, the supervisor observed all of Reading Blue (20 possible points), Math Yellow (18 possible points), and Science Red (14 possible points). In addition, section 1 and all the Routing Forms contribute 31 possible points. Based on the sections of the assessment that the supervisor observed the total number of possible points for this assessor was 83.

Exhibit 4-26.   Example of Form B: School year 2003–04

Form B: Total Possible Points					
Assessment	Routing Form	Red Form	Yellow Form	Blue Form	Row Totals
Reading	6	20	21	20	
Mathematics	8	11	18	23	
Science	11	14	15	18	
Possible Points for *Section 1: Rapport Building:*					6
Total Possible Points:					

Finally, the supervisor determined the proportion correct by using the Proportion Correct Chart displayed in exhibit 4-27. Continuing the example, the supervisor found the column on the Proportion Correct Chart displaying the total possible points for the assessor based on the portions of the assessment observed (74) and the row on the Proportion Correct Chart displaying the total check marks the supervisor recorded for the trainee (3), and recorded the proportion from the corresponding box on the Proportion Correct Chart in the box under step 6 (exhibit 4-28) on the scoring form (.96).

Once the supervisor completed the scoring, the assessor was rated as *Passed*, *Remedial Action,* or *Failed*.

The field supervisors recorded their observations on the form and then reviewed the form with the assessor. The most frequent problems observed were not reading the items verbatim and inappropriate gesturing. Feedback was provided to the assessors on the strengths and weaknesses of their performance and, when necessary, remedial training was provided in areas of weakness. Table 4-20 presents the result of the observations. As table 4-20 shows, all assessors received scores of 85 percent or better while being observed.

Exhibit 4-27.　Proportion Correct Chart: School year 2003–04

	69	70	72	73	74	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	92	93
1	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
2	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
3	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.97	0.97	0.97	0.97	0.97	0.97	0.97
4	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96	0.96
5	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.95	0.95
6	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.94
7	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
8	0.88	0.89	0.89	0.89	0.89	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
9	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90
10	0.86	0.86	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.89	0.89	0.89	0.89	0.89	0.89
11	0.84	0.84	0.85	0.85	0.85	0.86	0.86	0.86	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88
12	0.83	0.83	0.83	0.84	0.84	0.84	0.84	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86	0.86	0.86	0.86	0.87	0.87	0.87	0.87
13	0.81	0.81	0.82	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84	0.84	0.84	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86
14	0.80	0.80	0.81	0.81	0.81	0.82	0.82	0.82	0.82	0.83	0.83	0.83	0.83	0.83	0.84	0.84	0.84	0.84	0.84	0.84	0.85	0.85
15	0.78	0.79	0.79	0.79	0.80	0.80	0.81	0.81	0.81	0.81	0.81	0.82	0.82	0.82	0.82	0.83	0.83	0.83	0.83	0.83	0.84	0.84
16	0.77	0.77	0.78	0.78	0.78	0.79	0.79	0.79	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.81	0.82	0.82	0.82	0.82	0.83	0.83
17	0.75	0.76	0.76	0.77	0.77	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.80	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.82	0.82
18	0.74	0.74	0.75	0.75	0.76	0.76	0.77	0.77	0.77	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.79	0.80	0.80	0.80	0.80	0.81
19	0.72	0.73	0.74	0.74	0.74	0.75	0.75	0.76	0.76	0.76	0.77	0.77	0.77	0.77	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.80
20	0.71	0.71	0.72	0.73	0.73	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.76	0.76	0.77	0.77	0.77	0.78	0.78	0.78	0.78
21	0.70	0.70	0.71	0.71	0.72	0.72	0.73	0.73	0.73	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.76	0.76	0.77	0.77	0.77
22	0.68	0.69	0.69	0.70	0.70	0.71	0.71	0.72	0.72	0.73	0.73	0.73	0.73	0.74	0.74	0.74	0.75	0.75	0.75	0.76	0.76	0.76
23	0.67	0.67	0.68	0.68	0.69	0.70	0.70	0.71	0.71	0.71	0.72	0.72	0.72	0.73	0.73	0.73	0.74	0.74	0.74	0.74	0.75	0.75
24	0.65	0.66	0.67	0.67	0.68	0.68	0.69	0.69	0.70	0.70	0.70	0.71	0.71	0.71	0.72	0.72	0.72	0.73	0.73	0.73	0.74	0.74
25	0.64	0.64	0.65	0.66	0.66	0.67	0.68	0.68	0.68	0.69	0.69	0.70	0.70	0.70	0.71	0.71	0.71	0.72	0.72	0.72	0.73	0.73
26	0.62	0.63	0.64	0.64	0.65	0.66	0.66	0.67	0.67	0.68	0.68	0.68	0.69	0.69	0.69	0.70	0.70	0.70	0.71	0.71	0.72	0.72
27	0.61	0.61	0.63	0.63	0.64	0.64	0.65	0.65	0.66	0.66	0.67	0.67	0.67	0.68	0.68	0.69	0.69	0.69	0.70	0.70	0.71	0.71
28	0.59	0.60	0.61	0.62	0.62	0.63	0.64	0.64	0.65	0.65	0.65	0.66	0.66	0.67	0.67	0.67	0.68	0.68	0.69	0.69	0.70	0.70
29	0.58	0.59	0.60	0.60	0.61	0.62	0.62	0.63	0.63	0.64	0.64	0.65	0.65	0.65	0.66	0.66	0.67	0.67	0.67	0.68	0.68	0.69
30	0.57	0.57	0.58	0.59	0.59	0.61	0.61	0.62	0.62	0.63	0.63	0.63	0.64	0.64	0.65	0.65	0.66	0.66	0.66	0.67	0.67	0.68

NOTE: Proportion Correct = (Total Possible Points – Number of Check Marks)/Total Possible Points
EXAMPLE: If an Assessor received 8 check marks out of a total of 86 possible points, the proportion correct is 0.91. This Assessor passed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Exhibit 4-28. Example of Proportion Correct Chart: School year 2003–04

Step 6:	Use Proportion Correct Chart to determine the proportion correct and write that proportion in this box: .96

.98

Table 4-20. Results of the child assessment observations, fifth-grade data collection: School year 2003–04

Number of observations[1]	Score on certification form
Total: 466	
465	85 percent or above
1	70-84 percent
0	Below 70 percent

[1] Two hundred and forty-two assessors were to be observed after training; assessors completing only parent interviews were not observed. 12 assessors had only one observation; 227 assessors had two observations. Only 1 assessor failed to pass the first observation and was released from the project by mutual consent.

4.6.1.2   Assessor Interrater Reliability

As part of the child assessment observations described in section 4.6.1, field supervisors completed an assessment certification form for each observation they conducted. An important element of this form was the "validation items." With the exception of the reading routing test, all of the assessments included at least one item that both the observer and the assessor scored. These items had open-ended responses that called for interpretation on the part of the assessor to determine whether a child's response was correct. By comparing the extent to which assessors and observers agreed on scoring these validation items, a measure of interrater reliability was obtained. Interrater reliability provided a measure of the accuracy of the assessor's scoring compared with the standard, the observer's.

Table 4-21 contains the results of these comparisons. As can be seen, overall interrater reliability was very high throughout all the forms. It was highest for mathematics (98 percent or better depending upon the form) and lowest for reading, with the reading yellow level (the medium reading level) showing the lowest percent agreement (95.7 percent). The reading yellow level path received a

relatively large number of observations (232) and also contained a relatively large number of validation items (5) compared with some of the other paths. Thus, there was greater opportunity for disagreement on this path compared with the others. The science blue level (the high science level) also had a relatively higher opportunity for disagreement (212 observations and 4 validation codes) and it, too, exhibited a somewhat lower interrater reliability (96.7 percent) compared with some of the other paths. The reliability, however, even on these more difficult paths, was high and demonstrated that the assessors accurately coded open-ended items.

Table 4-21. Interrater reliability on child assessment validation items: School year 2003–04

Category	Number of Observations	Number of Validation items	Percent agreement: Assessors and observers[1]
Reading	458	13	96.5
Routing	†	0	†
Red	103	3	97.1
Yellow	232	5	95.7
Blue	123	5	97.4
Mathematics	461	10	99
Routing	461	2	99.7
Red	162	1	100
Yellow	161	3	98.8
Blue	138	4	98.4
Science	463	14	96.8
Routing	460	3	99.1
Red	53	4	98.1
Yellow	198	3	96.6
Blue	212	4	96.7

† Not applicable.
[1] Percent agreement was calculated as follows: number of validation items observed in which observer agreed with the assessor divided by number of validation items observed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

4.6.2 Validation of Parent Interviews

Approximately 10 percent of the respondents who completed parent interviews were called back by a field supervisor (i.e., validated). The first parent interview completed by an assessor was always validated. Over the course of the field period, a running count of an assessor's completed parent interviews was maintained, and each tenth completed parent interview was selected for validation, thus ensuring that 10 percent of each assessor's cases were selected for validation. The parent validation was approximately 5 minutes long and was conducted by telephone. No in-person cases were validated.

Field supervisors used a standardized parent validation script, the Parent Interview Validation Form, to make validation calls to parents. The validation script included verification of the child's name, date of birth, and sex, and 7 questions from the parent interview. Parent Validation Interview Forms were generated throughout the field period. By the end of June, nearly 10 percent (1,023) of the total completed parent interviews had been validated. Validation results were as follows: (1) "No changes" meaning responses to the original interview and the validation interview were identical; (2) "Minor changes" meaning there was a minor discrepancy (e.g., the ZIP code was different) between the responses to the original interview and the validation interview; and (3) "Major changes" meaning there was a discrepancy between the response to the original interview and the response in the validation interview (e.g., bed times varied between the two contacts). Table 4-22 presents the results of the parent validations.

4.6.3 Validations of School Visits

To ensure that assessments proceeded smoothly, a validation call was completed with the school principal in at least two of each supervisor's assigned original schools in the spring-fifth grade data collection. Field managers conducted the school validations. No validation calls were made to transfer schools because the impact of the survey was so minimal due to most having only one child enrolled.

Table 4-22. Results of parent interview validations: School year 2003–04

Parent validation status	March		April		May		June	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Completed parent interviews	5,218	100.0	8,468	100.1	10,204	100.0	10,930	100.0
Validation cases generated	603	11.6	931	11.0	1,140	11.2	1,213	11.1
Validation cases receipted	258	42.8	632	67.9	864	75.8	1,028	84.7
No changes	228	88.4	586	92.7	793	91.8	943	91.7
Minor changes	8	3.1	14	2.2	22	2.5	24	2.3
Major changes	22	8.5	32	5.1	49	5.7	61	5.9
Other (specify)	0	0.0	0	0.0	0	0.0	0	0.0
Cases pending	345	57.2	299	32.1	276	24.2	185	18.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The first original school that each team completed was called to ascertain how well the preassessment and assessment activities went. If the feedback from the school was positive, the fifth school that each team completed was called. If any problems were indicated in the first validation call, immediate action was taken with the field supervisor. The validation feedback was discussed with the supervisor and remedial action was taken, including telephone training on areas needing improvement or in-person observation of the supervisor's next school, if necessary; no remedial action was warranted based on the school validation calls.

Field managers used a standardized telephone script, the School Validation Script, to call the school principals. The script covered the following topics:

- An overall rating of how the assessments went;

- Feedback the principal had received about the study from children and teachers;

- Suggestions for improving procedures and making it easier for a school to participate; and

- General comments and suggestions.

Field managers called schools throughout the field period as scheduled assessments were completed. By the end of the field period in June, field managers had called 162 original sample schools (100 percent of the schools to be validated) to ascertain whether the conduct of the child assessments in the school was satisfactory; one school administrator could not be reached before the end of the school year. Table 4-23 presents the results of the school validation calls.

Table 4-23.   Results of school validation calls: School year 2003–04

	March		April		May		June	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total validation cases generated	162	100.0	162	100.0	162	100.0	162	100.0
Validation cases completed	28	17.3	109	67.3	156	96.3	162	100.0
Overall rating								
Very satisfactory	28	100.0	106	97.2	146	93.6	152	93.8
Satisfactory	2	7.1	3	2.8	10	6.4	10	6.2
Unsatisfactory	0	0.0	0	0.0	0	0.0	0	0.0
Very unsatisfactory	0	0.0	0	0.0	0	0.0	0	0.0
Validation cases not completed	134	82.7	53	32.7	6	3.7	1	0.6

NOTE: Detail may not sum to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

5. DATA PREPARATION AND EDITING

As described in chapter 4, two types of data collection instruments were used for the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) data collection in the spring-fifth grade: computer-assisted instruments and self-administered paper forms (hard copy). The data preparation approach differed with the mode of data collection. The direct child assessments and parent interview were conducted using computer-assisted interviewing (CAI) techniques. Editing specifications were built into the computer programs used by assessors to collect these data. The teacher, school administrator, and student records abstract forms were self-administered. When forms and questionnaires were received at Westat, coders reviewed them to ensure data readability for transfer into an electronic format and for the completion of critical items. The visual review included changing (upcoding) any "Other, specify" responses that actually fit within the available response categories of the question. For example, if the parent said "skiing" in response to the question on the types of exercise or physical activity the child participated in, this answer was upcoded to the existing category, "individual sports." There were some items for which upcoding was conducted after the data were keyed due to the large volume of "Other" responses. Once they finished this review, the coders sent the instruments to data entry to be manually transferred to an electronic format and reviewed for range and logic consistency. The following sections describe the data preparation activities for both modes of data collection in more detail.

5.1 Coding and Editing Specifications for Computer-Assisted Interviews (CAI)

The very nature of designing a computer-assisted interview requires decisions about edit specifications to be made at the development stage. Both acceptable ranges and logical consistency checks were preprogrammed into the electronic questionnaires. The next few sections describe the coding and editing of the data that were conducted during and after the CAI parent interview.

5.1.1 Range Specifications

Within the CAI parent interview instruments, respondent answers were subjected to both "hard" and "soft" range edits during the interviewing process. A "soft range" is one that represents the reasonable expected range of values but does not include all possible values. Responses outside the soft

range were confirmed with the respondent and entered a second time. For example, the number of hours each week a child attended a day care center on a regular basis had a soft range of 1 to 50. A value outside this range could be entered and confirmed as correct by the interviewer as long as it was within the hard range of values (1 to 70).

"Hard ranges" have a finite set of parameters for the values that can be entered into the computer, for example, "0–5 times" for the number of times the child, in the previous 5 days, ate a breakfast that was not provided by the school. Out-of-range values for closed-ended questions were not accepted. If the respondent insisted that a response outside the hard range was correct, the interviewer could enter the response in a comments data file. Data preparation and project staff reviewed these comments. Out-of-range values were accepted and entered into the data file if the comments supported the response.

The child assessments did not employ hard and soft ranges. Children's answers were recorded verbatim.

5.1.2 Logical Consistency Checks (Logical Edits)

Logical consistency checks, or logical edits, examined the relationship between responses to ensure that they did not conflict with one another or that the response to one item did not make the response to another item unlikely. For example, in the household roster, one could not be recorded as a mother and male. A male mother or female father (or any other gender/relationship discrepancy) would cause the case to fail the parent edits and the case would be examined by hand. We certainly identified some same-sex partnership households this way, usually by looking at the combination of relationship, sex, and first name. Such households would be left as is. Only cases that were deemed in error were corrected. When a logical error such as this occurred during an interviewing session, the interviewer was presented with a message requesting verification of the last response and a resolution of the discrepancy. In some instances, if the verified response still resulted in a logical error, the interviewer recorded the problem either in a comment field or on a problem report. Consistency checks were not applicable to the child assessments.

5.1.3   Coding

Additional coding was required for some of the items collected in the CAI instruments by data preparation and project staff after an interview was completed. These items included "Other, specify" text responses, occupation, and race/ethnicity. Interviewers entered verbatim responses to these items. Data preparation staff were trained to code these data using coding manuals designed by Westat and the National Center for Education Statistics (NCES) to support the coding process. This section describes the coding activities for the CAI instruments.

Review of "Other, Specify" Items. There were twenty-five "Other, specify" open-ended responses in the parent interview. All of these items were reviewed to determine if they should be coded into one of the existing response categories. During data collection, when a respondent selected an "other" response in the parent interview, the interviewer entered the text into a "specify" overlay that appeared on the screen. The data preparation staff reviewed these text "specify" responses and, where appropriate, coded them into one of the existing response categories. If a response did not fit into one of the existing categories, it remained in "other." If there were numerous responses that were essentially the same, approximately one hundred, then a new code was added to the item. Three new codes were added to parent interview items during fifth-grade data processing as presented in table 5-1.

Table 5-1.   "Other, specify" codes added during fifth grade: School year 2003–04

Item	"Other, specify" item descriptions	New code
EMQ.070	Job Find Effort	Read Want Ads/Internet
CHQ.365	Emotional Diagnosis	No Problem
CHQ.337	Behavior Diagnosis	No Problem

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The parent "Other, specify" coding system was revised from previous rounds of data collection and in production testing in April 2004. The revisions consisted of adding new "Other, specify" items that had not been part of the previous rounds; six items in the parent interview included an "Other, specify" code and were added to the system (see table 5-2 for new items). A total of 3,601 "Other, specify" text strings were processed through the parent "Other, specify" coding system. All possible upcodes were applied to the 10,901 cases that had at least one "Other, specify" text string. As noted above, whenever appropriate, responses were upcoded to existing categories. There were no "Other,

specify" items in the child assessments. Table 5-3 presents the number of text strings for each "Other, specify" item including the new ones added in fifth grade.

Table 5-2.   "Other, specify" items added to the coding system: School year 2003–04

New item	Description of "Other, specify" item description
COQ.005	Country of biological mother's birth
COQ.020	Country of biological father's birth
CHQ.547	Reason child no longer participates in special education services
CHQ.751	Other medication name
CHQ.781	Main reason for receiving family therapy
CHQ.791	Type of other person family saw

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-3.   Number of text strings by "Other, specify" item, fifth-grade parent interview: School year 2003–04

Item	"Other, specify" item description	Number of strings
Total		3,601
CHQ.337	Behavior Diagnosis	68
COQ020	Birth Place DAD	13
COQ005	Birth Place MOM	13
NRQ.261	Child Support Agreement	82
CCQ.393	Center Pay Unit	10
EMQ.080	Doing Last Week	261
CHQ.365	Emotional Diagnosis	160
CHQ.726	Exercise Types	616
FSQ240	FSQ Birth Place	4
CMQ.690	Interview Language	39
EMQ.070	Job Find Effort	124
CHQ.060	Mental Diagnosis	159
FSQ.181	Nonrelative	129
CCQ.225	Nonrelative Pay Unit	1
WPQ.130	Other, specify Stamps	7
WPQ.106	Other, specify TANF	7
CHQ750	Prescription Medicine	80
FSQ.198	Race	131
CHQ 781	Main Reason for Receiving Family Therapy	41
FSQ.015	Reason Left Household	530
CHQ547	Reason No Service	117
CCQ.128	Relative Pay Unit	3
CHQ791	Type of Therapist Seen	11
CHQ.120	What Act Diagnosis	54
PIQ.015	Why Call School	941

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Parent Occupation Coding. As in previous data collections, occupations were coded using the *Manual for Coding Industries and Occupations* (U.S. Department of Education 1999). This coding manual was created for the Adult Education Survey of the National Household Education Surveys Program (NHES) and used an aggregated version of industry and occupation codes. The industry and occupation codes used by NHES were originally developed for the 1989–90 National Postsecondary Student Aid Study (NPSAS) and contained one to four digits. Analysis of the NPSAS categories revealed that some categories had very small numbers of cases and similar categories had similar participation rates, suggesting that the separate codes could be collapsed without significant loss of information. The NHES industry and occupation code categories use a two-digit code, the highest level of aggregation, to have sufficient numbers of cases to support analysis without collapsing categories. There are 13 industry codes and 22 occupation codes in the NHES coding scheme. If an industry or occupation could not be coded using this manual, the *Index of Industries and Occupations—1980* (U.S. Department of Commerce 1982) and *Standard Occupational Classification Manual—1980* (U.S. Department of Commerce 1980) were used. Both of these manuals use an expanded coding system and at the same time are directly related to the much more condensed NHES coding scheme. These manuals were used for reference in cases where the NHES manual did not adequately cover a particular situation. Exhibit 5-1 describes the aggregated categories that were used for coding occupation in the ECLS-K.

Exhibit 5-1.   Aggregated occupation coding categories in the ECLS-K: School years 1998–99, 2001–02, and 2003–04

1. Executive, Administrative, and Managerial Occupations	This category includes senior-level and middle management occupations and occupations that directly support management. Senior-level managers are persons concerned with policymaking, planning, staffing, directing, and/or controlling activities. Middle managers include persons who plan, organize, or direct and/or control activities at the operational level. Workers in this category are not directly concerned with the fabrication of products or with the provision of services. Other officials and administrators include consultants, library directors, custom house builders, and location managers. Legislators are also included in this category.
2. Engineers, Surveyors, and Architects	The category includes occupations concerned with applying principles of architecture and engineering in the design and construction of buildings, equipment and processing systems, highways and roads, and land utilization.
3. Natural Scientists and Mathematicians	This category includes those engaged primarily in the application of scientific principles to research and development. Natural scientists are those in the physical sciences (e.g., chemistry, physics) and the life sciences (e.g., biology, agriculture, medicine). In addition, this category includes those in computer science, mathematics (including statistics), and operations research.

See note at end of exhibit.

Exhibit 5-1.   Aggregated occupation coding categories in the ECLS-K: School years 1998–99, 2001–02, and 2003–04—Continued

4. Social Scientists, Social Workers, Religious Workers, and Lawyers	This category includes occupations concerned with the social needs of people and in basic and applied research in the social sciences.
5. Teachers: College, University, and Other Postsecondary Institution; Counselors, Librarians, and Archivists	This category includes those who teach at higher education institutions and at other postsecondary (after high school) institutions, such as vocational institutes. In addition, vocational and educational counselors, librarians, and archivists are included here.
6. Teachers, except Postsecondary Institution	This category includes prekindergarten and kindergarten teachers, elementary and secondary teachers, special education teachers, instructional coordinators, and adult education teachers (outside postsecondary).
7. Physicians, Dentists, and Veterinarians	This category includes health care professionals who diagnose and treat patients. In addition to physicians, dentists, and veterinarians, this category includes optometrists, podiatrists, and other diagnosing and treating professionals, such as optometrists, podiatrists, chiropractors, hypnotherapists, and acupuncturists.
8. Registered Nurses, Pharmacists, Dieticians, Therapists, and Physician's Assistants	This category includes occupations concerned with the maintenance of health, the prevention of illness and the care of the ill through the provision and supervision of nursing care; compounding drugs, planning food service or nutritional programs; providing assistance to physicians; and the provision of therapy and treatment as directed by physicians
9. Writers, Artists, Entertainers, and Athletes	This category includes occupations concerned with creating and executing artistic works in a personally interpreted manner by painting, sculpturing, drawing, engraving, etching, and other methods; creating designs for products and interior decorations; designing and illustrating books, magazines, and other publications; writing; still, motion picture and television photography/filming; producing, directing, staging, acting, dancing, singing in entertainment; and participating in sports and athletics as a competitor or player and administering and directing athletic programs.
10. Health Technologists and Technicians	This category includes occupations concerned with providing technical assistance in the provision of health care. For example, clinical laboratory technologists and technicians, dental hygienists, radiologic technicians, licensed practical nurses (LPNs), and other health technologists are included here
11. Technologists and Technicians, except Health	This category includes those providing technical assistance in engineering and scientific research, development, testing, and related activities, as well as operating and programming technical equipment and systems.
12. Marketing and Sales Occupations	This category includes occupations involving selling goods or services, purchasing commodities and property for resale, and conducting wholesale or retail business.

See note at end of exhibit.

13. Administrative Support Occupations, including Clerks	This category includes occupations involving preparing, transcribing, transferring, systematizing, and preserving written communications and records; collecting accounts; gathering and distributing information; operating office machines and data processing equipment; operating switchboards; distributing mail and messages; and other support and clerical duties such as bank teller, data entry keyer, etc
14. Service Occupations	The category includes occupations providing personal and protective services to individuals, and current maintenance and cleaning for building and residences. Some examples include food service, health service (e.g., aides or assistants), cleaning services other than household, and personal services.
15. Agricultural, Forestry, and Fishing Occupations	This category is concerned with the production, propagation (breeding/growing), gathering, and catching of animals, animal products, and plant products (timber, crop, and ornamental); the provision of services associated with agricultural production; and game farms, fisheries, and wildlife conservation. "Other agricultural and related occupations" include occupations concerned with the production and propagation of animals, animal products, plants, and products (crops and ornamental).
16. Mechanics and Repairers	Mechanics and repairers are persons who do adjustment, maintenance, part replacement, and repair of tools, equipment, and machines. Installation may be included if installation is usually done in conjunction with other duties of the repairers.
17. Construction and Extractive Occupations	This category includes occupations that normally are performed at a specific site, which will change over time, in contrast to production workers, where the work is usually at a fixed location. Construction workers include those in overall construction, brickmasons, stonemasons, carpenters, electricians, drywall installers, paperhangers and painters, etc. Extractive occupations include oil well drillers, mining machine operators, and so on.
18. Precision Production Occupations	Precision production includes occupations concerned with performing production tasks that require a high degree of precision or attainment of rigid specification and operating plants or large systems. Examples are tool and die makers, pattern and model makers, machinists, jewelers, engravers, and so on. Also included are some food-related occupations including butchers and bakers. Plant and system operators include water and sewage, gas, power, chemical, petroleum, and other plant or system operators.
19. Production Working Occupations	This category includes occupations concerned with setting up, operating, and tending of machines and hand production work usually in a factory or other fixed place of business.
20. Transportation and Material Moving Occupations	This category includes occupations concerned with operating and controlling equipment used to facilitate the movement of people or materials and the supervising of those workers.

See note at end of exhibit.

Exhibit 5-1.   Aggregated occupation coding categories in the ECLS-K: School years 1998–99, 2001–02, and 2003–04—Continued

| 21. Handlers, Equipment Cleaners, Helpers, and Laborers | This category includes occupations that involve helping other workers and performing routine nonmachine tasks. A wide variety of helpers, handlers, etc., are included in this category. Examples include construction laborers, freight, stock, and material movers, garage and service station related occupations, parking lot attendants, and vehicles washers and equipment cleaners. |
| 22. Unemployed, Retired, Disabled, or Unclassified Workers | This category includes persons who are unemployed, have retired from the work force, or are disabled. It also includes unclassified occupations that do not fit in the categories above (e.g., occupations that are strictly military, such as "tank crew member" and "infantryman"). |

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Occupation coding began with an autocoding procedure using a computer string match program developed for the NHES. The program searched the responses for strings of text for each record/case and assigned an appropriate code. A little over a third of the cases were autocoded (39 percent). Cases that could not be coded using the autocoding system were coded manually using a customized coding utility program designed for coding occupations. The customized coding utility program brought up each case for coders to assign the most appropriate codes. In addition to the text strings, other information, such as main duties, highest level of education, and name of the employer, was available for the coders. The coders used this information to ensure that the occupation code assigned to each case was appropriate.

After the cases were coded (either manually or via autocoding), they were reviewed and verified. One hundred percent of the cases were verified. Verification of coding is an important tool for ensuring quality control and extending coder training. As a verification step, a second coder independently assigned codes (i.e., double-blind coding) to industry and occupation cases that had been initially coded either by the autocoding system or manually by a coder. A coding supervisor adjudicated disagreements between the initial code and the verification code. In the early stages, 100 percent of each coder's work was reviewed. Once the coder's error rate had dropped to 1 percent or less, 10 percent of the coder's work was reviewed. Fifteen percent of the cases that were autocoded required adjudication because the verifier disagreed with the autocoding. Thirty percent of the manually coded cases required adjudication because the manual coder and the verifier disagreed.

Table 5-4 summarizes the results of the coding and verification process for occupation coding. In the table, manually coded indicates that occupation was initially coded by a coder as opposed to using the autocoding system. Discrepancies are the count of disagreements between the autocoder and the verifier or between the manual coder and the verifier: the discrepant cases required adjudication. The percentage of times in which the coding supervisor disagreed with the coder's (or the autocoding system's) initial coding is referred to as the coder error rate. The percentage of times in which the coding supervisor disagreed with the verifier's coding is referred to as the verifier error rate. The denominator used in calculating these error rates is the number of cases verified. The error rate for manually coded cases was higher for coders (20.8 percent) than for verifiers (12 percent). The autocoded cases had a lower error rates for both coders (10.8 percent) and verifiers (5.5 percent) compared with the manually coded rates.

Table 5-4.   Number and percent of occupations coded, by coding status: School year 2003–04

Coding Status	Number coded	Percent
Total	12,691	100.0
Coded	12,691	100.0
Autocoded	4,920	38.8
Manually coded	7,771	61.2
Verified	12,691	100.0
Verified from autocoding	4920	38.8
Verified from manual coding	7,771	61.2
Discrepancies between coding and verifying	3,015	100.0
Adjudicated from autocoding	720	23.9
Adjudicated from manual coding	2,295	76.1
Autocoding system or manual coder wrong	2,158	100.0
Autocoded	521	24.1
Manually coded	1,637	75.9
Verifier wrong	1,056	100.0
Autocoded	238	22.5
Manually coded	818	77.5

NOTE: Occupation was collected for up to two key persons in spring-fifth grade. It was only collected for persons who had a different job from spring-third grade or who had not been employed in the previous round, but were employed in spring-fifth grade. For everyone else, the spring-third grade data were carried forward. The numbers in this table represent occupational text strings that were coded into appropriate occupation categories and applied to the appropriate key person (e.g., mother or father).
[1] Total discrepancies do not equal the sum of coder wrong and verifier wrong because sometimes both coder and verifier were deemed to be wrong.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

5.1.4   Editing the Household Roster in the Parent Interview

The parent data edit system was modified from spring-third grade in April and May 2004 to reflect changes to the fifth-grade parent interview. The parent interview data were edited in two batches as the interviews were completed (see table 5-5). This was done to make the process more efficient. The first batch consisted of all cases received from the beginning of the round through May 20, 2004. The second batch consisted of cases completed from May 21 through the end of data collection.

Table 5-5.   Data editing of the parent interview household roster, fifth-grade data collection: School year 2003–04

Batch number	Data extraction date	Number of households extracted	Percent of total households	Number of households failing edits	Percent of households extracted
Total	†	10,895	100	435	3.2
1	5/20/04	6,004	55.1	190	3.1
2	6/3/04	4,897	44.9	168	3.4

† Not applicable.
NOTE: The data in this table are household-level data, not case-level data (that is, not child-level). Detail may not sum to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The first step in the editing process was to extract the household roster data and run the data edits. The second step was to apply the programmatic updates to the cases failing the edits to correct any errors programmatically. The third step was for an expert reviewer to manually review the cases, conduct as-needed discussions with NCES for resolution, and resolve and correct data errors. Six cases were lost from the data file after the expert review and discussion with NCES because the children had no data and were removed from the data file.

Several tests were run on the household roster to look for missing or inaccurate information. There were essentially three general types of roster tests performed to determine which cases required editing. First, the relationship of an individual to the focal child was compared to the individual's listed age and sex. Problems found were corrected on the basis of data from prior data collections wherever possible. Second, households with more than one mother or more than one father were scrutinized for errors. While it was possible to have more than one mother in a household, such cases warranted closer inspection. Corrections were made whenever clear errors and a clear resolution existed. Last, the relationship of an individual to both the focal child and the respondent was examined, as there were cases

in which the relationship of an individual to the focal child conflicted with his status as the spouse/partner of the reference person. For example, in a household containing a child's grandparents but not his or her parents, the grandmother may be designated the "mother" figure, and the grandfather thus becomes the "father" (for the purposes of some questions in the interview) by virtue of his marriage to the grandmother. These cases were examined but left unchanged. Both the original—and correct (grandfather)—relationship data and the new "parent-figure" designation (father) that had been constructed were kept.

Updates to the household roster were required when one or more of the edit checks described above failed. The data for the case would be inspected, resolved, and, if necessary, corrected. There were 435 households, with 446 children linked to them, completed a parent interview that required editing in fifth grade (identified by P6EDIT=1). There were 76 cases in which the interviewer noted in the Family Structure section (FSQ) that they had entered a person incorrectly in the household roster. These cases can be identified by the flag "P6ERRFLG" on the final data files. These "error" cases may or may not have also been edit cases, depending on whether or not the error triggered one of the edit checks.

5.2 Coding and Editing Specifications for Hard-Copy Questionnaires

5.2.1 Receipt Control

In order to monitor the more than 40,000 documents that were to be received in the fifth-grade year, the project-specific receipt and document control system developed in the base year was used, with some modifications. The electronic receipt and document control system was initially loaded or filled with identifying information, such as identification numbers for schools, teachers, and children; the identification numbers linking teachers, children, and domain; and the questionnaires that were expected from each school and teacher for each cooperating school in the sample. As data were collected in the field, field supervisors completed transmittal forms for each school to indicate which questionnaires were being mailed to the home office.

Once data collection started, receipt control clerks reviewed the questionnaires sent in from the field for accuracy and completeness. The identification number on each form was matched against the identification numbers in the tracking system to verify that the appropriate number of forms for each school was returned. Questionnaires that matched identification numbers in the tracking system were

receipted in the system and assigned a batch number. All receipted questionnaires matched identification numbers in the tracking system. Each questionnaire type had a different batch number so that questionnaires of the same type would be processed together. Processing data in batches was more efficient because it allowed staff to process in volume one type of questionnaire rather than switching from one type to another. Questionnaires with the same batch numbers were then compiled into batches of 25 instruments. The batch sheets with all the questionnaire identification numbers were printed from the system; the questionnaires in the batches were verified against the batch sheets. Verified batches were then sent for data entry. Once the batches had completed data entry, that is, all the questionnaires in a given batch had been keyed, the batches, accompanied by the electronic data, were returned to the data preparation department. The electronic data were loaded into the editing system and edited. At each point in the process, a flag was set in the receipt and document control system, which indicated the status of the instrument and the batch to which it was assigned. These statuses were the following:

- Batches created;

- Batches printed;

- Batches verified;

- Batches sent to keypunch;

- Batches logged from keypunch;

- Cases loaded to BES (editing system);

- Cases cleaned (in edit system); and

- Cases pending (in edit system).

5.2.2   Scan Edit Procedures

Critical items were identified for the school administrator questionnaire and the child-level reading, mathematics, and science teacher questionnaires. Prior to mailing the school administrator or child-level teacher questionnaires to Westat, the field supervisors reviewed them to ensure that critical items had been completed. If the critical items were missing, field supervisors attempted to retrieve them and recorded the outcome, completed or refused, in green pencil in the questionnaire. Exhibit 5-2 presents the critical items for these questionnaires.

Exhibit 5-2.   Grade 5 critical items for questionnaires: School year 2003–04

Instrument	Item	Question number
School administrator (SAQ)	Grade level	Question 4
	School type/control	Questions 5, 6, 7
	Race/ethnicity	Question 8
	School lunch program eligibility/participation	Question 14
Child-level reading teacher questionnaires	Grades taught	Question 15
	Race/ethnicity	Question 16
	Sex	Question 17
	Gifted/talented, Limited English Proficient (LEP), Disability, Absent	Question 18
Child-level mathematics teacher questionnaires	Grades taught	Question 5
	Race/ethnicity	Question 6
	Sex	Question 7
	Gifted/talented, LEP, Disability, Absent	Question 8
Child-level science teacher questionnaires	Grades taught	Question 4
	Race/ethnicity	Question 5
	Sex	Question 6
	Gifted/talented, LEP, Disability, Absent	Question 7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Prior to receipting returned questionnaires, trained clerks scanned each instrument for completeness and assigned a status code of "Complete, No Data Retrieval," "Complete, Data Retrieval Required, Complete," or "Complete, Data Retrieval Required, Refused" based on the results of field supervisors efforts. Questionnaires were then logged into the receipt and document control system and batched for data entry. Once questionnaires were logged in, the data were first keypunched into electronic format and than coded and edited. Questionnaires that contained no data due to refusal by the respondents were logged into the receipt and document control system as "refusal." Table 5-6 presents data on the number of questionnaires receipted by week.

Table 5-6. Number of questionnaires receipted by week, fifth-grade data collection: School year 2003–04

Week	Date	Number receipted	Cumulative number receipted	Percent of total receipted
Total		45,090	45,090	100.0
1	03/08/2004	1,158	1,158	2.6
2	03/15/2004	1,904	3,062	6.8
3	03/22/2004	2,768	5,830	12.9
4	03/29/2004	3,904	9,734	21.6
5	04/05/2004	5,387	15,121	33.5
6	04/12/2004	2,591	17,712	39.3
7	04/19/2004	2,575	20,287	45.0
8	04/26/2004	2,888	23,175	51.4
9	05/03/2004	2,801	25,985	57.6
10	05/10/2004	2,941	28,926	64.2
11	05/17/2004	2,365	31,291	69.4
12	05/24/2004	2,284	33,575	74.5
13	05/31/2004	1,868	35,443	78.6
14	06/07/2004	2,868	38,311	85.0
15	06/14/2004	1,368	39,679	88.0
16	06/21/2004	3,074	42,753	94.8
17	06/28/2004	1,357	44,110	97.8
18	07/05/2004	882	44,992	99.8
19	07/12/2004	98	45,090	100.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The following sections describe the data entry, coding, and editing processes for hard-copy questionnaires.

5.2.3 Data Entry

Data entry consisted of two steps: (1) entering the data and (2) verifying that the data had been entered accurately. Westat data entry staff keyed the forms in each batch. A set of keying rules was established for each questionnaire and followed by the data entry staff. To verify the accuracy of the data

entry, more senior data entry operators then rekeyed 100 percent of the data. The results of the two data entry sessions were compared and differences identified. When differences were found, the hard-copy form was pulled and examined to determine what corrections, if any, had to be made to the keyed data. These corrections were rekeyed, resulting in an accuracy rate exceeding 99 percent. The verified batches were then transmitted electronically to Westat's computer system for data editing.

5.2.4 Coding

The hard-copy questionnaires required a quick visual review of particular questions in each questionnaire, coding of race/ethnicity for teachers, and review of "Other, specify" text responses. The quick visual review was to ensure that the questionnaire values accurately reflected existing categories, were complete and consistent across variables, and that the numbers were converted to the appropriate unit of measurement prior to converting data to an electronic format. Once the hard-copy questionnaires had been visually reviewed, they were coded. The coding staff was trained on the procedures and had manuals to support the coding process. Senior coders verified coding. The verification rate was set at 100 percent for each coder until accuracy of less than 1 percent error rate was established. After that point, work was reviewed at a rate of 10 percent.

The "Other, specify" text responses were reviewed by the data editing staff and, where appropriate, upcoded into one of the existing response categories. The specify responses that remained after upcoding were reviewed to evaluate whether the addition of any new response categories would be appropriate. There was no need for the addition of new response categories in fifth grade.

5.3 Data Editing Management Process

The management of the data editing process involved the creation of several data files, including the Collection Database, Holding Database, Editing Database, and Delivery Database. Exhibit 5-3 provides a diagram of the process described below.

Exhibit 5-3.   ECLS-K hard-copy data editing, fifth-grade data collection: School year 2003–04

From Field

1   Copy as is. Set Collection Status to CollectionNew

Collection

2   Copy to Holding and set Holding status to New. Set Collection status to CollectionCopied. Apply code-all-that-apply recoding and yes/no recoding. Extract Other Specify text. Convert all blanks to -9, and all don't knows and refused to -8 and -7 as appropriate. Enforce skips (apply checkrules).
.

Error Files

Check New and CheckEdit cases, set Holding status as follows:
 - if case is DIRTY
  - if status was New, set status to DirtyNew.
  - if status was CheckEdit, set status to DirtyEdit.
- if case is CLEAN
  - if status was New, set status to CleanNew.
  - if status was CheckEdit, set status to CleanEdit.

3   **Holding**

4

Copy DirtyEdit and DirtyNew to Edit, set Holding status to InEdit and set Edit status to WaitingForEdit.
Generate error reports.

Editing

5   Editor will look at/analyze/change the cases that are WaitingForEdit.
After the editor is done, the editor will assign a status of WasEdited or KeepAsIs to the case. KeepAsIs is assigned only if there are rule violations which will not be changed.

6   Move cases with status WasEdited or KeepAsIs to Holding. Set Holding status to CheckEdit.

Other assorted edits and transpose issues.
Apply other specify upcodes.
Holding status would be set to InDelivery.

7   * Go to step 3.

Delivery

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

5.3.1 Collection Database

This database contained the keyed records for hard-copy questionnaires. One Collection Database was created for each instrument and as additional data were keyed, the cases were added to the database. The Collection Databases were Blaise databases. The ASCII file resulting from the key entry process was converted to Blaise data in the Collection Database so that they could be merged with the parent interview data and undergo additional data review (see section 5.4)

Records in the Collection Databases were assigned status codes reflecting their current status. All new records were assigned a status of *CollectionNew*. When cases were copied to the Holding Database, the status was updated to *CollectionCopied*. The data in the Collection Database were retained in their original form; that is, they were not modified based upon later steps.

5.3.2 Holding Database

Data were copied from the Collection Database to the Holding Database for the editing process. The Holding Database for each instrument was also a Blaise database. The copied cases were assigned a status code of *New*. Cases that had already been involved in a prior editing cycle and had been returned to the Holding Database were assigned a status of *CheckEdit* or *KeepAsIs*.

As the data were copied from the Collection Database to the Holding Database, a number of processes were run. Code-all-that-apply (COTA) recoding and "yes/no" recoding were applied. COTA recoding involved changing the multiple-response values of 0/1, 0/2, 0/3, etc., to a series of yes/no (1/2) responses. Yes/no recoding provided a means to resolve questions left unanswered in a series of yes/no items. If all marked answers were "Yes," then the unanswered items were converted to "No." However, if any item was "No," "Don't know," or "Refused," all unanswered items were converted to –9 (Not ascertained). All blanks were converted to –9 (Not ascertained) and don't know and refused responses were converted to –7 and –8 as appropriate. It was at this stage that skip patterns were enforced using the Blaise *CheckRules* function and legitimate skips were assigned the standard code of –1.

Edit programs (range and logical checks) were run against all cases contained in the Holding Database. As the editing process continued, the Holding Database contained both new cases copied from the Collection Database and edited cases returned from the Editing Database (see section 5.3.3). Each

case was assigned a status code that reflected its current status. For cases that were new to the Holding Database, the *CheckRules* function assigned one of two codes. The status *CleanNew* was assigned to new cases that contained no edit (range or logical) errors. The status *DirtyNew* was assigned to new cases that failed one or more edit checks. Those cases that had undergone edit updating were also subjected to edit checks to identify any errors that remained or were inadvertently introduced during edit updating. The *CheckRules* function assigned the status *CleanEdit* to cases with no remaining errors. The status *DirtyEdit* was assigned to cases returned from edit updating that had remaining or new errors. Those cases that were assigned a status of *KeepAsIs* in a previous editing round were considered clean.

Cases that were found to have edit errors (*DirtyNew* and *DirtyEdit*) were copied to the Editing Database for review and updating. At that time, their status in the Holding Database was set to *InEdit*. A face sheet was generated for each case with editing errors, giving the batch number, case ID, and edit rules that had been violated.

5.3.3 Editing Database

Cases in the Holding Database that failed edit checks were copied to the Editing Database for the correction of errors. As cases were copied to the Editing Database, they were assigned a status of *WaitingForEdit* in the Editing Database. Editing staff worked from face sheets produced during the edit checks conducted on the Holding Database to retrieve and correct case records. Using the batch number and case ID number, editors retrieved and reviewed hard-copy instruments as necessary to resolve editing errors.

Once the editor had reviewed and updated each case as necessary, he or she assigned one of two outcome codes. The status code of *WasEdited* was assigned when all edit errors had been corrected. A status of *KeepAsIs* was assigned when the editor's review indicated that data that violated an edit check should be retained, for example, when the hard-copy instrument indicated that an out-of-range value was correct.

Cases with the statuses of *WasEdited* and *KeepAsIs* were moved back to the Holding Database. Cases that had a status of *WasEdited* in the Editing Database were assigned the status *CheckEdit* in the Holding Database. The edit rules were applied to these cases to ensure that they were clean. As noted earlier, cases assigned a status of *KeepAsIs* in the editing process were considered clean.

5.3.4 Delivery Database

The main purpose of the Delivery Database was to store the instrument data at the school, teacher, or child level in a "rectangular" format consistent with downstream activities in preparation for data delivery. Cases for which editing and coding activities were completed were copied from the Holding Database to the Delivery Database. These were cases with status codes of *CleanNew*, *CleanEdit*, or *KeepAsIs*. When the data were copied to the Delivery Database, the "Other, specify" upcodes and parent interview occupation codes were applied. See exhibit 5-4 for a summary of the status codes assigned for data management databases.

Exhibit 5-4. Status codes assigned for data management databases, fifth-grade data collection: School year 2003–04

Database	Status codes assigned
Collection	*CollectionNew*: New cases
	CollectionCopied: Copied to Holding Database
Holding	*New*: New case copied from the Collection Database
	CheckEdit: Cases returned from the Editing Database to be subjected to edit checks again
	DirtyNew: New cases that fail edit check(s)
	DirtyEdit: Cases returned to from the Editing Database that have been edited and have failed edit check(s)
	CleanNew: New cases with no errors
	CleanEdit: Edited cases with no errors
	InEdit: Cases copied to the Editing Database
	KeepAsIs: Cases returned from the Editing Database that have been reviewed in the Editing Database and are not to be subjected to edits again
Editing	*WaitingForEdit*: Cases with errors waiting to be edited
	WasEdited: Cases for which editing is completed
	KeepAsIs: Edited cases for which the editor has determined that edit errors (e.g., out of range responses) should be retained as is
Delivery	*InDelivery*: Cases ready for delivery

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

5.4   **Data Editing**

The data editing process consisted of running range edits for soft and hard ranges, running consistency edits in Blaise, and then manually reviewing frequencies of the results.

5.4.1   **Range Specifications**

Hard-copy range specifications set the parameters for high and low acceptable values for a question. Where values were printed on the forms, these were used as the range parameters. For open-ended questions, such as, "Counting this school year, how many years have you taught in your **current school** including part-time teaching?" high and low ranges were established as acceptable values. Data frequencies were run on the range of values to identify any errors. Values outside the range were identified as errors and were printed for a data editor to review. Cases with range errors were identified, and the original response was updated. In some cases, range violations were retained in the data because the value was checked and found to be the value reported by the teacher or school. These were marked as *KeepAsIs* cases. Data frequencies were then rerun and reviewed. This iterative process was repeated until no further range errors were found.

5.4.2   **Consistency Checks (Logical Edits)**

By programming logical edits between variables, consistency between variables not involved in a skip pattern was confirmed. For example, in the school administrator questionnaire, the number of children eligible for free breakfast could not exceed the total number of children enrolled in the school. These logical edits were run on the whole database after all data entry and range edits were complete. The logical edits were run separately for each form. All batches of data were combined into one large data file, and data frequencies were produced. The frequencies were reviewed to ensure the data remained logically consistent within the form. When an inconsistency was found, the case was identified and the inconsistency was printed for an editor to review. The original value was corrected (or checked and "kept as is" if the data item was confirmed, and the case was again run through the consistency edits. Once the case passed the consistency edits, it was returned to the main data set. The frequencies were then rerun and reviewed. This was an iterative process; it was repeated until no further inconsistencies were found. Table 5-7 shows hard-copy questionnaire data preparation production. More than 87 percent of all

questionnaires passed all the edits. The student record abstract accounted for 83 percent of all cases failing edits and, for all but a handful of cases, the data remained as it was reported.

Table 5-7.   Hard-copy editing progress report, fifth-grade data collection: School year 2003–04

Instrument type	Number of instruments	Number of instruments clean after the first cleaning pass	Number of instruments edited	Instruments edited	
				Number of instruments clean from edit	Number of instruments left as is from edit
Total	43,518	37,908	5,610	357	5,253
Percent		87.1	12.9	0.82	12.1
Facilities checklist	2,183	2,183	0	0	0
School administrator questionnaire	2,123	1,826	297	88	209
Special education A	722	712	10	6	4
Special education B	981	888	93	33	60
Student records abstract	10,122	5,461	4,661	3	4,658
Teacher questionnaire	5,683	5,530	153	91	62
Reading questionnaire	10,878	10,655	223	109	114
Math questionnaire	5,381	5,299	82	18	64
Science questionnaire	5,445	5,354	91	9	82

NOTE: The total in this table does not match the total receipted shown in table 5-6 because of refusals and other unusable questionnaires.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

5.4.3   Teacher Responses to Key Child Items

In fifth grade, teachers of sampled children were asked to respond to child-level questionnaires for the reading, mathematics, and science domains. In many cases, teachers had more than one sampled child in a class. The items in the child-level questionnaire that collected information about classroom characteristics were redundant under these circumstances. The key child approach was designed to minimize the burden on the teachers by designating one questionnaire in which the classroom characteristics items were to be completed. See section 4.4.2 for a description of the key child design and procedures.

Once the child-level questionnaires were keyed and loaded into the editing system, a review was conducted to identify cases in which teachers reported classroom characteristics on a different questionnaire than the one designated as the key child instrument for the given class. This process involved three steps: the review of missing data for classroom characteristics items within each domain (reading, mathematics, and science) for key child records, a detailed review of all data records in classes with multiple children and missing values for selected classroom characteristics items, and the updating of appropriate records.

In the first step, data records for key children in all classrooms with more than one sampled child were selected. Frequency distributions of the classroom items were examined for the level of missing data within each domain. All classroom characteristics items were included in this review. The results of this initial review indicated that missingness was largely confined to the items concerning the race and sex composition of the classroom.

In the second step, all returned instruments were selected for classrooms with multiple children that had missing data for the race and sex composition items. These cases were reviewed to ascertain whether the teacher had mistakenly reported the classroom characteristics items on a questionnaire other than that designated for the key child.

In the third step, update specifications were prepared, directing data preparation staff to apply the classroom characteristics data to the key child record for the classroom. Updates were made to 10 reading records, 5 mathematics records, and 3 science records as a result of this review.

A review was also conducted to identify classrooms with multiple sampled children for which no key child instrument was returned. There were 5 such cases for reading, 7 such cases for mathematics, and 3 such cases for science. Another child for whom an instrument was returned was designated as the key child in these classrooms.

5.4.4   Frequency and Cross-Tabulation Review

As a final review, frequencies and cross-tabulations were run to determine consistency and accuracy within the various forms. If discrepancies could not be explained, no changes were made to the data. For example, in teacher questionnaire A, an item asking about languages other than English spoken

in the classroom included a response option of "No language other than English." If a respondent circled that response, but also answered (in subsequent items) that other languages besides English were spoken in the classroom, then the response was left as recorded by the respondent because the discrepancy could not be resolved.

5.5　　　　Creation of the Socioeconomic Status (SES) Variable

Socioeconomic status (SES) was computed at the household level using data for the set of parents who completed the parent interview in fifth grade. The SES variable reflects the socioeconomic status of the household at the time of data collection for fifth grade (spring 2004). The components used to create the SES were as follows:

1. Father/male guardian's education;

2. Mother/female guardian's education;

3. Father/male guardian's occupation;

4. Mother/female guardian's occupation; and

5. Household income.

Occupation was recoded to reflect the average of the 1989 General Social Survey (GSS) prestige score. This was computed as the average of the corresponding prestige scores for the 1980 Census occupational categories covered by the ECLS-K occupation. Table 5-8 provides details of the recode of the occupation values to the 1989 GSS prestige score values

Not all parents completed the parent interview; among those who did, not all responded to every question. Therefore, there were missing values for some of the components of the SES composite variable. For a description of how data for the components of the SES were collected, see section 7.5.2.7 of the *Combined User's Manual for the ECLS-K Fifth-Grade Data Files and Electronic Codebooks* (NCES 2006–032) (Tourangeau et al. forthcoming). Table 5-9 shows that only a small percentage of values for the education and occupation variables were missing; a much larger proportion of households had missing values for the detailed income range. The total number of households in the third-grade data file (identified by the parents in the households) is 10,895, of which 77.8 percent are households with both parents present. Of the households with single parents, 10.6 percent are headed by single fathers.

Table 5-9 also includes labor force status that was used to determine whether missing occupation data would be imputed. Individuals were defined as "in the labor force" if they were working at a paid job, on vacation from a paid job, or looking for a job. Occupation was imputed only for parents in the labor force. A description of the levels of the SES components can be found in table 5-10.

Table 5-8.   Recode of occupation values to 1989 GSS prestige scores, spring-fifth grade: School year 2003–04

ECLS-K occupation code	1980 Census occupation code	1989 GSS prestige score
01: Executive, administration, managerial	003-037	53.50
02: Engineer, surveyor, architect	043-059	64.89
03: Natural scientist, mathematician	063-083	62.87
04: Social scientist, social worker, lawyer	166,168-179	59.00
05: University teacher, postsecondary counselor, librarian	113-149,163-165	72.10
06: Teacher, except postsecondary	153-159	63.43
07: Physician, dentist, veterinarian	084-089,167	77.50
08: Registered nurse, pharmacist	095-106	61.56
09: Writer, artist, entertainer, athlete	183-199	52.54
10: Health technologist/technician	203-208	57.83
11: Other technologist/technician	213-235	48.69
12: Marketing/sales occupation	243-285	35.78
13: Administrative support	303-389	38.18
14: Service occupation	403-427,433-469	34.95
15: Agriculture, forestry, fishing occupation	473-499	35.63
16: Mechanics/repairs	503-549	39.18
17: Construction/Extractive occupation	553-599	39.20
18: Precision production occupation	613-699	37.67
19: Other production occupation	703-799	33.42
20: Transportation, material moving	803-859	35.92
21: Handler, cleaner, helper, laborer	863-889	29.60
22: Unemployed/retired		Missing
No occupation		Missing
Cannot be coded		Missing

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-9. Parents or households with missing value of the SES components, spring-
fifth grade: School year 2003–04

SES component	Number missing	Percent missing[1]
Education		
Father	160	1.8
Mother	159	1.5
Labor force status		
Father	88	1.0
Mother	106	1.0
Occupation[2]		
Father	166	1.9
Mother	100	0.9
Detailed income range[3]		
Total	883	8.1
Broad income range[4] known	472	4.3
Broad income range unknown	411	3.8

[1] Percent missing is over the number of records that should have nonmissing value of the imputed variable. Note that not applicable cases are not included in denominator.

[2] These numbers include parents with missing labor force status.

[3] Detailed income range: $5,000 or less, $5,001-$10,000, $10,001-$15,000, $15,001-$20,000, $20,001-$25,000, $25,001-$30,000, $30,001-$35,000, $35,001-$40,000, $40,001-$50,000, $50,001-$75,000, $75,001-$100,000, $100,001-$200,000, more than $200,000.

[4] Broad income range: $25,000 or less, $25,001 or more.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-10.   Components of the SES variable, spring-fifth grade: School year 2003–04

Component	Level	Description
Education level of mother/father/legal guardian	1	8th grade or below
	2	9th to 12th grade
	3	High school diploma or equivalent
	4	Vocational/technical program
	5	Some college
	6	Bachelor's degree
	7	Graduate or professional school, no degree
	8	Master's degree
	9	Doctorate or professional degree
Occupation of mother/father/legal guardian	1	Executive, administration, managerial
	2	Engineer, surveyor, architect
	3	Natural scientist, mathematician
	4	Social scientist, social worker, lawyer
	5	University teacher, postsecondary counselor, librarian
	6	Teacher, except postsecondary
	7	Physician, dentist, veterinarian
	8	Registered nurse, pharmacist
	9	Writer, artist, entertainer, athlete
	10	Health technologist/technician
	11	Other technologist/technician
	12	Marketing/sales occupation
	13	Administrative support
	14	Service occupation
	15	Agriculture, forestry, fishing occupation
	16	Mechanics/repairs
	17	Construction/extractive occupation
	18	Precision production occupation
	19	Other production occupation
	20	Transportation, material moving
	21	Handler, cleaner, helper, laborer
	22	Unemployed/retired
	97	No occupation
	98	Cannot be coded
Income broad range	1	$25,000 or less
	2	More than $25,000
Income detailed range[1]	2,500	$5,000 or less
	7,500	$5,001 to $10,000
	12,500	$10,001 to $15,000
	17,500	$15,001 to $20,000
	22,500	$20,001 to $25,000
	27,500	$25,001 to $30,000
	32,500	$30,001 to $35,000
	37,500	$35,001 to $40,000
	45,000	$40,001 to $50,000
	62,500	$50,001 to $75,000
	87,500	$75,001 to $100,000
	150,000	$100,001 to $200,000
	300,000	More than $200,000

[1] The midpoints of the detailed ranges are the levels used for this variable. For the top income range (more than $200,000), the level was computed based on the midpoint for the parents reporting in this range in the first-grade year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

A two-stage procedure was used to impute missing values for each component of the SES composite variable. First, if a parent had completed an interview in the kindergarten, first-grade, or third-grade year, missing values for the fifth-grade education, occupation, and detailed income range were filled in with values from the previous years. The rationale for this approach was that the best source of data for an individual or a household was the data from a previous year.

This first imputation stage was implemented as follows:

1.   Education level was brought forward from the most recent round of data collection prior to fifth grade, but only if the fifth-grade parent was the same person for whom the education information was reported in that previous round.

2.   Labor force status (whether the parent was in the labor force) was brought forward from the most recent round of data collection prior to fifth grade, but only if the fifth-grade parent was the same person who reported the labor force status information from that previous round. Even though labor force status is not a direct component of the SES, it cannot be missing since it was used to determine how to impute missing occupation information.

3.   Occupation was brought forward from the most recent round of data collection prior to fifth grade, but only if the fifth-grade parent was in the labor force (i.e., he or she was working at a paid job, on vacation from a paid job, or looking for a job) and was the same person who reported the occupation information from that previous round.

4.   Detailed income category was brought forward from the most recent round of data collection prior to fifth grade.

Second, data still missing after this initial step were imputed using a hot deck methodology. In hot deck imputation, the value reported by a respondent for a particular item was assigned or "donated" to a "similar" person who failed to respond to that question. Auxiliary information known for both donors and nonrespondents was used to form groups of persons having similar characteristics. These groups of similar respondents and nonrespondents are called "imputation cells." The imputed value for a case with a missing value is taken from a randomly selected donor among the respondents within the cell.

Imputation cells were defined by respondent characteristics that were the best predictors of the variables to be imputed. These relationships had been determined previously by CHAID (Chi-squared Automatic Interaction Detector) analyses of the base year data, as shown in table 5-11. Missing values for the education, occupation, and detailed income range variables were imputed by the hot deck method for all households. Hot deck imputation was done in a sequential order, separately, by type of household

Table 5-11. Demographic characteristics used in creating imputation cells, spring-fifth
            grade: School year 2003–04

Characteristic	Level	Description
Census region	1	Northeast
	2	Midwest
	3	South
	4	West
School affiliation	1	Private: Catholic
	2	Private: Religious, non-Catholic
	3	Private: Nonreligious
	4	Public: Regular, Department of Defense, Bureau of Indian Affairs
School locale	1	Large city
	2	Midsize city
	3	Urban fringe, large city
	4	Urban fringe, midsize city
	5	Large town
	6	Small town
	7	Rural, outside MSA
	8	Rural, inside MSA
Household type	1	Female single parent
	2	Male single parent
	3	Both parents present
Race/ethnicity	1	White
	2	Black
	3	Hispanic
	4	Asian
	5	Pacific Islander
	6	American or Alaskan Native
	7	More than one race

See note at end of table.

Table 5-11.   Demographic characteristics to be used in creating imputation cells, spring-
              fifth grade: School year 2003–04—Continued

Characteristic	Level	Description
Mother's age,	1	16-17 years
father's age	2	18–19 years
	3	20–21 years
	4	22–23 years
	5	24–25 years
	6	26–27 years
	7	28–29 years
	8	30–31 years
	9	32–33 years
	10	34–35 years
	11	36–37 years
	12	38–39 years
	13	40–41 years
	14	42–43 years
	15	44–45 years
	16	46–47 years
	17	48–49 years
	18	50–51 years
	19	52–53 years
	20	54–55 years
	21	56–57 years
	22	58–59 years
	23	60–61 years
	24	62–63 years
	25	64–65 years
	26	66–67 years
	27	68–69 years
	28	70 or more years

(female single parent, male single parent, and both parents present). For households with both parents present, the mother's and father's variables were imputed separately. Imputed as well as reported values were used to define imputation cells; missing values for donor characteristics were treated as a separate category. No imputed value was used as a donor. No donor was used more than once.

Occupation imputation involved two steps. First, the labor force status of the parent was imputed (i.e., whether the parent was employed). Then the parent's occupation was imputed only for those parents whose status was identified as employed either through the parent interview or the first

imputation step. The detailed income range was imputed in two steps: first for cases where the broad income range was known, and second for cases where it was unknown.

For households where both parents were present, the order of hot deck imputation was as follows:

1. Mother's education;

2. Father's education;

3. Mother's labor force status;

4. Father's labor force status;

5. Mother's occupation;

6. Father's occupation;

7. Detailed income range, where the broad income range was known; and

8. Detailed income range, where the broad income range was unknown.

Following imputation, all values of the SES components were nonmissing including the value −1 for "not applicable." Examples of not applicable cases are children with no father in the household, in which case the father's education and occupation are not applicable.

Table 5-12 summarizes the imputation results. Tables 5-13 to 5-19 summarize the distribution of the records before and after imputation. The percentage columns may not always add to 100 percent due to rounding.

Table 5-12. Imputation of SES components by filling in with values from previous rounds or by hot deck, spring-fifth grade: School year 2003–04

SES component	Number missing	Filled in with values from previous round		Imputed by hot deck	
		n	Percent	n	Percent
Education					
Father	160	97	60.6	63	39.4
Mother	159	108	67.9	51	32.1
Labor force status					
Father in labor force status	79	66	83.5	13	16.5
Father not in labor force status	9	7	77.8	2	22.2
Mother in labor force status	75	68	90.7	7	9.3
Mother not in labor force status	31	26	83.9	5	16.1
Occupation[1]					
Father	166	16	9.6	150	90.4
Mother	100	18	18.0	82	82.0
Detailed income range					
Total	883	786	89.0		11.0
Broad income range known	472	388	82.2	84	17.8
Broad income range unknown	411	398	96.8	13	3.2

[1] Occupation was not imputed if parent was not in labor force (whether labor force was filled in with data from previous round or imputed by hot deck).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-13.   Mother's education, before and after imputation, spring-fifth grade: School year 2003–04

Mother's education level	Before imputation		Imputed		After imputation	
	Count	Percent	Count	Percent	Count	Percent
Total	10,895	100.0	159	100.0	10,895	100.0
1	447	4.1	21	13.2	468	4.3
2	633	5.8	23	14.5	656	6.0
3	2,622	24.1	44	27.7	2,666	24.5
4	558	5.1	10	6.3	568	5.2
5	3,124	28.7	37	23.3	3,161	29.0
6	1,915	17.6	17	10.7	1,932	17.7
7	285	2.6	1	0.6	286	2.6
8	662	6.1	3	1.9	665	6.1
9	233	2.1	3	1.9	236	2.2
Not applicable	257	2.4	0	0.0	257	2.4
Missing	159	1.5	†	†	0	0.0

† Not applicable.
NOTE: Percentages may not sum to 100 due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-14.   Father's education, before and after imputation, spring-fifth grade: School year 2003–04

Father's education level	Before imputation		Imputed		After imputation	
	Count	Percent	Count	Percent	Count	Percent
Total	10,895	100.0	160	100.0	10,895	100.0
1	375	3.4	16	10.0	391	3.6
2	595	5.5	24	15.0	619	5.7
3	2,253	20.7	40	25.0	2,293	21.1
4	472	4.3	9	5.6	481	4.4
5	1,955	17.9	34	21.3	1,989	18.3
6	1,556	14.3	25	15.6	1,581	14.5
7	215	2.0	3	1.9	218	2.0
8	664	6.1	5	3.1	669	6.1
9	492	4.5	4	2.5	496	4.6
Not applicable	2,158	19.8	0	0.0	2,158	19.8
Missing	160	1.5	†	†	0	0.0

† Not applicable.
NOTE: Percentages may not sum to 100 due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-15.   Mother's labor force status, before and after imputation, spring-fifth grade:
School year 2003–04

Mother's labor force status	Before imputation		Imputed		After imputation	
	Count	Percent	Count	Percent	Count	Percent
Total	10,895	100.0	106	100.0	10895	100.0
1	8,202	75.3	75	70.8	8,277	76.0
2	2,330	21.4	31	29.3	2,361	21.7
Not applicable	257	2.4	0	0.0	257	2.4
Missing	106	1.0	†	†	0	0.0

† Not applicable.
NOTE: Percentages may not sum to 100 due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-16.   Father's labor force status, before and after imputation, spring-fifth grade:
School year 2003–04

Father's labor force status	Before imputation		Imputed		After imputation	
	Count	Percent	Count	Percent	Count	Percent
Total	10,895	100.0	88	100.0	10,895	100.0
1	8,254	75.8	79	89.8	8,333	76.5
2	395	3.6	9	10.2	404	3.7
Not applicable	2,158	19.8	0	0.0	2,158	19.8
Missing	88	0.8	†	†	0	0.0

† Not applicable.
NOTE: Percentages may not sum to 100 due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-17. Mother's occupation, before and after imputation, spring-fifth grade: School year 2003–04

Mother's occupation	Before imputation		Imputed		After imputation	
	Count	Percent	Count	Percent	Count	Percent
Total	10,895	100.0	100	100.0	10,895	100.0
Not in labor force	2,361	21.7	†	†	2,361	21.7
1	951	8.7	6	6.0	957	8.8
2	44	0.4	0	0.0	44	0.4
3	65	0.6	1	1.0	66	0.6
4	184	1.7	0	0.0	184	1.7
5	72	0.7	0	0.0	72	0.7
6	632	5.8	4	4.0	636	5.8
7	70	0.6	0	0.0	70	0.6
8	454	4.2	2	2.0	456	4.2
9	138	1.3	0	0.0	138	1.3
10	195	1.8	1	1.0	196	1.8
11	130	1.2	2	2.0	132	1.2
12	730	6.7	7	7.0	737	6.8
13	2,137	19.6	28	28.0	2,165	19.9
14	1,580	14.5	34	34.0	1,614	14.8
15	74	0.7	1	1.0	75	0.7
16	13	0.1	0	0.0	13	0.1
17	23	0.2	0	0.0	23	0.2
18	50	0.5	1	1.0	51	0.5
19	430	4.0	8	8.0	438	4.0
20	80	0.7	1	1.0	81	0.7
21	109	1.0	3	3.0	112	1.0
22	16	0.2	1	1.0	17	0.2
Not applicable	257	2.4	0	0.0	257	2.4
Missing	100	0.9	†	†	0	0.0

† Not applicable.
NOTE: Percentages may not sum to 100 due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-18. Father's occupation, before and after imputation, spring-fifth grade: School year 2003–04

Father's occupation	Before imputation		Imputed		After imputation	
	Count	Percent	Count	Percent	Count	Percent
Total	10,895	100.0	166	100.0	10,895	100.0
Not in labor force	404	3.7	†	†	404	3.7
1	1,453	13.3	25	15.1	1,478	13.6
2	303	2.8	3	1.8	306	2.8
3	131	1.2	2	1.2	133	1.2
4	198	1.8	1	0.6	199	1.8
5	62	0.6	0	0.0	62	0.6
6	147	1.4	0	0.0	147	1.4
7	174	1.6	1	0.6	175	1.6
8	60	0.6	1	0.6	61	0.6
9	100	0.9	1	0.6	101	0.9
10	48	0.4	1	0.6	49	0.5
11	260	2.4	5	3.0	265	2.4
12	670	6.2	8	4.8	678	6.2
13	414	3.8	5	3.0	419	3.9
14	669	6.1	19	11.5	688	6.3
15	316	2.9	8	4.8	324	3.0
16	665	6.1	11	6.6	676	6.2
17	895	8.2	30	18.1	925	8.5
18	133	1.2	3	1.8	136	1.3
19	677	6.2	14	8.4	691	6.3
20	562	5.2	15	9.0	577	5.3
21	202	1.9	13	7.8	215	2.0
22	28	0.3	0	0.0	28	0.3
Not applicable	2,158	19.8	0	0.0	2,158	19.8
Missing	166	1.5	†	†	0	0.0

† Not applicable.
NOTE: Percentages may not sum to 100 due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-19. Household income, before and after imputation, spring-fifth grade: School year 2003–04

Income category	Before imputation		Imputed		After imputation	
	Count	Percent	Count	Percent	Count	Percent
Total	10,895	100.0	883	100.0	10,895	100.0
$5,000 or less	196	1.8	53	6.0	249	2.3
$5,001-$10,000	265	2.4	59	6.7	324	3.0
$10,001-$15,000	484	4.4	87	9.9	571	5.2
$15,001-$20,000	540	5.0	74	8.4	614	5.6
$20,001-$25,000	602	5.5	87	9.9	689	6.3
$25,001-$30,000	700	6.4	62	7.0	762	7.0
$30,001-$35,000	575	5.3	49	5.6	624	5.7
$35,001-$40,000	675	6.2	60	6.8	735	6.8
$40,001-$50,000	966	8.9	91	10.3	1,057	9.7
$50,001-$75,000	1,863	17.1	109	12.3	1,972	18.1
$75,001-$100,000	1,448	13.3	80	9.1	1,528	14.0
$100,001-$200,000	1,297	11.9	59	6.7	1,356	12.5
More than $200,000	401	3.7	13	1.5	414	3.8
Missing	883	8.1	†	†	0	0.0

† Not applicable.
NOTE: Percentages may not sum to 100 due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The values of each SES component were then normalized so that the component has a mean of 0 and a standard deviation of 1. This is also known as the z-score. For the *h*-th SES component, a *z*-score z_{hi} for the *i*-th household was computed as

$$z_{hi} = \frac{x_{hi} - \bar{x}_w}{se(\bar{x}_w)},$$

where

x_{hi} is the value of the *h*-th SES component for the *i*-th household;
w_i is the base weight for the *i*-th record;
$\bar{x}_w$ is the weighted mean of x_{hi} ; and
$se(\bar{x}_w)$ is the standard error of $\bar{x}_w$.

Note that where *h* is household income, x_{hi} is the natural log of the midpoint of the detailed income range. The log of the detailed income range midpoint does not vary widely within the levels of the detailed income range, so the midpoint was a reasonable choice. It was used only for the purpose of computing the SES composite and was not retained in the data file.

Thus, each component was converted to a *z*-score with mean of 0 and a standard deviation of one. The SES variable for the *i*-th household was computed as

$$SES_i = \frac{\sum_{h=1}^{m_i} z_{hi}}{m_i},$$

where m_i is the number of nonmissing SES components for the *i*-th household.

Table 5-20 shows the distribution of the SES values. As described, the SES composite is the average of up to five measures, each of which was standardized to have a mean of 0 and a standard deviation of 1, hence the negative values. Note that for households with only one parent present, not all the components were defined. In these cases, the SES was computed averaging the available components. In the fifth-grade data file, the continuous SES variable is W5SESL.

A categorical SES variable (W5SESQ5) was created that contains the quintile for the value of the composite SES for the child. Quintile 1 represents the lowest SES category and quintile 5 represents the highest SES category. The quintiles were computed at the child level using the fifth-grade child-level parent weights. Unweighted frequencies for this variable are given in table 5-21.

Table 5-20.   Distribution of socioeconomic status (SES) values,
               spring-fifth grade: School year 2003–04

Characteristic	SES
N	10,895
Mean	-0.01
Standard deviation	0.81
Minimum	-2.48
Maximum	2.54
Range	5.02
1st percentile	-1.87
5th percentile	-1.29
10th percentile	-1.04
25th percentile	-0.68
50th percentile	-0.21
75th percentile	0.42
90th percentile	0.98
95th percentile	1.30
99th percentile	1.90

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early
Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-21.   Unweighted frequencies of the socioeconomic status
               (SES) variable, spring-fifth grade: School year
               2003–04

SES quintile	Frequency	Percent
Total	10,895	100.0
1st quintile	1,783	16.4
2nd quintile	2,000	18.4
3rd quintile	2,083	19.1
4th quintile	2,411	22.1
5th quintile	2,618	24.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early
Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

5.6   Imputation of the School Lunch Composites

The school lunch composites were computed at the school level for the set of public schools that have at least one child or parent respondent (i.e., the child has nonzero child weight, C6CW0, or nonzero child-level parent weight, C6PW0) in spring-fifth grade. There are two school lunch composites as follows: (1) Percent of children eligible for free school lunch; and, (2) Percent of children eligible for reduced-price lunch. For a description of how the data were collected and how the composites were computed, see section 7.5.4.6 of the *Combined User's Manual for the ECLS-K Fifth-Grade Data Files and Electronic Codebooks* (NCES 2006–032) (Tourangeau et al. forthcoming).

Not all schools completed the school administrator questionnaire, and among those who did, not all responded to all three questions needed to compute the school lunch composites. Therefore, there were missing values for some of the components of the school lunch composite variables. Prior to fifth grade, if the source variables have missing value, then the composites were filled in with values computed using the most recent Common Core of Data (CCD) where available, or left missing. In fifth grade, the composites were computed as in the past, but if they had missing values, they were imputed. The source variables, however, were not imputed. Table 5-22 shows the level of missing data for the school lunch composite variables among the 2,008 public schools that have 9,328 child or parent respondents in the fifth grade of the ECLS-K.

Table 5-22. Public schools and child-parent respondents with missing value of the school lunch composites, spring-fifth grade: School year 2003–04

| | Number missing | | Percent missing | |
| | | Child-parent | | Child-parent |
School lunch composite	Schools	respondents	Schools	respondents
Free lunch	691	2,545	34.4	27.3
Reduced-price lunch	712	2,601	35.5	27.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Similar to the components for the SES composite, a two-stage procedure was used to impute missing values for each school lunch composite variable. First, if a school had nonmissing value of the school lunch composite in the kindergarten, first-grade, or third-grade year, missing values for the spring-fifth grade school lunch composites were filled in with values from the previous years. The rationale for this approach was that the best source of data for a school was the data from a previous year.

Second, data still missing after this initial step were imputed using a hot deck methodology. In hot deck imputation, the values computed for a school for both composites were assigned or "donated" to a "similar" school that had missing values of the composites. Imputation cells were created using the Title I status of the school (hard boundary) and the school latitude and longitude (soft boundaries). The imputed value for a school with a missing value was taken from the nearest neighbor defined by latitude and longitude within the hard-boundary cell (Title I status). The Title I status is a derived variable using the data on whether the school received Title I funds (S6TT1) and whether Title I funds were targeted or used school-wide (S6TT1TA), both collected in the school administrator questionnaire. If these two variables have missing values for fifth grade, then the most recent available data (from third grade or first grade or kindergarten) were used. If these data were missing from the school administrator questionnaire for all rounds, then the information from the most recent CCD (2002–03) was used.

The resolution of cases having missing data is shown for each school lunch composite in table 5-23 (for schools) and table 5-24 (for child-parent respondents). Schools that were imputed by hot deck are generally transfer schools with few sample children in those schools. This is reflected in tables 5-23 and 5-24 where the percent of children with hot-deck values of the school composites is much smaller than the percent of schools with hot-deck values of the school composites.

Since children were designated as eligible for either free lunch or reduced-price lunch but not for both services, the two school lunch composites should sum to no more than 100 percent. A very small number of schools (less than 2 percent) had imputed values of the two school lunch composites summing to more than 100 percent. These values came from two sources: (1) from values reported by the school in another year, or (2) from the hot-deck imputation. The reporting error has been present in all rounds of the ECLS-K, and the decision was to keep the reported values in the data file. If the erroneous values came from the hot-deck imputation, then they were corrected so that the two school lunch composites do not add to more than 100 percent. Correction was made by capping the hot-decked values of the two lunch composite variables. This was done by multiplying each value by 100 divided by the sum of the two variables before capping. This way, both values were reduced by the same amount so they sum to 100 percent.

Tables 5-25 to 5-28 show the characteristics of the school lunch composites before and after imputation, at the school level and at the child level.

Table 5-23. Imputation of school lunch composites at the school level, spring-fifth grade: School year 2003–04

School lunch composite	Number missing	Values from previous round		Imputed by Hot deck	
		n	Percent	n	Percent
Free lunch	691	256	37.0	435	63.0
Reduced-price lunch	712	265	37.2	447	63.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-24. Imputation of school lunch composites at the child level, spring-fifth grade: School year 2003–04

School lunch composite	Number missing	Values from previous round		Imputed by Hot deck	
		n	Percent	n	Percent
Free lunch	2,545	1,777	69.8	768	30.2
Reduced-price lunch	2,601	1,819	69.9	782	30.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-25. Free lunch composite at the school level, before and after imputation, spring-fifth grade: School year 2003–04

Characteristic	Before imputation	Imputed	After imputation
All cases	2,008	691	2,008
Number of missing	691	0	0
Mean (not including missing)	38.75	41.22	39.60
Standard deviation	28.29	29.79	28.83
Minimum	0.00	0.00	0.00
Maximum	95.00	95.00	95.00
Range	95.00	95.00	95.00
1st percentile	0.00	0.00	0.00
5th percentile	2.33	0.00	2.06
10th percentile	5.43	1.52	4.82
25th percentile	14.10	3.47	14.12
50th percentile	32.66	14.20	33.84
75th percentile	60.41	36.94	62.52
90th percentile	83.39	85.71	84.12
95th percentile	95.00	95.00	93.75
99th percentile	95.00	95.00	95.00

NOTE: These statistics are from the restricted-use data file where some data have been masked according to the disclosure risk avoidance procedures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-26. Free lunch composite at the child level, before and after imputation, spring-fifth grade: School year 2003–04

Characteristic	Before imputation	Imputed	After imputation
All cases	9,328	2,545	9,328
Number of missing	2,545	0	0
Mean (not including missing)	37.12	44.54	39.15
Standard deviation	26.74	32.13	28.50
Minimum	0.00	0.00	0.00
Maximum	95.00	95.00	95.00
Range	95.00	95.00	95.00
1st percentile	0.00	0.00	0.00
5th percentile	2.17	1.95	2.08
10th percentile	5.48	2.94	5.00
25th percentile	15.43	15.26	15.26
50th percentile	31.13	39.35	33.25
75th percentile	53.57	74.07	60.41
90th percentile	80.62	94.06	84.98
95th percentile	90.38	95.00	94.42
99th percentile	95.00	95.00	95.00

NOTE: These statistics are from the restricted-use data file where some data have been masked according to the disclosure risk avoidance procedures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-27. Reduced-price lunch composite at the school level, before and after imputation, spring-fifth grade: School year 2003–04

Characteristic	Before imputation	Imputed	After imputation
All cases	2,008	712	2,008
Number of missing	712	0	0
Mean (not including missing)	9.68	9.37	9.57
Standard deviation	10.75	9.12	10.36
Minimum	0.00	0.00	0.00
Maximum	100.00	100.00	100.00
Range	100.00	100.00	100.00
1st percentile	0.00	0.00	0.00
5th percentile	0.35	0.00	0.00
10th percentile	1.52	0.67	1.09
25th percentile	4.69	4.05	4.49
50th percentile	8.19	8.24	8.22
75th percentile	12.09	12.00	12.03
90th percentile	16.50	16.67	16.59
95th percentile	20.00	20.26	20.12
99th percentile	91.37	44.78	50.00

NOTE: These statistics are from the restricted-use data file where some data have been masked according to the disclosure risk avoidance procedures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 5-28. Reduced-price lunch composite at the child level, before and after imputation, spring-fifth grade: School year 2003–04

Characteristic	Before imputation	Imputed	After imputation
All cases	9,328	2,601	9,328
Number of missing	2,601	0	0
Mean (not including missing)	9.06	9.05	9.06
Standard deviation	8.13	11.38	9.15
Minimum	0.00	0.00	0.00
Maximum	100.00	100.00	100.00
Range	100.00	100.00	100.00
1st percentile	0.00	0.00	0.00
5th percentile	0.26	0.00	0.00
10th percentile	1.53	0.00	0.96
25th percentile	4.85	3.02	4.36
50th percentile	8.16	7.71	8.00
75th percentile	11.84	11.72	11.80
90th percentile	15.53	16.07	15.60
95th percentile	18.36	19.53	18.53
99th percentile	31.25	73.68	39.57

NOTE: These statistics are from the restricted-use data file where some data have been masked according to the disclosure risk avoidance procedures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

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6. RESPONSE RATES

This chapter describes the computation of unit completion rates for the spring-fifth grade data collection of the ECLS-K, and unit overall response rates for the base year respondents. Weighted and unweighted unit completion rates are presented for three groups of children: (1) children sampled in kindergarten, (2) children sampled in first grade through the freshening procedure, and (3) both groups combined. Completion rates for the fifth-grade data collection were computed with the same procedures used for spring-first grade and spring-third grade to allow for comparisons of completion rates for the three years of data collection following the base year. Item response rates for selected items from the ECLS-K fifth-grade instruments are also presented.

For spring-first grade and spring-third grade, the sample of children is the same: base-year respondents (i.e., children who had either a fall- or spring-kindergarten child assessment or parent interview) and children sampled in spring-first grade as part of sample freshening as described in section 3.4.2. For spring-fifth grade, the sample of children was reduced to exclude base-year respondents who belonged in the following special groups as described in section 3.6: (1) children who became ineligible in an earlier round (because they died or moved out of the country), (2) children who were subsampled out in previous rounds because they moved out of the original schools and were not subsampled to be followed, (3) children whose parents emphatically refused to cooperate (hard refusals) in any of the data collection rounds since spring-kindergarten, and (4) children eligible for the third-grade sample for whom there are neither first-grade nor third-grade data. Among the 21,357 children who were eligible for the study after the base year, 16,143 were part of the fifth-grade data collection.

6.1   Definition of Response and Completion Rates

Response rates and completion rates are two ways to describe the outcomes of data collection activities. A response rate is the ratio of the number of units with completed interviews (for example, the units could be children, parents, schools or teachers) to the number of units sampled and eligible for the interview. The response rate indicates the percentage of possible interviews completed, taking all survey stages into account. On the other hand, the completion rate measures the percentage of interviews completed for a specific stage of the survey. For example, in the base year of the ECLS-K children were identified for assessment in a two-stage process. The first stage involved the recruitment of

schools to participate in the study. Preassessment visits were made to schools that agreed to participate. During the preassessment visit, field supervisors met with the participating school's school coordinator to enumerate and sample the kindergartners. Assessments were then conducted for the sampled children whose parents consented. If the school refused to participate in the study, no children were sampled for assessment. Under this design, the completion rate for the child assessment is the percentage of sampled children who completed the assessment. The response rate is the product of the school participation or cooperation rate and the child assessment completion rate.

Response and completion rates can be either unweighted or weighted. The unweighted rate, computed using the raw number of cases, provides a useful description of the success of the operational aspects of the survey. The weighted rate, computed by summing the weights (usually the reciprocals of the probability of selecting the units) for both the numerator and denominator, gives a better description of the success of the survey with respect to the population sampled since the weights allow for inference of the sample data (including response status) to the population. Both rates are usually not very different unless the probabilities of selection and the response rates in the categories with different selection probabilities vary considerably.

For example, the weighted completion rate of the ECLS-K child assessment (CA) is computed as

$$r_{CA} = \frac{\sum\limits_{i \in ER_{CA}} W_i}{\sum\limits_{i \in ER_{CA} \cup ENR_{CA}} W_i}$$

where W_i is the weight (inverse of the probability of selection of the child) for child i, and ER_{CA} denotes eligible child assessment respondent and ENR_{CA} eligible child assessment nonrespondent. To compute the unweighted rates, W_i is set to 1 for each child.

The response rate of the child assessment can be computed as

$$R_{CA} = r_S \times r_{CA}$$

where r_S is the school cooperation rate and r_{CA} is the child assessment completion rate.

After the base year, only completion rates were computed for the different ECLS-K instruments, since the response rates of the schools where the children were sampled remained the same for each subsequent round. Data users can compute the fifth-grade response rate for each ECLS-K instrument by multiplying the school response rate from the base year and the fifth-grade completion rate for each instrument.

Both unweighted and weighted rates are presented in the tables of completion rates in this chapter. While unweighted rates are useful for evaluating sample performance as mentioned earlier, only weighted rates are discussed in the text.

6.2 Completion Rates

For the ECLS-K fifth-grade data collection, there were 11 survey instruments: child assessment; parent interview; school administrator questionnaire; facilities checklist; student records abstract, teacher-level questionnaire, subject-specific child-level questionnaires (reading, mathematics, and science); and special education teacher questionnaire part A and part B. The mathematics teacher questionnaire was completed for about half of the children in the fifth-grade sample and the science teacher questionnaire was completed for the other half, so that each child would have data from no more than 10 instruments. Except for the child assessment and the parent interview, all other instruments were paper-and-pencil instruments.

For each instrument, completion rates were computed separately for children who were sampled as part of the kindergarten cohort in the base year and for children who were sampled in first grade through the student sample freshening procedure. While the completion rate for children sampled in the base year has only one component (to account for nonresponse attrition during data collection), the completion rate for children sampled in first grade has two components (to account for nonresponse attrition during the freshening procedure and during data collection). Section 6.2.2 describes in detail the two components of the completion rates for the freshened children. The two sets of rates were combined to obtain the completion rates for all children in fifth grade. Movers who were sampled to be followed but could not be located are considered nonrespondents and included in the denominator of the computation of completion rates.

6.2.1   Children Sampled in Kindergarten

For the ECLS-K, a completion rate is a response rate conditioned on the results of an earlier stage of data collection. In the case of the ECLS-K fifth-grade data collection, the condition is that children who were sampled in kindergarten were base year respondents since only base year respondents were eligible for subsequent data collection efforts. Children sampled in first grade were exempt from this condition in the computation of completion rates. They are discussed in section 6.2.2.

For each instrument, the unweighted completion rate is the proportion of base year respondents with completed data for the instrument to the base-year respondents who remain eligible to have the fifth-grade instrument administered. Base-year respondents who were subsampled out because they moved from their base- year original sample schools and base-year respondents who died or moved out of the country were not included in the denominator. For the weighted completion rates, the weight used is the product of the school base weight, the within-school child weight, and the factor that was used to adjust for movers between base year and fifth grade who were subsampled out for data collection. For a description of these weights and adjustment factor, see chapter 7.

Tables 6-1 to 6-4 present weighted and unweighted child-level completion rates for spring-fifth-grade data collection, broken out by school characteristics.[1] These rates pertain to children who were sampled as part of the kindergarten cohort in the base year. In general, completion rates for fifth grade are higher than they had been for the third grade. This is due to the exclusion of hard-to-field cases from the fifth-grade collection. Hard-to-field cases are the hard-refusal cases and cases that were nonrespondents in both first and third grades as described in section 3.6. If these cases had not been excluded from the fifth grade, they would most likely be nonrespondents and would bring down the completion rates.

Table 6-1 shows that the completion rates for the child assessment are quite high and uniform across school characteristics. Excluding the "unknown" category, the rates range from 93.1 percent in non-Catholic private schools to 99.7 percent in schools in large town. Similarly, the completion rates for the parent interviews were uniform across school characteristics ranging from 87.2 percent for children in schools with total enrollment of 750 or more, and in schools where 50 to 89 percent of

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[1] Children in schools with unknown characteristics are movers who could not be located (and considered as nonrespondents in the completion rates). Their weights are large because of the mover adjustment where movers who were followed carry the weight of movers who were subsampled-out for follow-up. The categories of school affiliation in the tables in this chapter do not match categories of school affiliation in the tables in chapter 3. This is to allow users to compare completion rates in fifth grade with those in previous years.

Table 6-1. Number of completed child-level cases and child-level completion rates for the child assessment and parent interview for children sampled in the base year, by school characteristics: School year 2003–04

School characteristics[1]	Child assessment			Parent interview		
	Completes[2]	Completion rates		Completes[3]	Completion rates	
		Weighted	Unweighted		Weighted	Unweighted
All schools	11,260	84.7	93.6	10,913	89.1	90.7
School affiliation						
Public	9,187	96.2	97.7	8,518	89.9	90.6
Private	2,049	95.2	97.7	1,977	92.0	94.3
Catholic	1,313	97.1	98.3	1,260	94.0	94.3
Other private	736	93.1	96.7	717	89.5	94.2
Unknown	24	5.8	4.6	418	82.5	79.5
Type of locale						
Large city	1,863	97.2	97.6	1,697	89.6	88.9
Mid-size city	1,863	97.6	98.3	1,733	90.8	91.5
Urban fringe of large city	3,286	94.8	96.6	3,085	88.6	90.7
Urban fringe of mid-size city	767	93.5	96.8	725	90.3	91.5
Large town	283	99.7	99.6	270	91.9	95.1
Small town	825	94.1	98.8	781	94.3	93.5
Rural – outside MSA	1,286	97.2	97.9	1,205	88.1	91.7
Rural – inside MSA	922	97.7	99.4	871	93.4	93.9
Unknown	165	17.0	24.6	546	83.4	81.5
School size (total enrollment)						
1 to 299	2,359	96.7	98.2	2,255	93.4	93.8
300 to 499	3,703	96.5	98.0	3,453	89.9	91.4
500 to 749	3,167	97.1	97.6	2,945	90.8	90.8
750 or more	1,963	94.2	97.0	1,798	87.2	88.9
Unknown	68	9.7	11.7	462	82.1	79.8

See notes at end of table.

Table 6-1. Number of completed child-level cases and child-level completion rates for the child assessment and parent interview for children sampled in the base year, by school characteristics: School year 2003–04—Continued

School characteristics[1]	Child assessment			Parent interview		
	Completes[2]	Completion rates		Completes[3]	Completion rates	
		Weighted	Unweighted		Weighted	Unweighted
Percent non-White enrolled						
0 – 10	3,509	97.9	98.3	3,352	93.2	93.9
11 – 49	3,705	94.5	97.2	3,522	90.5	92.4
50 – 89	1,956	96.5	97.4	1,768	87.2	88.0
90 – 100	1,997	97.0	98.0	1,786	88.2	87.7
Unknown	93	11.3	15.4	485	82.4	80.3
Region						
Northeast	2,080	95.5	96.8	1,956	90.5	91.1
Midwest	2,957	97.9	98.8	2,803	93.0	93.6
South	3,614	95.1	97.5	3,334	87.6	90.0
West	2,585	96.5	97.3	2,402	91.2	90.4
Unknown	24	5.8	4.6	418	82.5	79.5

[1] School characteristics are for schools attended by children in the ECLS-K fifth-grade sample and are based on ECLS-K survey data, not data from the sampling frame.
[2] Reading, mathematics, or science assessments was scorable, or child was disabled and could not be assessed.
[3] Family structure portion of parent interview was completed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

children belong to the minority groups, to 94.3 percent for children in small towns (excluding the "unknown" category). The "unknown" category includes children who were unlocatable as their whereabouts were unknown and those children who had moved into a nonsampled county. The category "unknown" also includes 35 children who were homeschooled and thus had no information concerning schools.

The "unknown" category aside, both the child assessment and the parent interview completion rates increased between third grade and fifth grade for all school characteristics. The completion rates by mover status are discussed later, but the rates of completing all the instruments are much lower for children who moved than for those who did not move.

Table 6-2 shows that the overall weighted completion rate is 77.1 percent for the school administrator questionnaire, and 78.8 percent for the facilities checklist. The rate for school administrator questionnaires is 11 percentage points higher than the corresponding rate in third grade. The rate for facilities checklist is only about 2 percent higher. Excluding the "unknown" category, the completion rates for the school administrator questionnaire range from 87.4 percent for schools with 750 or more students to 100 percent for those in large towns. Rates for the facilities checklist range from 90.3 percent for schools in the urban fringe of mid-size cities to 100 percent for schools in large towns. It is worth noting that the completion rates for the school administrator questionnaire are lower for schools with higher percentages of minorities, a phenomenon also observed in previous rounds for the school administrator questionnaire. However, this disparity decreased considerably after the base year, reflecting the success of increased data collection efforts targeted toward these schools.

Table 6-2. Number of completed child-level cases and child-level completion rates for the school administrator questionnaire and facilities checklist for children sampled in the base year, by school characteristics: School year 2003–04

School characteristics[1]	School administrator questionnaire			Facilities checklist		
	Completes[2]	Completion rates		Completes[2]	Completion rates	
		Weighted	Unweighted		Weighted	Unweighted
All schools	10,937	77.1	89.6	11,154	78.8	91.4
School affiliation						
Public	8,884	90.7	94.5	9,084	92.7	96.6
Private	2,053	93.1	97.9	2,070	95.7	98.7
Catholic	1,323	96.8	99.0	1,328	98.1	99.4
Other private	730	88.8	95.9	742	92.8	97.5
Type of locale						
Large city	1,775	92.2	93.0	1,862	96.4	97.6
Mid-size city	1,825	93.6	96.3	1,844	94.9	97.3
Urban fringe of large city	3,173	87.7	93.2	3,240	90.4	95.2
Urban fringe of mid-size city	762	90.9	96.2	761	90.3	96.1
Large town	284	100.0	100.0	284	100.0	100.0
Small town	823	91.2	98.6	823	91.1	98.6
Rural – outside MSA	1,274	92.0	97.0	1,292	93.6	98.3
Rural – inside MSA	904	93.9	97.4	911	94.6	98.2
Unknown	117	8.2	13.9	137	9.4	16.3
School size (total enrollment)						
1 to 299	2,360	95.1	98.2	2,368	95.5	98.5
300 to 499	3,662	92.0	96.9	3,684	92.6	97.5
500 to 749	3,071	92.3	94.6	3,136	94.3	96.6
750 or more	1,844	87.4	91.2	1,939	91.9	95.8
Unknown	0	0.0	0.0	27	1.7	3.6

See notes at end of table.

Table 6-2. Number of completed child-level cases and child-level completion rates for the school administrator questionnaire and facilities checklist for children sampled in the base year, by school characteristics: School year 2003–04—Continued

| School characteristics[1] | School administrator questionnaire | | | Facilities checklist | | |
| | Completes[2] | Completion rates | | Completes[2] | Completion rates | |
		Weighted	Unweighted		Weighted	Unweighted
Percent non-White enrolled						
0 – 10	3,502	95.0	98.1	3,515	95.5	98.5
11 – 49	3,633	89.8	95.4	3,674	91.1	96.4
50 – 89	1,864	90.4	92.8	1,920	92.9	95.6
90 – 100	1,916	92.4	94.1	1,996	96.2	98.0
Unknown	22	0.9	2.8	49	2.5	6.3
Region						
Northeast	2,008	87.7	93.5	2,048	90.4	95.3
Midwest	2,920	95.5	97.5	2,938	95.9	98.1
South	3,547	90.7	95.7	3,598	92.1	97.1
West	2,462	89.1	92.7	2,570	93.9	96.8

[1] School characteristics are for schools attended by children in the ECLS-K third-grade sample and are based on ECLS-K survey data, not data from the sampling frame.
[2] A completed questionnaire was defined as one that was not left completely blank.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-3 shows that the rates for the student records abstract are the lowest of all the instruments, as they always were in previous years of the ECLS-K. For fifth grade, this rate is about 70 percent compared with 67 percent in third grade. The "unknown" category aside, the completion rates of the student records abstract range from 71.8 percent in the northeast region to 93.7 percent for children in large towns.

All four of the teacher questionnaires were completed at an overall rate of 78 to 80 percent (tables 6-3 and 6-4), much higher than the 62 to 63 percent range achieved in third grade. Excluding the "unknown" category, the completion rates for the teacher-level questionnaire in table 6-3 are uniform across school characteristics, ranging from 86.9 percent for schools in the northeast and schools with 750 or more students to 99.7 percent for schools in large towns. The same uniform rates are found for the subject-specific child-level teacher questionnaires in table 6-4: 85.7 to 99.7 percent for reading, 81.7 to 99.4 percent for mathematics, and 86.8 to 100 percent for science. These rates are higher than in any previous years of the ECLS-K, a change most likely attributable to the higher incentives employed in fifth grade. For a discussion of the incentives used in the ECLS-K, see section 4.5.6.

As noted above, the rate at which the survey instruments were completed varies markedly by mover status and, within movers, by whether the child was located and followed. As shown in table 6-5, the completion rate for the child assessment was 98.2 percent for children still enrolled in their base year school. For movers it dropped by about 6 points to 91.9 percent for those who were located and followed, and for those not located or followed due to a move to a non-ECLS-K PSU, it was zero. The parent interview completion rates varied from 91.6 percent for nonmovers to 87.1 percent for movers who were located and followed for the purposes of the child assessment, to 85.7 percent for movers who could either not be located or were not followed for the purposes of the child assessment. Even though children who had moved to a non-ECLS-K PSU were not administered the child assessment, a parent interview was conducted by telephone wherever possible, leading to the 86 percent response rate for this category.

Table 6-3.   Number of completed child-level cases and child-level completion rates for the student records abstract and teacher-level questionnaire for children sampled in the base year, by school characteristics: School year 2003–04

| School characteristics[1] | Student records abstract | | | Teacher-level questionnaire | | |
| | | Completion rates | | | Completion rates | |
	Completes[2]	Weighted		Completes[2]	Weighted	Unweighted
All schools	10,015	69.9	82.1	10,872	79.9	90.6
School affiliation						
Public	8,177	82.3	86.9	8,849	90.2	94.1
Private	1,838	84.6	87.6	2,023	93.6	96.5
Catholic	1,209	90.3	90.5	1,313	97.0	98.3
Other private	629	77.9	82.7	710	89.4	93.3
Type of locale						
Large city	1,585	78.9	83.1	1,758	89.8	92.1
Mid-size city	1,688	85.3	89.1	1,819	94.1	96.0
Urban fringe of large city	2,778	76.8	81.6	3,131	87.4	92.0
Urban fringe of mid-size city	698	82.1	88.1	751	90.2	94.8
Large town	272	93.7	95.8	283	99.7	99.6
Small town	758	85.7	90.8	819	91.1	98.1
Rural – outside MSA	1,227	89.3	93.4	1,273	91.0	96.9
Rural – inside MSA	884	89.4	95.3	903	93.4	97.3
Unknown	125	8.8	14.9	135	12.0	21.3
School size (total enrollment)						
1 to 299	2,114	85.2	88.0	2,340	94.8	97.4
300 to 499	3,385	84.1	89.6	3,628	91.3	96.0
500 to 749	2,808	83.3	86.5	3,039	91.4	93.7
750 or more	1,687	78.6	83.4	1,844	86.9	91.2
Unknown	21	1.3	2.8	21	1.7	3.9

See note at end of table.

Table 6-3.   Number of completed child-level cases and child-level completion rates for the student records abstract and teacher-level questionnaire for children sampled in the base year, by school characteristics: School year 2003–04—Continued

School characteristics[1]	Student records abstract			Teacher-level questionnaire		
		Completion rates			Completion rates	
	Completes[2]	Weighted	Unweighted	Completes[3]	Weighted	Unweighted
Percent non-White enrolled						
0 – 10	3,274	89.0	91.7	3,465	93.9	97.1
11 – 49	3,303	81.4	86.7	3,608	89.2	94.7
50 – 89	1,686	80.2	84.0	1,854	90.5	92.3
90 – 100	1,712	80.2	84.0	1,902	91.4	93.4
Unknown	40	2.1	5.2	43	2.8	7.6
Region						
Northeast	1,635	71.8	76.1	1,970	86.9	91.7
Midwest	2,788	90.4	93.1	2,913	94.7	97.3
South	3,359	83.4	90.7	3,531	90.1	95.3
West	2,233	81.3	84.1	2,458	90.0	92.5

[1] School characteristics are for schools attended by children in the ECLS-K third-grade sample and are based on ECLS-K survey data, not data from the sampling frame.
[2] Reading, mathematics, or science assessments was scorable, or child was disabled and could not be assessed.
[3] Family structure portion of parent interview was completed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-4. Number of completed child-level cases and child-level completion rates for the child-level teacher questionnaires for children sampled in the base year, by school characteristics: School year 2003–04

School characteristics[1]	Child-level reading teacher questionnaire			Child-level mathematics teacher questionnaire			Child-level science teacher questionnaire		
		Completion rates			Completion rates			Completion rates	
	Completes[2]	Weighted	Unweighted	Completes[2]	Weighted	Unweighted	Completes[2]	Weighted	Unweighted
All schools	10,793	79.3	90.0	5,339	78.1	89.3	5,405	79.5	89.9
School affiliation									
Public	8,780	89.5	93.3	4,357	87.9	92.6	4,376	89.8	93.1
Private	2,013	92.9	96.0	982	93.6	96.0	1,029	92.1	95.8
Catholic	1,306	96.7	97.8	635	96.5	97.2	670	96.7	98.1
Other private	707	88.5	92.9	347	90.2	93.8	359	86.6	91.8
Type of locale									
Large city	1,753	90.2	91.9	853	90.3	91.8	880	88.0	89.9
Mid-size city	1,811	93.6	95.6	893	90.3	94.3	898	94.0	94.7
Urban fringe of large city	3,111	86.5	91.4	1,547	84.4	90.4	1,551	87.9	91.7
Urban fringe of mid-size city	741	88.3	93.6	366	87.6	93.1	374	88.0	93.7
Large town	283	99.7	99.6	140	99.4	99.3	143	100.0	100.0
Small town	808	90.3	96.8	383	85.0	96.5	432	96.8	98.6
Rural – outside MSA	1,258	90.1	95.7	634	92.8	95.5	620	86.8	95.4
Rural – inside MSA	893	91.8	96.2	456	90.5	95.6	441	94.3	97.8
Unknown	135	12.0	21.3	67	13.1	20.9	66	10.5	21.0
School size (total enrollment)									
1 to 299	2,323	93.8	96.7	1,144	94.2	96.6	1,175	93.7	96.4
300 to 499	3,605	91.0	95.4	1,830	90.7	95.8	1,768	90.2	94.6
500 to 749	3,014	90.6	92.9	1,462	88.8	91.7	1,537	91.3	93.2
750 or more	1,830	85.7	90.5	892	81.7	88.0	917	88.0	90.9
Unknown	21	1.7	3.9	11	2.2	4.0	8	0.7	3.0

See notes at end of table.

Table 6-4. Number of completed child-level cases and child-level completion rates for the child-level teacher questionnaires for children sampled in the base year, by school characteristics: School year 2003–04—Continued

School characteristics[1]	Child-level reading teacher questionnaire			Child-level mathematics teacher questionnaire			Child-level science teacher questionnaire		
	Completes[2]	Completion rates		Completes[2]	Completion rates		Completes[2]	Completion rates	
		Weighted	Unweighted		Weighted	Unweighted		Weighted	Unweighted
Percent non-White enrolled									
0 – 10	3,444	93.7	96.5	1,695	93.2	96.3	1,745	94.1	96.5
11 – 49	3,584	88.1	94.1	1,791	87.2	93.8	1,793	89.0	94.4
50 – 89	1,823	89.1	90.8	919	85.8	89.7	893	90.8	90.8
90 – 100	1,899	91.3	93.2	911	90.4	91.7	956	88.8	91.6
Unknown	43	2.8	7.6	23	3.3	7.9	18	1.9	6.5
Region									
Northeast	1,956	86.7	91.1	967	84.6	90.6	969	87.0	89.6
Midwest	2,909	94.4	97.2	1,423	94.5	96.9	1,482	94.5	97.1
South	3,498	89.0	94.4	1,747	87.5	93.6	1,743	89.2	94.8
West	2,430	89.0	91.5	1,202	87.4	90.5	1,211	89.1	91.2

[1] School characteristics are for schools attended by children in the ECL-K third-grade sample and are based on ECLS-K survey data, not data from the sampling frame.
[2] A completed questionnaire was defined as one that was not left completely blank.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-5. Number of completed child-level cases and child-level completion rates for the child assessment and parent interview for children sampled in the base year, by child's mover status: School year 2003–04

| Mover status[1] | Child assessment | | | Parent interview | | |
| | Completes[2] | Completion rates | | Completes[3] | Completion rates | |
		Weighted	Unweighted		Weighted	Unweighted
All children	11,260	84.7	93.6	10,913	89.1	90.7
Mover status						
Mover	1,814	71.8	74.7	2,094	86.8	86.2
Located, followed	1,814	91.9	92.1	1,704	87.1	86.5
Other[4]	0	0.0	0.0	390	85.7	85.0
Nonmover	9,446	98.2	98.4	8,819	91.6	91.9

[1] This is the mover status used in weighting, which does not consider children who moved into identified destination schools as movers. A destination school is a school that received at least four students from the school where they had just completed the highest grade.

[2] Reading, mathematics, or science assessments was scorable, or child was disabled and could not be assessed.

[3] Family structure portion of parent interview was completed.

[4] This category includes movers who could not be located, and movers who moved into nonsampled PSUs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The school administrator questionnaire completion rate is 15 points lower for movers, even when the children were located and followed; for the facilities checklist, it is 14 points lower (table 6-6). There are several reasons for this difference: located movers were not always assessed in schools; new schools in which movers enrolled had a lower level of commitment to the ECLS-K and often refused to complete the school administrator questionnaire; and some of these schools were contacted too late in the school year for them to consider completing it. The completion rate for nonmovers was 97.1 percent for the school administrator questionnaire and 98.8 percent for the facilities checklist. For located and followed movers it was 82.4 and 84.8 percent for the school administrator questionnaire and for the facilities checklist, respectively. The rates for the student records abstract are 90.1 percent for nonmovers and 72.3 percent for movers who were located and followed (table 6-7).

The teacher-level questionnaire completion rate, as shown in table 6-7, is about 14 points lower for movers who could be located and followed (82.2 percent) than for nonmovers (96.5 percent). Movers who could not be located were all nonrespondents for this instrument, pulling the overall completion rate for movers downward to 63.9 percent. Table 6-8 shows the completion rates for all three child-level teacher questionnaires. These rates are between 95 and 96 percent for nonmovers, and between 80 and 82 percent for movers who were located and followed. Children who could not be located were all nonrespondents for the child-level teacher instruments. The reasons for lower completion rates from teachers if the child moved are similar to the reasons that affected the school administrator questionnaire and facilities checklist completion rates for movers.

Table 6-6. Number of completed child-level cases and child-level completion rates for the school administrator questionnaire and facilities checklist for children sampled in the base year, by child's mover status: School year 2003–04

Mover status[1]	School administrator questionnaire			Facilities checklist		
	Completes[2]	Completion rates		Completes[2]	Completion rates	
		Weighted	Unweighted		Weighted	Unweighted
All children	10,937	77.1	89.6	11,154	78.8	91.4
Mover status						
Mover	1,589	59.2	61.1	1,647	61.0	63.3
Located, followed	1,589	82.4	82.1	1,647	84.8	85.1
Other[3]	0	0.0	0.0	0	0.0	0.0
Nonmover	9,348	97.1	97.4	9,507	98.8	99.0

[1] This is the mover status used in weighting, which does not consider children who moved into identified destination schools as movers. A destination school is a school that received at least four students from the school where they had just completed the highest grade.
[2] A completed questionnaire was defined as one that was not left completely blank.
[3] This category includes movers who could not be located, and movers who moved into nonsampled PSUs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-7. Number of completed child-level cases and child-level completion rates for the student records abstract and teacher-level questionnaire for children sampled in the base year, by child's mover status: School year 2003–04

| Mover status[1] | Student records abstract | | | Teacher-level questionnaire | | |
| | | Completion rates | | | Completion rates | |
	Completes[2]	Weighted	Unweighted	Completes[2]	Weighted	Unweighted
All children	10,015	69.9	82.1	10,872	79.9	90.6
Mover status						
Mover	1,393	52.0	53.6	1,587	63.9	66.3
Located, followed	1,393	72.3	72.0	1,587	82.2	82.0
Other[3]	0	0.0	0.0	0	0.0	0.0
Nonmover	8,622	90.1	89.8	9,285	96.5	96.7

[1] This is the mover status used in weighting, which does not consider children who moved into identified destination schools as movers. A destination school is a school that received at least four students from the school where they had just completed the highest grade.

[2] A completed questionnaire was defined as one that was not left completely blank.

[3] This category includes movers who could not be located, and movers who moved into nonsampled PSUs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-8. Number of completed child-level cases and child-level completion rates for the child-level teacher questionnaires for children sampled in the base year, by child's mover status: School year 2003–04

Mover status[1]	Child-level reading teacher questionnaire			Child-level mathematics teacher questionnaire			Child-level science teacher questionnaire		
	Completes[2]	Completion rates		Completes[2]	Completion rates		Completes[2]	Completion rates	
		Weighted	Unweighted		Weighted	Unweighted		Weighted	Unweighted
All children	10,793	79.3	90.0	5,339	78.1	89.3	5,405	79.5	89.9
Mover status									
Mover	1,568	63.3	65.5	818	62.2	65.2	734	63.2	64.4
Located, followed	1,568	81.4	81.0	818	79.7	80.4	734	81.7	80.0
Other[3]	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Nonmover	9,225	95.8	96.1	4,521	95.3	95.7	4,671	95.6	95.8

[1] This is the mover status used in weighting, which does not consider children who moved into identified destination schools as movers. A destination school is a school that received at least four students from the school where they had just completed the highest grade.
[2] A completed questionnaire was defined as one that was not completely left blank.
[3] This category includes movers who could not be located, and movers into nonsampled PSUs.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Tables 6-9 to 6-12 present child-level weighted and unweighted completion rates for the spring-fifth grade data collection for children who were sampled as part of the kindergarten cohort in the base year, this time broken out by child characteristics. When the "unknown" categories are not included, the differences in completion rates by sex and by year of birth are inconsequential, but for race and ethnicity they are more substantial. Table 6-9 shows that the child assessment completion rate was highest for Asians (87.6 percent) and lowest for American Indians or Alaska Natives (78.3 percent). For the parent interview it is the opposite; the rate was highest for American Indians or Alaska Natives (95.2 percent) and lowest for Asian children (82.8 percent).

Table 6-10 shows that, excluding the "unknown" categories, the highest completion rates for the school administrator questionnaire and for the facilities checklist are for Pacific Islanders (85.7 percent and 86.7 percent, respectively), and the lowest completion rates are for American Indians or Alaska Natives (65.8 percent and 71.1 percent, respectively). Table 6-11 shows that the completion rate for the student records abstract is highest for children with "other" race (72.8 percent) and the lowest is for Black (63.9), excluding the "unknown" categories.

For the teacher-level questionnaire (table 6-11), the highest rate is for Pacific Islanders (84 percent) and the lowest rate is for American Indians and Alaska Natives (77 percent), excluding the "unknown" categories. For the child-level reading teacher questionnaire (table 6-12), the highest rate is for Asians (82 percent) and the lowest rate is for American Indians or Alaska Natives (76 percent). For the child-level mathematics teacher questionnaire, the highest rate is for Hispanic and for children whose race/ethnicity is not among the listed (80 percent) and the lowest rate is for Black and American Indians or Alaska Natives (76 percent). For the child-level science teacher questionnaire, the highest rate is for Asians (86 percent) and the lowest rate is for Blacks and for children whose race/ethnicity is not among the listed (76 percent).

In addition to the child assessment, parent interview, school administrator questionnaire, facilities checklist, student records abstract, and teacher questionnaires, whose completion rates have been summarized in the preceding paragraphs, data were also collected in fifth grade from the special education teachers for children who had special education teachers. Table 6-13 presents counts of completes and weighted and unweighted completion rates at the overall student level for the special education questionnaires A and B. The number of special education teacher questionnaires is small but

Table 6-9. Number of completed child-level cases and child-level completion rates for the child assessment and parent interview for children sampled in the base year, by child characteristics: School year 2003–04

Child characteristics[1]	Child assessment			Parent interview		
		Completion rates			Completion rates	
	Completes[2]	Weighted	Unweighted	Completes[3]	Weighted	Unweighted
All children	11,260	84.7	93.6	10,913	89.1	90.7
Sex[4]						
Male	5,675	84.1	93.3	5,525	89.9	90.8
Female	5,585	85.4	94.1	5,388	88.5	90.8
Race/ethnicity						
White, non-Hispanic	6,466	84.8	94.4	6,394	91.3	93.4
Black, non-Hispanic	1,273	83.3	93.3	1,151	83.4	84.3
Hispanic	2,093	85.9	92.4	2,036	89.5	89.9
Asian	788	87.6	92.5	707	82.8	83.0
Pacific Islander	144	85.4	92.3	136	87.7	87.2
American Indian or Alaska Native	210	78.3	92.1	222	95.2	97.4
Other	272	86.3	93.8	253	84.5	87.2
Unknown	14	55.3	50.0	14	58.0	50.0
Year of birth						
1992	3,307	83.9	93.6	3,211	88.7	90.8
1993	7,896	85.1	93.8	7,646	89.4	90.8
Other/unknown	57	71.0	76.0	56	76.0	74.7

[1] Based on ECLS-K survey data and not on data from the sampling frame.
[2] Reading, mathematics, or science assessments was scorable, or child was disabled and could not be assessed.
[3] Family structure portion of parent interview was completed.
[4] There is a small number of children whose sex is unknown and who did not have completed child assessment and parent interview. The completion rates for these children, being zero, are not included in the table.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-10. Number of completed child-level cases and child-level completion rates for the school administrator questionnaire and facilities checklist for children sampled in the base year, by child characteristics: School year 2003–04

| Child characteristics[1] | School administrator questionnaire | | | Facilities checklist | | |
| | | Completion rates | | | Completion rates | |
	Completes[2]	Weighted	Unweighted	Completes[2]	Weighted	Unweighted
All children	10,937	77.1	89.6	11,154	78.8	91.4
Sex[3]						
Male	5,517	77.1	89.5	5,621	78.6	91.2
Female	5,420	77.2	90.0	5,533	79.2	91.9
Race/ethnicity						
White, non-Hispanic	6,356	78.8	92.6	6,413	80.1	93.4
Black, non-Hispanic	1,256	74.5	89.9	1,266	75.4	90.6
Hispanic	1,957	75.4	83.5	2,061	79.0	88.0
Asian	752	77.9	85.1	776	80.9	87.8
Pacific Islander	145	85.7	92.4	146	86.7	93.0
American Indian or Alaska Native	191	65.8	82.3	208	71.1	89.7
Other	266	77.7	90.8	270	79.1	92.2
Unknown	14	50.1	46.7	14	50.1	46.7
Year of birth						
1992	3,223	77.0	90.0	3,275	78.7	91.5
1993	7,660	77.2	89.7	7,825	79.1	91.6
Other/unknown	54	64.0	70.1	54	59.5	70.1

[1] Based on ECLS-K survey data and not on data from the sampling frame.
[2] A completed questionnaire was defined as one that was not left completely blank.
[3] The completion of the school-level instruments does not depend on whether the child has completed assessment or parent interview data. Hence, while all children with completed assessment or parent interview data have a known value of sex; there are children with completed school-level data whose sex is unknown.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-11. Number of completed child-level cases and child-level completion rates for the student records abstract and teacher-level questionnaire for children sampled in the base year, by child characteristics: School year 2003–04

Child characteristics[1]	Student records abstract			Teacher-level questionnaire		
	Completes[2]	Completion rates		Completes[2]	Completion rates	
		Weighted	Unweighted		Weighted	Unweighted
All children	10,015	69.9	82.1	10,872	79.9	90.6
Sex[3]						
Male	5,034	69.6	81.6	5,482	79.3	90.4
Female	4,981	70.4	82.7	5,390	80.7	91.0
Race/ethnicity						
White, non-Hispanic	5,878	72.6	85.6	6,300	80.6	92.3
Black, non-Hispanic	1,101	63.9	78.8	1,238	77.1	90.8
Hispanic	1,769	68.4	75.5	1,962	80.2	86.9
Asian	692	70.7	78.3	751	82.6	88.2
Pacific Islander	125	69.6	79.6	138	84.0	88.5
American Indian or Alaska Native	197	66.0	84.9	206	77.0	91.6
Other	242	72.8	82.6	263	81.9	91.3
Unknown	11	30.5	36.7	14	55.3	50.0
Year of birth						
1992	2,996	71.5	83.7	3,213	80.1	91.2
1993	6,976	69.4	81.7	7,610	80.1	90.6
Other/unknown	43	57.4	55.8	49	54.4	65.3

[1] Based on ECLS-K survey data and not on data from the sampling frame.
[2] A completed questionnaire was defined as one that was not left completely blank.
[3] The completion of the school-level instruments does not depend on whether the child has completed assessment or parent interview data. Hence, while all children with completed assessment and parent interview data have a known value of sex; there is one child with completed facilities checklist data whose sex is unknown.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-12. Number of completed child-level cases and child-level completion rates for the child-level teacher questionnaires for children sampled in the base year, by child characteristics: School year 2003–04

Child characteristics[1]	Child-level reading teacher questionnaire			Child-level mathematics teacher questionnaire			Child-level science teacher questionnaire		
		Completion rates			Completion rates			Completion rates	
	Completes[2]	Weighted	Unweighted	Completes[2]	Weighted	Unweighted	Completes[2]	Weighted	Unweighted
All children	10,793	79.3	90.0	5,339	78.1	89.3	5,405	79.5	89.9
Sex[3]									
Male	5,436	78.7	89.7	2,670	78.0	88.9	2,739	78.2	89.5
Female	5,357	80.0	90.5	2,669	78.4	89.9	2,666	81.1	90.4
Race/ethnicity									
White, non-Hispanic	6,255	80.0	91.7	3,111	78.6	91.4	3,147	81.4	92.0
Black, non-Hispanic	1,231	76.7	90.2	591	75.7	88.5	629	76.2	90.4
Hispanic	1,952	79.5	86.4	959	79.6	85.2	963	77.2	84.9
Asian	743	81.8	87.3	362	77.8	85.8	378	85.1	88.1
Pacific Islander	132	79.1	84.6	75	77.5	85.2	59	81.1	86.8
American Indian or Alaska Native	204	76.4	90.7	109	75.6	91.6	93	77.0	87.7
Other	262	81.4	91.0	127	80.2	89.4	129	76.2	88.4
Unknown	14	55.3	50.0	5	47.5	35.7	7	31.2	50.0
Year of birth									
1992	3,186	79.1	90.4	1,565	77.9	90.1	1,618	79.9	90.5
1993	7,559	79.6	90.0	3,751	78.4	89.1	3,762	79.7	89.8
Other/unknown	48	53.5	64.0	23	55.0	63.9	25	52.5	64.1

[1] Based on ECLS-K survey data and not on data from the sampling frame.
[2] A completed questionnaire was defined as one that was not left completely blank.
[3] There is a small number of children whose sex is unknown and who did not have completed teacher questionnaire data. The completion rates for these children, being zero, are not included in the table.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-13. Number of completed instruments and child-level completion rates for the special education teacher questionnaires for children sampled in the base year: School year 2003–04

| Category | Completes | Completion rates | |
		Weighted	Unweighted
Special education part A[1]	960	92.2	93.8
Special education part B[1]	967	93.7	94.4

[1] A completed instrument was defined as one that was not left completely blank.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

their completion rates are higher, 92.2 percent for part A, which captures teacher information, and 93.7 percent for part B, which relates to children who receive individualized special education services. These rates are not broken down by school and child characteristics because of the small sample sizes.

6.2.2 Children Sampled in First Grade

In spring-first grade, the student sample was freshened to include first graders who had no chance of selection in the base year because they had not attended kindergarten in the United States or were in first grade in the fall of 1998. For a detailed description of the freshening procedure see chapter 3, section 3.4.2. This same group of children was followed into spring-fifth grade, unless they belonged in the excluded groups. Nonresponse in the freshened student sample could occur at two stages: during the procedure for sampling schools for freshening and identifying children to be used as freshening links in spring-first grade (first component) and then during data collection from the freshened children in spring-third grade (second component).

The first component of the completion rate is the proportion of children sampled from the base year and subsampled for freshening for which the study was able to do freshening. The numerator includes all children available for freshening (i.e., those who did not move and in schools that cooperated with the freshening in first grade); the denominator includes children sampled for freshening (excluding movers not subsampled). For the weighted first component of the completion rate, both numerator and denominator were weighted by the product of the school base weight, the within-school child weight, and the freshening adjustment factor. The school base weight and the within-school child level weight reflect the multi-stage sampling of the ECLS-K design, while the freshening adjustment factor is necessary because schools were subsampled for freshening in first grade as described in section 3.4.2. These weights and adjustment factor are discussed in more detail in chapter 7. The first component alone can

further be decomposed into two sources: attrition due to the refusal of entire schools to implement the freshening procedure (the school term), and attrition due to ECLS-K sampled children moving to other schools (the child term). To contain costs, children who transferred from schools targeted for freshening were not used as links to identify freshened children, even when they were otherwise followed for data collection. These movers were considered freshening nonrespondents in the child term.

The second component is the proportion of freshened children with completed data for the instrument from within the population brought into the sample by freshening. The weight for this component is the product of the school base weight, the within-school child weight, the school freshening subsample adjustment factor and the fifth-grade mover subsampling adjustment factor.

The final completion rate is the product of the two components. For example, the final completion rate for the child assessment is computed as follows:

$$r_{CA} = \frac{\sum\limits_{i \in A} W_{1i}}{\sum\limits_{i \in B} W_{1i}} \times \frac{\sum\limits_{i \in ER_{CA}} W_{2i}}{\sum\limits_{i \in ER_{CA} \cup ENR_{CA}} W_{2i}}$$

where A is the set of children who could be freshened from (as described above), B is the set of children sampled for freshening, W_{1i} is the weight for child i for the first component as described above, W_{2i} is the weight for child i for the second component as described above, ER_{CA} denotes eligible child assessment respondent, and ENR_{CA} eligible child assessment nonrespondent. To compute the unweighted rates, W_{1i} and W_{2u} are set to 1 for each child.

Table 6-14 presents weighted and unweighted completion rates for freshened children. The two components of the completion rates are presented separately in table 6-14. The overall completion rates (i.e., the third set of rates in the table) are the products of the two components. The first component is separated into *a school term* and *a child term* as described earlier. For this component, the completion rate is defined as the freshening completion rates, as opposed to the survey instrument completion rates found in the second component. The weighted freshening completion rate for children in schools targeted for freshening (*the school term*) is 67.2 percent. As part of the freshening process, schools were asked to prepare an alphabetic roster of students enrolled in first grade. These schools were also requested to identify which students did not attend kindergarten the previous year. Schools did not participate in the

Table 6-14. Number of completed child-level cases and child-level completion rates for children sampled in first grade: School year 2003–04

Category	Completes	Completion rates[1]	
		Weighted	Unweighted
First component (first-grade sample freshening)	7,032	66.0	79.1
School term[2]	7,089	67.2	79.7
Child term[3]	7,135	98.2	99.2
Second component (fifth-grade data collection)[4]			
Child assessment[5]	86	78.6	86.0
Parent interview[6]	83	81.9	83.0
School administrator questionnaire[7]	86	74.4	83.5
Facilities check list[7]	89	77.8	86.4
Student records abstract[7]	75	67.0	72.8
Teacher-level questionnaire[7]	87	81.2	87.9
Reading teacher questionnaire (child level)[7]	84	79.8	84.8
Mathematics teacher questionnaire (child level)[7]	41	81.0	83.7
Science teacher questionnaire (child level)[7]	40	75.2	80.0
Special education part A[7]	15	100.0	100.0
Special education part B[7]	14	93.4	93.3
Overall completion rates			
Child assessment[5]	86	51.9	68.0
Parent interview[6]	83	54.0	65.6
School administrator questionnaire[7]	86	49.1	66.0
Facilities check list[7]	89	51.3	68.3
Student records abstract[7]	75	44.2	57.6
Teacher-level questionnaire[7]	87	53.6	69.5
Reading teacher questionnaire (child level)[7]	84	52.7	67.0
Mathematics teacher questionnaire (child level)[7]	41	53.5	66.2
Science teacher questionnaire (child level)[7]	40	49.6	63.2
Special education part A[7]	15	66.0	79.1
Special education part B[7]	14	61.6	73.8

[1] In the first component, this is the completion rate for freshening. In the second component, this is the completion rate for the survey instruments. The product of the two components is the overall completion rate for the survey instruments.
[2] The freshening completes and completion rates for children in schools targeted for freshening.
[3] The freshening completes and completion rates for children in schools that agreed to the freshening procedure.
[4] The number of children sampled via the freshening procedure was 165 but not all were eligible for the fifth-grade data collection. Some became ineligible by the time of the fifth-grade data collection, and some were movers not subsampled for followup. The denominator of the completion rate also varies according to the instrument. For example, children who were homeschooled were not eligible to have school and teacher questionnaires. The denominator for each instrument can be obtained by dividing the number of completes by the unweighted completion rate.
[5] Reading, mathematics, or science assessment was scorable, or child was disabled and could not be assessed.
[6] Family structure portion of parent interview was completed.
[7] A completed questionnaire was defined as one that was not completely left blank.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

freshening process because they either refused or were unable to provide the requested information. Within the schools that agreed to freshen, the freshening completion rate is 98.2 percent, the slight loss due to children who transferred to other schools (*the child term*). Multiplying these two terms together gives a first component completion rate of 66.0 percent. Note that the first component rate for spring-fifth grade is not identical to the first component rate for spring-first grade and spring-third grade because of the exclusion of children in special groups as explained in section 3.6.

The second component varies by survey instrument. The rates for the paper-and-pencil instruments range from 67.0 percent for the student records abstract to 100.0 percent for the special education questionnaire part A. The rate for the child assessment at 78.6 percent is about 6 points lower than for the kindergarten sample, and the parent interview, at 81.9 percent, is about 7 points lower. The rates for the school instruments and the student records abstract are also lower than for the kindergarten sample, but by a smaller amount. The rates for some of the teacher instruments are higher than for the kindergarten sample. The larger difference in the parent interview rates, as compared with the difference in the rates for the child assessment, is due to the different number of followups given the two groups of parents. For parents of children sampled in first grade, the fifth-grade data collection was the second followup, while most parents of children sampled in kindergarten had at least four followups (spring-kindergarten, spring-first grade, spring-third grade, and spring-fifth grade). The number of followups does not affect the completion rate of the child assessment in the same way since the child assessment was done in the school for most children and hence could be perceived as part of school activities. The final completion rate for each instrument is the product of the two components. Because of the low rates at the first stage, these range from a high of 53.6 percent for the teacher-level questionnaire to a low of 44.2 percent for the student records abstract.

6.2.3   Spring-Fifth Grade Completion Rates for All Children

To compute the fifth-grade completion rate for the combined set of children sampled in the base year and children sampled in first grade, the fifth-grade completion rate for each group is weighted by the proportion of all children in that group, and the two weighted fifth-grade completion rates were

added together. For example, the weighted fifth-grade completion rate for the child assessment (CA) was computed as

$$r_{CA} = r_{CA,BY} \times \frac{\sum\limits_{i \in BY} W_i}{\sum\limits_{i \in BY \cup 1ST} W_i} + r_{CA,1ST} \times \frac{\sum\limits_{i \in 1ST} W_i}{\sum\limits_{i \in BY \cup 1ST} W_i}$$

where *BY* denotes base year, *1ST* denotes first grade, $r_{CA,BY}$ is the child assessment completion rate for children sampled in the base year, $r_{CA,1ST}$ is the child assessment completion rate for children sampled in first grade, and W_i is the final weight (C6CW0 for the child assessment) for child *i*.

To get the weighted fifth-grade completion rate for the child assessment (which is 84.7 percent for children sampled in the base year and 51.9 percent for children sampled in first grade), the weighted proportion of children who were sampled in the base year was 0.9762; the weighted proportion of children who were sampled in first grade was 0.0238. The fifth-grade weighted completion rate for the child assessment was 0.847×0.9762+0.519×0.0238=0.839, or 83.9 percent.

Table 6-15 presents final spring-fifth grade completion rates for children sampled in kindergarten, children sampled in first grade, and all children combined. Because children sampled in first grade represent such a small fraction of the total population of children, their inclusion in the computation of the completion rate brings down the rates for all children by less than one percent relative to the rates for children sampled in kindergarten, even though the completion rates for children sampled in first grade are much lower than the kindergarten rates. The spring-fifth grade overall completion rates for the child assessment and the parent interview are 83.9 percent and 88.3 percent, respectively. These rates are higher than in third grade by about 4 percentage points for the child assessment and by about 11 percentage points for the parent interview. In all tables, the unweighted completion rates are almost always higher than the weighted completion rates, by as much as 23 percent at the overall level. Where there is a large difference, it is due to movers who have larger weights and higher nonresponse rates than nonmovers. The weights of the movers were increased to account for the subsampling of movers. They also responded at a much lower rate than nonmovers, as shown earlier in tables 6-5 to 6-8. This difference is larger than in previous years because movers in fifth grade have much larger weights than in previous years (many more movers were not included in fifth grade, necessitating larger adjustment factors). Note that the unweighted completion rates follow the traditional ECLS-K pattern, that is, rates for the child

Table 6-15. Number of completed child-level cases and child-level completion rates, for children sampled in kindergarten and first grade, by survey instruments: School year 2003–04

Survey instrument	Children sampled in kindergarten			Children sampled in first grade			All children		
		Completion rates			Completion rates			Completion rates	
	Completes	Weighted	Unweighted	Completes	Weighted	Unweighted	Completes	Weighted	Unweighted
Child assessment[1]	11,260	84.7	93.6	86	51.9	68.0	11,346	83.9	93.4
Parent interview[2]	10,913	89.1	90.7	83	54.0	65.6	10,996	88.3	90.5
School administrator questionnaire[3]	10,937	77.1	89.6	86	49.1	66.0	11,023	76.4	89.4
Facilities check list[3]	11,154	78.8	91.4	89	51.3	68.3	11,243	78.1	91.2
Student records abstract[3]	10,015	69.9	82.1	75	44.2	57.6	10,090	69.3	81.9
Teacher-level questionnaire[3]	10,872	79.9	90.6	87	53.6	69.5	10,959	79.3	90.4
Reading teacher questionnaire (child level)[3]	10,793	79.3	90.0	84	52.7	67.0	10,877	78.7	89.8
Mathematics teacher questionnaire (child level)[3]	5,339	78.1	89.3	41	53.5	66.2	5,380	77.5	89.1
Science teacher questionnaire (child level)[3]	5,405	79.5	89.9	40	49.6	63.2	5,445	78.8	89.7
Special education part A[3]	960	92.2	93.8	15	66.0	79.1	975	91.6	93.7
Special education part B[3]	967	93.7	94.4	14	61.6	73.8	981	92.9	94.2

[1] Reading, mathematics, or science assessment was scorable, or child was disabled and could not be assessed.
[2] Family structure portion of parent interview was completed.
[3] A completed questionnaire was defined as one that was not left completely blank.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

assessment are higher than rates for the parent interview (93.4 percent for the child assessment and 90.5 percent for the parent interview). This is again due to movers with large weights and to the fact that there are more parent-responding movers than child-responding movers. Thus, the weighted completion rates are higher for the parent interview than for the child assessment.

Table 6-16 shows the completion rates for the child assessment, the parent interviews, and the school and teacher instruments for children who have nonzero child weights (C6CW0>0). These are children whose spring-fifth grade reading, mathematics, or science assessments were scorable, or children who could not be assessed because of disabilities. These conditioned completion rates are useful to analysts who want to assess the relationship between the different instruments in term of participation. The completion rates from the different instruments are dependent in that if data from one instrument are missing (e.g., parent instrument) it is likely that data from other instruments are also missing. (e.g., school administrator questionnaire). The conditioned completion rate for the child assessment is by definition 100 percent. The rate slightly less than 100 percent, shown when children sampled in kindergarten are combined with children sampled in first grade, is due to the school freshening nonresponse for children sampled in first grade.

When the completion rates are conditioned on the presence of the child weight, they are at least 13 points higher than the unconditional completion rates for all instruments but the parent interview and the special education questionnaires. For these last two instruments, the difference between the number of completes for the conditional and unconditional rates is very small; hence the conditional rates are not affected as much as for the other instruments. For the parent interview, the unconditional rate is fairly high for the reason explained earlier; that is, movers in fifth grade have much larger weights than in previous years and there are more parent-responding movers than child-responding movers (the weighted completion rates are higher for the parent interview than for the child assessment). This results in the smaller difference between conditional and unconditional of about 4 percent. For all the other instruments, the conditional completion rates are higher by 13.6 points for the child-level science teacher questionnaire and as high as 17.2 points for the facilities checklist.

Table 6-16. Number of completed child-level cases and child-level completion rates, for children with scorable reading, mathematics or science assessment or children not assessed due to disabilities, by survey instruments: School year 2003–04

| Survey instrument | Children sampled in kindergarten | | | Children sampled in first grade | | | All children | | |
| | Completes | Completion rates | | Completes | Completion rates | | Completes | Completion rates | |
		Weighted	Unweighted		Weighted	Unweighted		Weighted	Unweighted
Child assessment[1]	11,260	100.0	100.0	86	78.3	86.8	11,346	99.5	99.9
Parent interview[2]	10,445	92.4	92.8	77	71.5	77.6	10,522	91.9	92.7
School administrator questionnaire[3]	10,794	93.4	96.1	83	74.7	83.7	10,877	93.0	96.0
Facilities check list[3]	11,015	95.7	98.0	86	78.3	86.8	11,101	95.3	97.9
Student records abstract[3]	9,986	85.6	88.9	74	68.3	74.6	10,060	85.2	88.8
Teacher-level questionnaire[3]	10,799	93.4	96.1	84	77.3	84.8	10,883	93.0	96.0
Reading teacher questionnaire (child level)[3]	10,774	93.3	95.9	84	77.3	84.8	10,858	92.9	95.8
Mathematics teacher questionnaire (child level)[3]	5,331	92.7	95.5	41	76.2	82.7	5,372	92.3	95.4
Science teacher questionnaire (child level)[3]	5,394	92.8	95.4	40	74.9	80.7	5,434	92.4	95.3
Special education part A[3]	947	93.0	94.1	14	78.3	86.8	961	92.6	94.0
Special education part B[3]	959	95.1	95.3	14	78.3	86.8	973	94.7	95.2

[1] Reading, mathematics, or science assessment was scorable, or child was disabled and could not be assessed.
[2] Family structure portion of parent interview was completed.
[3] A completed questionnaire was defined as one that was not left completely blank.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

As explained in section 3.6, four groups of children were excluded from the fifth-grade data collection. These are (1) children who became ineligible in an earlier round (because they had died or moved out of the country), (2) children who were subsampled out in previous rounds because they had moved out of the original schools and were not subsampled to be followed, (3) children whose parents emphatically refused to cooperate (hard refusals) in any of the data collection rounds since spring-kindergarten, and (4) children eligible for the third-grade sample for whom there are neither first-grade nor third-grade data. Table 6-17 shows the completion rates for all instruments had children in the last two exclusion groups been counted as nonrespondents. These are children who would have been eligible for the fifth-grade collection but past experience showed that they would most likely be nonrespondents. When compared to table 6-15, the completion rates for all instruments in table 6-17 are lower, as expected, but only by about 2 percent, with the smallest difference for the student records abstract and largest difference for the parent interview. Note that the rates for mathematics and science teacher appear to be unchanged. Recall that only about half of the children had a mathematics teacher questionnaire filled out for them and the other half a science teacher questionnaire. Since the mathematics/science sampling flags were not assigned to children not included in the sample, we were not able to compute a correct completion rate for these two instruments for these children. But the pattern of completion rates would be the same as for the other instruments and we would expect a drop of about 2 percent for the mathematics and science teacher questionnaire.

6.3 Unit Nonresponse Bias Analysis

Among all the instruments administered in the fifth-grade data collection, the student records abstract (SRA) is the only instrument with an unweighted unit completion rate lower than 85 percent. The unweighted completion rate for this instrument is 82.1 percent for children sampled in kindergarten, 57.6 percent for children sampled in first grade, for an overall unweighted response rate of 81.9 percent (see table 6-15). When these rates were computed for children with scorable reading, mathematics or science assessment or children not assessed due to disabilities, the unweighted completion rate is much higher (88.8 percent overall as shown in table 6-16).

An analysis was undertaken for the SRA to examine the potential nonresponse bias that may exist for this instrument. Methods for nonresponse bias analysis in this situation include (1) comparisons of respondents and nonrespondents using available sample frame, (2) multivariate analysis to identify the characteristics of cases most likely to respond, and (3) comparison of respondents to known population characteristics from external sources.

Table 6-17.   Number of completed child-level cases and child-level completion rates, if excluded children were fielded, by survey instruments: School year 2003–04

| Survey instrument | Children sampled in kindergarten | | | Children sampled in first grade | | | All children | | |
| | | Completion rates | | | Completion rates | | | Completion rates | |
	Completes	Weighted	Unweighted	Completes	Weighted	Unweighted	Completes	Weighted	Unweighted
Child assessment[1]	11,260	82.7	86.7	86	47.6	57.7	11,346	81.9	86.5
Parent interview[2]	10,913	87.0	84.0	83	49.7	55.8	10,996	86.1	83.8
School administrator questionnaire[3]	10,937	75.3	83.3	86	45.2	56.3	11,023	74.6	83.1
Facilities check list[3]	11,154	77.0	84.9	89	47.3	58.2	11,243	76.3	84.7
Student records abstract[3]	10,015	68.3	76.3	75	40.7	49.1	10,090	67.6	76.1
Teacher-level questionnaire[3]	10,872	78.0	84.1	87	49.2	58.9	10,959	77.3	83.9
Reading teacher questionnaire (child level)[3]	10,793	77.4	83.5	84	48.3	56.8	10,877	76.7	83.3
Mathematics teacher questionnaire (child level)[3]	5,339	78.1	89.3	41	52.1	65.2	5,380	77.5	89.1
Science teacher questionnaire (child level)[3]	5,405	79.5	89.9	40	48.3	62.3	5,445	78.8	89.7
Special education part A[3]	960	92.2	93.8	15	64.3	77.9	975	91.5	93.7
Special education part B[3]	967	93.7	94.4	14	60.0	72.7	981	92.9	94.2

[1] Reading, mathematics, or science assessment was scorable, or child was disabled and could not be assessed.
[2] Family structure portion of parent interview was completed.
[3] A completed questionnaire was defined as one that was not left completely blank.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

There are 45 items in the SRA and all but seven are suppressed in the public-release data file. The suppressed items are dates when the child entered and left school, whether school kept attendance record, presence of IEP records, and items on learning disabilities. The seven items that are not suppressed are items on absence and tardiness. Because there are no school frames that report this type of data and there are no external sources that include these data, the nonresponse bias analysis is limited to analyzing the relationship between the SRA response status and response indicators such as key school characteristics. The Chi-square Automatic Interaction Detector (CHAID) was used to look at the relationship on variables with known values for both respondents and nonrespondents. CHAID is a classification algorithm that uses chi-square tests to divide the sample into subgroups that are related to whether the unit responds.

The analysis in CHAID begins by dividing the sample into two or more groups based on the categories of the best predictor of response. Each of these groups is divided into smaller subgroups based on the available predictors at each level. The splitting process continues until no statistically significant predictor remains. The CHAID software displays the final subgroups in the form of a tree diagram whose branches correspond to the groups, showing all potential response predictors. The resulting classification tree reveals the response cells, as defined by combination of variables, which identify cells with the lowest response rate. In other words, CHAID divides the sample into cells so that the response rate within cells is as constant as possible, while the response rate between cells is as different as possible.

The response indicators used in CHAID are school characteristics that are known for the respondents and nonrespondents to the SRA: census region, school affiliation, type of locale, total enrollment, and percent non-White enrolled. Exhibit 6-1 shows the CHAID tree when the SRA response status is analyzed together with these response indicators. Each box represents a group of SRAs with specified characteristics, the weighted completion rate and the number of fifth graders with completed SRA (i.e., SRA respondents). The first branch of the tree shows that census region is the first indicator that was used to divide the SRAs into four groups with response patterns that are very different from each other (with significance level of 0.05). The response rates in the four groups are 71.5 in the Northeast, 89.7 percent in the Midwest, 84.4 percent in the South, and 80.7 percent in the West. In the next branch of the tree, SRAs in the Northeast could be further split into four groups with very different response pattern by percent of non-White enrolled in the school, while those in the Midwest were subdivided into two groups with differential response patterns based on the type of

locale. Thus, the tree continues and ends after the sample was divided into 49 cells with varying response patterns.

All variables used in the analysis show up in the tree as significant predictors of response patterns. Some are more prevalent than others. For example, school affiliation is not a significant indicator of response in the South while the total school enrollment is a significant predictor of response for all instances in the South. School affiliation is a significant response indicator in two groups of SRAs in the Midwest (SRAs from schools in large and mid-size cities/suburb of large and mid-size cities/large towns where the percent of non-White enrolled is less than 50 percent, and where the total school enrollment is less than 750; and, SRAs from schools in small towns and rural areas where the percent of non-White enrolled is less than 50 percent), and in the West (where schools have 11 or more but less than 50 percent of non-White enrolled in large and mid-size cities, small towns and rural areas, and where schools have 50 or more but less than 90 percent of non-White enrolled). School affiliation is significant in only one group in the Northeast (where schools have 10 percent or less non-White enrolled). The other variables (total school enrollment, percent non-White enrolled, and type of locale) are all good predictors of response. The lower completion rates are in the Northeast, in schools that are nonreligious private and in schools with high enrollment

Potential nonresponse bias that may exist is likely to have been lessened by the weighting adjustment procedures described in chapter 7. School affiliation, type of locale and region were used as raking dimensions in the last step of the weighting procedures for all weights including the child-level weight C6CW0, the most appropriate weight to use in the analysis of the SRA data.

6.4   Item Response Rates

In the ECLS-K, as in most surveys, the responses to some data items are not obtained for all interviews. There are numerous reasons for item nonresponse. Some respondents do not know the answer for the item or do not wish to respond for other reasons. Some item nonresponse arises when an interview is interrupted and not continued later, leaving items at the end of the interview blank. Item nonresponse may also be encountered because responses provided by the respondent are not internally consistent, and this inconsistency is not discovered until after the interview is completed. In these cases, the items that were not internally consistent were set to missing.

Exhibit 6-1. Relationship between the student record abstract response status and school characteristics: School year 2003–04

Census region		Percent nonwhite enrolled		School affiliation		Total enrolled		Type of locale		
Northeast	71.5% (1,647)	0-10	78.1% (903)	Public	79.1% (712)	1-499	75.0% (456)	City/suburb/ large town	66.8% (173)	Cell 1
								Small town/ rural	83.0% (283)	Cell 2
						>=500	85.9% (256)	Cell 3		
				Catholic	82.2% (156)	Cell 4				
				Other private	48.4% (35)	Cell 5				
		11-49	63.6% (334)	**Type of locale** City	87.7% (95)	**Total enrolled** 1-749	83.9% (65)	Cell 6		
						>=750	100.0% (30)	Cell 7		
				Suburb/ town/rural	57.7% (239)	Cell 8				
		50-89	83.9% (243)	**Total enrolled** 1-499	92.9% (124)	Cell 9				
				>=500	78.1% (119)	Cell 10				
		90-100	52.6% (167)	**Total enrolled** 1-299	76.0% (31)	Cell 11				
				300-749	49.1% (80)	Cell 12				
				>=700	49.6% (56)	Cell 13				

See note at end of exhibit.

Exhibit 6-1.   Relationship between the student record abstract response status and school characteristics: School year 2003–04—Continued

Census region		Type of locale		Percent nonwhite enrolled		Total enrolled		School affiliation		
Midwest	89.7% (2,799)									
		City/suburb/ large town	86.5% (1,752)	0-49	90.1% (1,432)	1-749	89.2% (1,277)	Public	87.6% (867)	Cell 14
								Private	94.9% (410)	Cell 15
						>=750	99.7% (155)	Cell 16		
				50-89	82.2% (222)	1-499	76.7% (150)	Cell 17		
						>=500	96.0% (72)	Cell 18		
				90-100	67.2% (98)	Cell 19				
		Small town/ rural	96.0% (1,047)	0-49	95.9% (872)	Public	97.5% (722)	Cell 20		
						Catholic	97.1% (117)	Cell 21		
						Other private	65.6% (33)	Cell 22		
				50-100	96.9% (175)	Cell 23				

See note at end of exhibit.

Exhibit 6-1.　Relationship between the student record abstract response status and school characteristics: School year 2003–04—Continued

Census region		Percent nonwhite enrolled					
South	84.4% (3,401)	0-10	91.5% (782)	Total enrolled			
				1-299	75.5% (125)	*Cell 24*	
				>=300	94.4% (657)	Type of locale	
						City/ unknown	98.8% (151)	*Cell 25*
						Suburb/town/ rural	93.6% (506)	*Cell 26*
		11-49	83.7% (1,345)	Total enrolled			
				1-299	96.8% (227)	Type of locale	
						City/suburb/ large town	94.1% (125)	*Cell 27*
						Small town/ rural	100.0% (102)	*Cell 28*
				>=300	82.1% (1,118)	*Cell 29*	
		50-89	81.4% (602)	Total enrolled			
				1-749	86.4% (481)	Type of locale	
						City/suburb/ large town	84.3% (392)	*Cell 30*
						Small town/ rural	96.6% (89)	*Cell 31*
				>=750	64.6% (121)	*Cell 32*	
		90-100/ unknown	82.2% (672)	Total enrolled			
				1-299	71.2% (71)	*Cell 33*	
				300-499	94.4% (250)	Type of locale	
						City/suburb/ large town	93.6% (200)	*Cell 34*
						Small town/ rural	100.0% (50)	*Cell 35*
				500-749	86.1% (219)	*Cell 36*	
				>=750	68.3% (132)	*Cell 37*	

See note at end of exhibit.

Exhibit 6-1.　Relationship between the student record abstract response status and school characteristics: School year 2003–04—Continued

Census region

West 80.7% (2,243)

Percent nonwhite enrolled

| 0-10 | 98.9% (160) | Cell 38 |

| 11-49 | 82.9% (788) |

Type of locale

City/ small town/ rural — 89.6% (488)

School affiliation

Public — 90.6% (305)

Total enrolled

1-299	100.0% (54)	Cell 39
300-499	85.8% (121)	Cell 40
>=500	92.6% (130)	Cell 41

| Catholic | 99.4% (122) | Cell 42 |
| Other private | 74.1% (61) | Cell 43 |

Suburb/ large town — 75.6% (300)

Total enrolled

| 1-499 | 84.4% (167) | Cell 44 |
| >=500 | 67.5% (133) | Cell 45 |

| 50-89 | 74.5% (611) |

School affiliation

| Public | 74.2% (515) | Cell 46 |

Catholic/ other private — 79.5% (96)

Type of locale

| City | 97.5% (50) | Cell 47 |
| Suburb/ Town/ Rural | 65.7% (46) | Cell 48 |

| 90-100 | 78.9% (684) | Cell 49 |

Every item in the ECLS-K data file has values that indicate whether the respondent did not know the answer to the item (-8), or refused to give an answer (-7). The value -9 is used in all other cases where the answer is left blank or set to missing due to reasons mentioned above (described in the data file as "Not ascertained"). However, where an item is left blank due to a valid skip pattern, this is indicated by the value −1. Chapter 7 of the *ECLS-K Combined User's Manual for the ECLS-K Fifth Grade Public-Use Data Files and Electronic Codebooks.* (NCES 2006–032) (Tourangeau et al. forthcoming) discusses in detail these special values. For each survey item, the response rate was computed as the unweighted number of responses not equal to any of the special values (−1, −7, −8, or −9) divided by the unweighted number of responses not equal to −1. Of all the ECLS-K instruments, only the child assessment and the parent interview have a sizable number of items with special values −7 ("Refused") or −8 ("Don't know"). Table 6-18 shows the unweighted distribution of the nonresponse values for each instrument.

Table 6-18.   Number of survey items and percent of nonresponse values: School year 2003–04

| Survey instrument | Number of items | Items with nonresponse value (in percent) | | |
		−7 (Refused)	−8 (Don't know)	−9 (Not ascertained)
Total	1,758	17.8	24.3	77.9
Child assessment	85	21.2	21.2	76.5
Parent interview	786	37.5	48.7	55.2
School administrator questionnaire	215	0.0	5.6	98.6
Facilities checklist	31	0.0	0.0	96.8
Student records abstract	43	0.0	0.0	95.3
Teacher-level questionnaire	183	0.0	3.3	99.5
Child-level reading teacher questionnaire	107	0.0	0.0	99.1
Child-level mathematics teacher questionnaire	75	0.0	4.0	98.7
Child-level science teacher questionnaire	62	0.0	8.1	96.8
Special education part A	53	0.0	0.0	92.5
Special education part B	119	0.0	0.8	98.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

For most of the data items collected in the ECLS-K, the item response rate unweighted was very high, with an overall median item response rate of 98.8 percent. The median item response rate for each of the instruments ranges from 91.2 for the student records abstract to 99.8 for the child assessment. Table 6-19 shows the number of items, the median item response rate, the lowest item response rate, the highest item response rate, and the number of items with response rates of less than 85 percent for all instruments. Items with less than 85 percent response rates are listed in table 6-20

by instrument and in ascending order of item response rate. The number of cases for which each item was attempted is also shown in this table. The tables in this chapter show the item response rates for items on the restricted-use file. Rates in tables 6-19 and 6-20 are unweighted.

Table 6-19.   Item response rates for items on the ECLS-K fifth-grade restricted-use data file: School year 2003–04

Instrument	Number of items	Median response rate (percent)	Lowest response rate (percent)	Highest response rate (percent)	Number of items with response rate < 85 percent
Total	1,758	98.8	0.0	100.0	163
Child assessment data	85	99.8	93.3	100.0	0
Parent interview	786	99.6	0.0	100.0	96
School administrator questionnaire	215	98.0	49.1	100.0	33
Facilities checklist	31	95.2	34.7	100.0	12
Student records abstract	43	91.2	43.9	100.0	14
Teacher-level questionnaire	183	98.2	63.5	100.0	5
Child-level reading teacher questionnaire	107	98.6	89.3	100.0	0
Child-level mathematics teacher questionnaire	75	99.3	83.3	100.0	1
Child-level science teacher questionnaire	62	99.0	93.4	100.0	0
Special education part A	53	97.0	92.3	100.0	0
Special education part B	119	98.5	76.6	100.0	2

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table 6-20. Items on the ECLS-K fifth-grade restricted-use data file with less than 85 percent response rates: School year 2003–04

Variable name	Description	Number eligible	Item response rate (percent)
Parent interview			
P6DGNELE	P6 CHQ137 DIAGNOSIS MADE BEFORE ELEM SCH	59	0.0
P6DGHR02	P6 CHQ226 DIAGNOSIS MADE BEFORE 2002	60	0.0
P6DGNELS	P6 CHQ227 DIAGNOSIS MADE BEFORE ELEM SCH	60	0.0
P6IMPT02	P6 CHQ252 WAS IT BEFORE 2002	60	0.0
P6IMPELM	P6 CHQ253 WAS IT BEFORE ELEM SCHOOL	60	0.0
P6DNBF02	P6 CHQ346 DIAGNOSIS MADE BEFORE 2002	61	0.0
P6BELDGN	P6 CHQ347 DIAGNOSIS MADE BEFORE ELEM SCH	61	0.0
P6SERVRV	P6 CHQ536 SERVICES RCVD BEFORE 2002	66	0.0
P6DGSYR	P6 CHQ376 DIAGNOSIS MADE BEFORE 2002	62	1.6
P6DGSESC	P6 CHQ377 DIAGNOSIS MADE BEFORE ELEM SCH	62	1.6
P6DGN02	P6 CHQ136 DIAGNOSIS MADE BEFORE 2002	60	1.7
P6SRVRCV	P6 CHQ537 SRVCS RCVD BEFORE ELEM SCHOOL	66	3.0
P6DGSP02	P6 CHQ186 DIAGNOSIS MADE BEFORE 2002	63	4.8
P6ELMDGN	P6 CHQ187 DIAGNOSIS MADE BEFORE ELEM SCH	63	4.8
P6REL_2	P6 FSQ130 2ND PERSON'S RELATION TYPE	10,996	5.8
P6CHI_N1	P6 NRQ050 CONTACT W/BIOMOM SAME AS CHD1	67	7.5
P6CHI_N3	P6 NRQ050 CONTACT W/BIODAD SAME AS CHD1	193	9.8
P6DGBF02	P6 CHQ314 DIAGNOSIS MADE BEFORE 2002	71	12.7
P6IMPLNT	P6 CHQ251 YEAR OF IMPLANT	69	13.0
P6CLRUSE	P6 CHQ254 USE OF COCHLEAR IMPLANT IN SCH	69	13.0
P6DGBFEL	P6 CHQ315 DIAGNOSIS MADE BEFORE ELEM SCH	71	15.5
P6DIAG02	P6 CHQ076 DIAGNOSIS MADE BEFORE 2002	73	17.8
P6DIAGEL	P6 CHQ077 DIAGNOSIS MADE BEFORE ELEM SCH	73	17.8
P6HEARS2	P6 CHQ260 DEVICE EFFECT ON CHD'S HEARING	76	21.1
P6AGREE3	P6 NRQ264 AGREEMENT W/ ADOPTIVE FATHER	282	38.3
P6HEARS	P6 CHQ230 DEGREE OF CHILD'S DEAFNESS	111	39.6
P6OFTCUT	P6 FDQ230 FREQ CHILD SKIP MEAL-NO FOOD	131	42.7
P6NOTEA2	P6 FDQ200 FREQ NOT EAT ENTIRE DAY	138	45.7
P6YYDIA5	P6 CHQ225 YR AT 1ST DIAGNOSIS-HEARING	111	45.9
P6HEARAI	P6 CHQ240 IF CHILD WEARS HEARING AID	111	45.9
P6COCHLE	P6 CHQ250 IF CHILD HAS COCHLEAR IMPLANTS	111	45.9
P6LRSRVY	P6 CHQ535 YR LAST RECEIVED SERVICES	152	56.6
P6MTHAGE	P6 COQ010 AGE OF MOTHR WHEN MOVED TO U S	213	56.8
P6AGREE1	P6 NRQ264 AGREEMENT W/ BIOLOGICAL FATHER	145	57.2
P6NHROTH	P6 CCQ250 # HRS/WK RECVS CARE OTHER NREL	95	57.9
P6CHROTH	P6 CCQ403 # HRS/WK AT OTHER PROGRAMS	105	58.1
P6SCHSA	P6 WPQ106 ATTEND SCHOOL -SA	187	58.8
P6LKSA	P6 WPQ106 LOOK FOR WORK - SA	187	58.8
P6OTHSA	P6 WPQ106 OTHER - SA	187	58.8
P6UNJBSA	P6 WPQ106 WORK FOR NO PAY - SA	187	58.8
P6PDJBSA	P6 WPQ106 WORK FOR PAY - SA	187	58.8
P6DIFFH3	P6 CHQ210 IF HEAR DIFFICULTY DIAGNOSED	149	59.1

See note at end of table.

Table 6-20. Items on the ECLS-K fifth-grade restricted-use data file with less than 85 percent response rates: School year 2003–04—Continued

Variable name	Description	Number eligible	Item response rate (percent)
Parent interview (continued)			
P6FTHAGE	P6 COQ025 AGE OF FATHR WHEN MOVED TO U S	619	62.0
P6DIFFH2	P6 CHQ200 IF HEAR DIFFICULTY EVALUATED	185	66.5
P6FMTHRS	P6 CHQ780 REASON FOR FAMILY THERAPY	237	68.8
P6SEEHLP	P6 CHQ800 TIMES FAMILY SAW HELP	237	68.8
P6SEEPSY	P6 CHQ790A FAMILY SEE A PSYCHIATRIST	237	69.2
P6SEPSYC	P6 CHQ790B FAMILY SEE A PSYCHOLOGIST	237	69.2
P6SEESOC	P6 CHQ790C FAMILY SEE A SOCIAL WORKER	237	69.2
P6SEECSL	P6 CHQ790D FAMILY SEE A COUNSELOR	237	69.2
P6SEESOM	P6 CHQ790E FAMILY SEE SOMEONE ELSE	237	69.2
P6MTHCTZ	P6 COQ015 IS MOTHER A U S CITIZEN	213	70.0
P6FPT_2	P6 PEQ040 PERS 2 COURSE FULL/PART TIME	211	70.6
P6DGNACT	P6 CHQ120 WHAT 1ST DIAGNOSIS - ACTIVITY	226	72.6
P6YYDIA2	P6 CHQ135 YR AT 1ST DIAGNOSIS-ACTIVITY	226	73.5
P6TAK_2	P6 EMQ100 PERS 2 JOB AVAILABLE LAST WEEK	234	73.5
P6DO3_2	P6 EMQ070 PERS 2 CHKD W/EMPLOYR DIRECTLY	248	73.8
P6DO4_2	P6 EMQ070 PERS 2 CHKD W/FRIENDS & REL	248	73.8
P6DO2_2	P6 EMQ070 PERS 2 CHKD W/PRIV EMP AGNCY	248	73.8
P6DO1_2	P6 EMQ070 PERS 2 CHKD W/PUB EMPL AGNCY	248	73.8
P6DO7_2	P6 EMQ070 PERS 2 DID SOMETHING ELSE	248	73.8
P6DO5_2	P6 EMQ070 PERS 2 PLACED OR ANSWERED ADS	248	73.8
P6DO6_2	P6 EMQ070 PERS 2 READ WANT ADS	248	73.8
P6BESTEY	P6 CHQ320 WHAT CAN CHILD BEST SEE	372	74.5
P6DGNBEH	P6 CHQ337 1ST DIAGNOSIS-BEHAVIOR	244	74.6
P6DGBEYY	P6 CHQ345 YR AT 1ST DIAGNOSIS-BEHAVIOR	244	75.0
P6TINCTH	P6 PAQ120 TOTAL HOUSEHOLD INCOME ($-LOW)	1,816	75.7
P6SCHFS	P6 WPQ130 ATTEND SCHOOL -FS	327	76.5
P6LKFS	P6 WPQ130 LOOK FOR WORK - FS	327	76.5
P6OTHFS	P6 WPQ130 OTHER - FS	327	76.5
P6UNJBFS	P6 WPQ130 WORK FOR NO PAY - FS	327	76.5
P6PDJBFS	P6 WPQ130 WORK FOR PAY - FS	327	76.5
P6TAK_1	P6 EMQ100 PERS 1 JOB AVAILABLE LAST WEEK	449	77.7
P6CCNMCH	P6 CCQ400 CC # CHILDREN AMOUNT FOR	194	78.4
P6RCNMCH	P6 CCQ135 RC # CHILDREN AMOUNT FOR	182	79.1
P6DIABEH	P6 CHQ335 BEHAVIOR PROBLEM DIAGNOSED	297	79.5
P6DO3_1	P6 EMQ070 PERS 1 CHKD W/EMPLOYR DIRECTLY	488	79.7
P6DO4_1	P6 EMQ070 PERS 1 CHKD W/FRIENDS & REL	488	79.7
P6DO2_1	P6 EMQ070 PERS 1 CHKD W/PRIV EMP AGNCY	488	79.7
P6DO1_1	P6 EMQ070 PERS 1 CHKD W/PUB EMPL AGNCY	488	79.7
P6DO7_1	P6 EMQ070 PERS 1 DID SOMETHING ELSE	488	79.7
P6DO5_1	P6 EMQ070 PERS 1 PLACED OR ANSWERED ADS	488	79.7

See note at end of table.

Table 6-20. Items on the ECLS-K fifth-grade restricted-use data file with less than 85 percent response rates: School year 2003–04—Continued

Variable name	Description	Number eligible	Item response rate (percent)
Parent interview (continued)			
P6DO6_1	P6 EMQ070 PERS 1 READ WANT ADS	488	79.7
P6PROFFD	P6 CHQ110 IF ACTIVITY PROBLEM DIAGNOSED	301	80.4
P6MTHBTH	P6 COQ005 COUNTRY BIOLOGCAL MTHR WAS BRN	1,273	80.5
P6FTHCTZ	P6 COQ030 IS FATHER A U S CITIZEN	619	80.6
P6FPT_1	P6 PEQ040 PERS 1 COURSE FULL/PART TIME	498	80.7
P6RCCOST	P6 CCQ125 COST OF RELATIVE CARE	301	82.1
P6NCNMCH	P6 CCQ240 NC # CHILDREN AMOUNT FOR	219	82.2
P6YYDIA4	P6 CHQ185 YEAR AT 1ST DIAGNOSIS-SPEECH	373	83.1
P6DGNEMO	P6 CHQ365 1ST DIAGNOSIS-EMOTIONAL BEH	424	83.3
P6REQSA	P6 WPQ105 ANY RQ FOR STATE AID (SA)	491	83.9
P6WHENAF	P6 WPQ102 # MNTHS RECEIVED TANF/AFDC	491	84.1
P6MIN_N1	P6 NRQ250 BIOMOM LIVES # MINUTES AWAY	641	84.2
P6TWNCAR	P6 CCQ003 TWIN SAME CARE AS CHILD	236	84.7
P6EVCUT	P6 FDQ150 FREQ CUT MEAL SIZE	488	84.8
School administrator questionnaire			
S6RTCHPT	S6 Q38A2 # REG CLASSROOM TCHR-PART	10,916	49.1
S6READPT	S6 Q38E2 # READING TCHR/SPECIALIST-PART	10,916	54.2
S6LIBRPT	S6 Q38J2 # LIBRARIANS-PART	10,916	54.7
S6SPEDPT	S6 Q38C2 # SPECIAL ED TCHR-PART	10,916	56.8
S6PARAPT	S6 Q38I2 # PARAPROFESSIONALS-PART	10,916	57.9
S6ESLPT	S6 Q38D2 # ESL/BILINGUAL TCHR-PART	10,916	58.5
S6PRABRK	S6 Q19A2 PARTICIPATE ANY SCH BREAKFAST	7,378	58.8
S6PAALUN	S6 Q20A2 PARTICIPATE ANY SCH LUNCH	10,916	60.6
S6GIFTPT	S6 Q38F2 # GIFTED/TALENTED TCHR-PART	10,916	60.7
S6NURSPT	S6 Q38G2 # SCH NURSE HEALTH PROF-PART	10,916	65.2
S6PSYCFL	S6 Q38H1 SCH PSYCH/ SOCIAL WORKER-FULL	10,916	65.6
S6MSARPT	S6 Q38B2 # GYM DRAMA MUSIC ART TCHR-PART	10,916	67.4
S6OTHER	S6 Q15F SCH HAS OTHER REASON	3,499	68.0
S6GIFTFL	S6 Q38F1 # GIFTED/TALENTED TCHR-FULL	10,916	72.4
S6NURSFL	S6 Q38G1 # SCH NURSE HEALTH PROF-FULL	10,916	73.1
S6PSYCPT	S6 Q38H2 SCH PSYCH/SOCIAL WORKER-PART	10,916	74.0
S6ELRPBK	S6 Q19C1 ELIGIBLE RED-PRICE BREAKFAST	7,378	74.2
S6ELIBRK	S6 Q19B1 ELIGIBLE FOR FREE BREAKFAST	7,378	74.5
S6ELIRED	S6 Q20C1 ELIGIBLE IN REDUCED-PRICE LUNCH	10,916	75.9
S6ESLFL	S6 Q38D1 # ESL/BILINGUAL TCHR-FULL	10,916	76.5
S6ELILNC	S6 Q20B1 ELIGIBLE FOR FREE LUNCH	10,916	76.6
S6PCTMTH	S6 Q35B MATHEMATICSEMATICS SKILLS %	10,625	78.5
S6PARPBK	S6 Q19C2 PARTICIPATE RED-PRICE BREAKFAST	7,378	78.6
S6PCTRD	S6 Q35A READING OR VERBAL SKILLS %	10,625	79.2
S6HWLONG	S6 Q39E RESP (NOT PRINCIPAL) YR AT SCH	2,607	79.4

See note at end of table.

Table 6-20.   Items on the ECLS-K fifth-grade restricted-use data file with less than 85 percent response rates: School year 2003–04—Continued

Variable name	Description	Number eligible	Item response rate (percent)
School administrator questionnaire (continued)			
S6PARBRK	S6 Q19B2 PARTICIPATES IN BREAKFAST	7,378	81.7
S6AMBUSL	S6 Q12 TIME LAST BUS AM	10,916	82.0
S6MSARFL	S6 Q38B1 # GYM DRAMA MUSIC ART TCHR-FULL	10,916	82.7
S6PARRED	S6 Q20C2 PARTICIPATES IN RED-PRICE LUNCH	10,916	83.2
S6PARAFL	S6 Q38I1 # PARAPROFESSIONALS-FULL	10,916	83.8
S6LIBRFL	S6 Q38J1 # LIBRARIANS-FULL	10,916	84.0
S6PARLNC	S6 Q20B2 PARTICIPATES IN FREE LUNCH	10,916	84.5
S6READFL	S6 Q38E1 # READING TCHR/SPECIALIST-FULL	10,916	85.0
Facilities checklist			
K6SEXITS	K6 Q1E2 SCH CNFRM SECURED EXIT DOORS	3,485	34.7
K6FENCES	K6 Q1F2 SCH CNFRM FENCING AROUND SCHOOL	4,669	44.2
K6BARSS	K6 Q1D2 SCH CNFRM WINDOW AND DOOR BARS	9,596	45.4
K6METDTS	K6 Q1B2 SCH CNFRM METAL DETECTORS	10,568	48.2
K6GUARDS	K6 Q1A2 SCH CNFRM SECURITY GUARD	9,902	48.2
K6SIGNOS	K6 Q1H2 SCH CNFRM SIGN-IN AT OFFICE	3,083	48.6
K6SCAMS	K6 Q1C2 SCH CNFRM SECURITY CAMERAS	8,465	49.2
K6SIGNPS	K6 Q1G2 SCH CNFRM SIGN-IN POLICIES	874	53.5
K6SPRNKS	K6 Q1L2 SCH CNFRM FIRE SPRINKLERS	5,357	54.2
K6FREXTS	K6 Q1K2 SCH CNFRM FIRE EXTINGUISHERS	287	63.8
K6INTCMS	K6 Q1I2 SCH CNFRM INTERCOMS	578	70.1
K6ALARMS	K6 Q1J2 SCH CNFRM FIRE ALARMS	183	71.6
Student records abstract			
U6WHYLFT	U6 Q4 WHY CHILD LEFT SCHOOL	171	43.9
U6MMLEFT	U6 Q3A MONTH LEFT SCHOOL	171	62.0
U6DDLEFT	U6 Q3B DAY LEFT SCHOOL	171	62.0
U6YYLEFT	U6 Q3C YEAR LEFT SCHOOL	171	62.0
U6YY01	U6 Q9C3 YEAR 2001-2002 IEP SIGNED	885	63.8
U6MM01	U6 Q9C2 MONTH 2001-2002 IEP SIGNED	885	64.2
U6YY02	U6 Q9B3 YEAR 2002-2003 IEP SIGNED	947	71.0
U6MM02	U6 Q9B2 MONTH 2002-2003 IEP SIGNED	947	71.3
U6IEP01	U6 Q9C1 PRESENCE OF 2001-2002 IEP RECORD	1,081	75.2
U6IEP02	U6 Q9B1 PRESENCE OF 2002-2003 IEP RECORD	1,081	80.9
U6YY03	U6 Q9A3 YEAR 2003-2004 IEP SIGNED	1,049	82.4
U6MM03	U6 Q9A2 MONTH 2003-2004 IEP SIGNED	1,049	82.9
U6BUXTAR	U6 Q7C CHILD UNEXCUSED TARDIES	10,064	83.7
U6BXTARD	U6 Q7B CHILD EXCUSED TARDIES	10,064	83.9
Teacher-level questionnaire			
J61TXFOR	J61 Q1H2 TIME FOR FOREIGN LANGUAGE	3,129	63.5
J61TXREF	J61 Q1I2 TIME FOR REFERENCE SKILLS	10,512	78.7
J61TXART	J61 Q1G2 TIME FOR ART	9,563	80.6

See note at end of table.

Table 6-20.   Items on the ECLS-K fifth-grade restricted-use data file with less than 85 percent
               response rates: School year 2003–04—Continued

Variable name	Description	Number eligible	Item response rate (percent)
Teacher-level questionnaire (continued)			
J61TSTPR	J61 Q19 HOURS SPENT IN STD TEST PREP	9,688	81.1
J61TXMUS	J61 Q1F2 TIME FOR MUSIC	8,940	82.6
Child-level mathematics teacher questionnaire			
M6LNGOS	M6 Q17D LANGUAGE OF MATHEMATICS INSTRUCTION	6	83.3
Special education teacher questionnaire B			
E6EVLOTH	E6 Q22H OTHER EVALUATION	981	76.6
E6DKMTHD	E6 Q14M DON'T KNOW METHODS USED	981	81.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

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7. WEIGHTING AND VARIANCE ESTIMATION

The ECLS-K data were weighted to compensate for differential probabilities of selection at each sampling stage and to adjust for the effects of nonresponse. In the ECLS-K base year, weights were computed at the child, school and teacher levels. Estimates using the base year weights are representative of all kindergarten children, all schools with kindergarten programs and all kindergarten teachers. After the base year, only child-level weights were computed. The use of these weights was essential to produce estimates that are representative of the cohort of children who were in kindergarten in 1998–99 or in first grade in 1999–2000. In first grade, the sample was freshened with first-graders who had not been sampled in kindergarten or first grade. Freshening was not done in third grade or in fifth grade. Estimates from the ECLS-K fifth-grade data are representative of the population cohort rather than of all fifth-graders in 2003–04. While the vast majority of children in fifth grade in the 2003–04 school year are members of the cohort, fifth-graders who repeated fourth or fifth grade, children who were homeschooled before enrolling in fifth grade, and recent immigrants are not covered. Data were collected from teachers and schools to provide important contextual information about the school environment for the sampled children. Similarly, home environment data were collected from parents. Data from these sources are not representative of all fifth-grade parents, teachers, and schools in 2003–04. For this reason, the only weights produced from the study are child-level weights for making statements about children, including statements about the parents, teachers, and schools of those children.

The different types of weights are discussed in section 7.1, followed by a detailed description of the computation of the weights in section 7.2. Section 7.3 describes the variance estimation methods suitable for the ECLS-K.

7.1 Types of Weights

Two sets of weights were computed for fifth grade, cross-sectional and longitudinal. The use of these weights is essential to produce estimates that are representative of the cohort of children who were in kindergarten in 1998–99 or in first grade in 1999–2000. Since the ECLS-K sample was not freshened after the first-grade year with third- or fifth-graders who did not have a chance to be sampled in kindergarten or first grade (as was done in first grade), estimates from the ECLS-K third- and fifth-grade data are representative of the population cohort rather than all third-graders in 2001–02 or all fifth-graders

in 2003–04. While the vast majority of children in third grade in the 2001–02 school year and in fifth grade in the 2003–04 school year are members of the cohort, third-graders who repeated second or third grade, fifth-graders who repeated third or fourth grade, and recent immigrants are not covered. The fifth grade cross-sectional weights are used for analyses of data from the fifth-grade data collection round. The fifth grade longitudinal weights are used for analyses of data from a longitudinal file including fifth-grade data in conjunction with data from one or more other rounds.

As in previous years, there are several survey instruments administered to sampled children and their parents, teachers and schools: cognitive and physical assessments for children; self-description child questionnaire (third and fifth grade only), parent instruments; several types of teacher instruments completed by reading, mathematics, science and special education teachers; and school instruments. The stages of base year sampling in conjunction with differential nonresponse at each stage and the diversity of survey instruments require that multiple fifth-grade cross-sectional sampling weights be computed for use in analyzing the fifth-grade ECLS-K data. Several combinations of kindergarten through fifth-grade longitudinal weights were also computed. Exhibit 7-1 summarizes the different types of cross-sectional weights.

Exhibit 7-1.   ECLS-K fifth-grade cross-sectional weights: School year 2003–04

Weight	To be used for analysis of ...
C6CW0	Fifth-grade direct child assessment data, alone or in conjunction with any combination of (a) a limited set of child characteristics (e.g., age, sex, race/ethnicity), (b) teacher-level data from any fifth-grade teacher questionnaire without child-level teacher data, or (c) data from the school administrator questionnaire or school facilities checklist.
C6PW0	Fifth-grade parent interview data alone or in combination with (a) fifth-grade child assessment data, (b) data from any fifth-grade teacher questionnaire (teacher-level or child-level), or (c) data from the school administrator questionnaire or school facilities checklist. *Exception*: If data from the parent AND child assessment AND teacher (child- and/or teacher-level) are used together, then either C6CPTR0, C6CPTM0 or C6CPTS0 should be used.
C6CPTR0	Fifth-grade direct child assessment data combined with fifth-grade parent interview data AND fifth-grade teacher-level data with or without child-level data from the reading teacher, alone or in conjunction with data from the school administrator or facilities checklist.
C6CPTM0	Fifth-grade direct child assessment data combined with fifth-grade parent interview data AND fifth-grade child data from mathematics teacher (with or without teacher-level data), alone or in conjunction with data from the school administrator or facilities checklist.
C6CPTS0	Fifth-grade direct child assessment data combined with fifth-grade parent interview data AND fifth-grade child data from science teacher (with or without teacher-level data), alone or in conjunction with data from the school administrator or facilities checklist.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

The ECLS-K longitudinal file is created by merging data from the base year, first grade, third grade, and fifth grade. Longitudinal weights were created to use in analyzing data in this longitudinal file. These weights are described in exhibit 7-2. All longitudinal weights are child-level weights.

Exhibit 7-2.   ECLS-K: K–5 longitudinal weights, spring-fifth grade: School year 2003–04

Weight	To be used for analysis of ...
C56CW0	child direct assessment data from BOTH spring-third grade and spring-fifth grade, alone or in conjunction with any of the school or teacher data, or a limited set of child characteristics (e.g., age, sex, and race/ethnicity).
C56PW0	parent interview data from BOTH spring-third grade and spring-fifth grade, alone or in conjunction with any of the child assessment, school, or teacher data.
C456CW0	child direct assessment data from spring-first grade AND spring-third grade AND spring-fifth grade, alone or in conjunction with any of the school or teacher data, or a limited set of child characteristics (e.g., age, sex, and race/ethnicity).
C456PW0	parent interview data from spring-first grade AND spring-third grade AND spring-fifth grade, alone or in conjunction with any of the child assessment, school, or teacher data.
C2_6FC0	child direct assessment data from FOUR rounds of data collection involving the FULL sample of children (spring-kindergarten, spring-first grade, spring-third grade, and spring-fifth grade), alone or in conjunction with any of the school or teacher data, or a limited set of child characteristics (e.g., age, sex, and race/ethnicity).
C2_6FP0	parent interview data from FOUR rounds of data collection involving the FULL sample of children (spring-kindergarten, spring-first grade, spring-third grade, and spring-fifth grade), alone or in conjunction with any of the child assessment, school, or teacher data.
C1_6FC0	child direct assessment data from FIVE rounds of data collections involving the FULL sample of children (fall-kindergarten, spring-kindergarten, spring-first grade, spring-third grade, and spring-fifth grade), alone or in conjunction with any of the school or teacher data, or a limited set of child characteristics (e.g., age, sex, and race/ethnicity).
C1_6FP0	parent interview data from FIVE rounds of data collections involving the FULL sample of children (fall-kindergarten, spring-kindergarten, spring-first grade, spring-third grade, and spring-fifth grade) alone or in conjunction with any of the child assessment, school, or teacher data.
C1_6SC0	child direct assessment data from ALL SIX rounds of data collection (fall-kindergarten, spring-kindergarten, fall-first grade, spring-first grade, spring-third grade, and spring-fifth grade), alone or in conjunction with any of the school or teacher data, or a limited set of child characteristics (e.g., age, sex, and race/ethnicity).
C1_6SP0	parent interview data from ALL SIX rounds of data collection (fall-kindergarten, spring-kindergarten, fall-first grade, spring-first grade, spring-third grade, and spring-fifth grade), alone or in conjunction with any of the child assessment, school, or teacher data.

As mentioned in the introduction, teachers and schools are not representative of fifth-grade teachers and schools in 2003–04. For this reason, there are no cross-sectional weights computed to provide estimates at the school or teacher level. Consequently, there are no longitudinal weights computed at the school or teacher level.

Each set of weights created to be used with the ECLS-K data consists of a full sample weight that is used in computing survey estimates and replicate weights that are used in variance estimation with a jackknife replication method. First-stage stratum and primary sampling unit (PSU) identifiers are also created so that variance estimation using the Taylor series approximation method can be produced using the full sample weights. See section 7.2.6 for a description of how replicate weights were created. Section 7.3 discusses variance estimation methods.

The data file includes the final full sample weight (described in section 7.2.4) and the final replicate weights (described in section 7.2.6) but not the intermediate weights leading to the final weights. The names of the full sample weights in the file are as described in exhibits 7-1 and 7-2 (e.g., C6CW0). The names of the replicate weights have the same prefix as the full sample weight with the last digit indicating the replicate (e.g., C6CW1 to C6CW90 are the 90 replicate weights to be used with the full sample weight C6CW0).

7.2 Computation of the Fifth-Grade Weights

Among the 21,357 children who were eligible for the study after the base year (21,292 base year respondents and 165 children sampled in first grade), the fifth-grade sample excluded 5,214 children as explained in section 3.6.1. As in third grade, only a subsample of children who moved from the schools they were attending when they were sampled originally was followed into their new schools. However, children who moved into a destination school[1] because they had completed the highest grade at the originally sampled school were all followed. The fifth-grade subsampling of movers continues to give more weight to children in the language minority group (i.e., movers in this group were subsampled at higher rates than non-language minority movers). Other smaller groups of movers were also subsampled at lower rates, such as selected groups of movers who were sampled in first grade (as compared with base year respondent movers), and movers who did not have full longitudinal data. Differential sampling rates of movers are presented in section 3.6.1. Another feature of the fifth-grade sample is the subsampling of children for the administration of the mathematics or science questionnaires as discussed in section 3.6.

In the weighting procedures, children excluded from the fifth-grade data collection are considered ineligible if they became ineligible in an earlier round (because they had died or moved out of the country), as movers not subsampled for follow-up if they were subsampled out in previous rounds

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[1] A destination school is a school that received at least four students from the school where they had just completed the highest grade.

because they moved out of the original sample, or of unknown eligibility if they were hard refusal cases or if they had neither first-grade nor third-grade data. Excluded children are properly adjusted for in the weighting procedures.

The weighting procedures for both cross-sectional and longitudinal weights are similar, although weighting cells were defined differently for each type of weight. For example, any longitudinal weight that contains data from fall-first grade may have used different cells due to sample size constraints.

The weighting procedures for the fifth grade were divided into three main stages. These procedures were followed for creating each weight shown in exhibit 7-1 and exhibit 7-2. The change in the procedures pertains only to the change in the eligibility of children for whom the weight applies. For example, weight C6CW0 pertains to children with completed assessments in fifth grade; weight C56PW0 pertains to children with completed parent interview in both third grade and fifth grade. In the base year, children who were not assessed because of a disability or because they were language minority children had positive C1CW0 and C2CW0 weights because they had data such as age, sex, race/ethnicity, height and weight, and characteristics of parents, teachers, and classrooms. In subsequent rounds of data collection, they continued to be treated the same.

Weights that include any fall-first grade data (such as C1_6SC0, which is the weight for children for whom child assessments were obtained in all six rounds) were computed using the same procedures, but the cells for the weighting adjustments were more restricted because only the fall-first grade subsample was included. The replication scheme for data that include the fall-first grade panel is also different as described in section 7.2.6.

The first stage of weighting was to compute an initial child weight that reflects the following:

- Adjustment of the school base weight for base year school-level nonresponse;

- Adjustment of the child weights for base year child-level nonresponse; and

- Adjustment of the base year child weight for subsampling of schools for freshening in first grade (for children sampled in first-grade only).

The procedures used in this first stage are the same as in all rounds of data collection after the base year because the same sample of children (base year respondents and children sampled in first grade) is eligible for subsequent rounds of data collection.

The second stage of weighting was to adjust the initial child weight computed in the first stage for the following:

- Subsampling of movers; and

- Child-level nonresponse.

For the mathematics and science child-parent-teacher weights, an additional adjustment was necessary (before the second stage adjustment for the subsampling of movers and for nonresponse) to adjust for the subsampling of children for whom mathematics or science teacher data questionnaires were administered. This adjustment is described in section 7.2.5.

The third and last stage was to rake the weights adjusted in the second stage to sample-based control totals. Raking is a multivariate poststratification of the weights, explained in section 7.2.4.

In general, in each adjustment to the weight, the adjustment factor is multiplied by the weight in the prior step to get the adjusted weight. This fact is not repeated in the discussions of the weight adjustments in the following sections; only the computation of the adjustment factor is discussed.

7.2.1   Initial Child Weights

As mentioned earlier, the first stage of weighting was to compute an initial child weight that reflects: (1) the adjustment of the school base weight for base year school-level nonresponse (school-level weights), (2) the adjustment of the child weights for base year child-level nonresponse (child-level weights), and (3) the adjustment of the base year child weight for subsampling of schools for freshening in first grade (child-level weights, for children sampled in first grade only). These weights were already computed for spring-first grade. For completeness, they are described below, in section 7.2.1.1 for the school-level weights, and in section 7.2.1.2 for the child-level weights.

7.2.1.1 Base Year Nonresponse-Adjusted School Weights

The school base weight[2] $SCHLBW_i$ was the same as that computed for previous rounds of data collection. It is the inverse of the probability of selection of the school from a stratified probability proportional to size (PPS) design:

$$SCHLBW_i = \frac{1}{POS_{PSU\,j}} \times \frac{1}{POS_{SCHL\,i}},$$

where

$POS_{PSU\,j}$ is the probability of selection of the PSU j, and

$POS_{SCHL\,i}$ is the probability of selection of school i within the PSU j,

where the probability of selection of the PSU j, $POS_{PSU\,j}$, was defined as

$$POS_{PSU\,j} = \begin{cases} 1 & \text{if } PSU_j \text{ is a self-representing (SR) PSU,} \\ \left(\dfrac{2M_j}{M_h}\right) & \text{if } PSU_j \text{ is a non self-representing (NSR) PSU,} \end{cases}$$

where

M_j is the measure of size (MOS) of PSU_j (i.e., count of five-year-old children in the PSU as described in section 3.2.1), and

M_h is the total MOS in stratum h, $PSU_j \in h$,

and the probability of selection of school i within PSU_j, $POS_{SCHL\,i}$, was defined as

$$POS_{SCHL\,i} = n_{kj} \times \frac{m_i}{\sum\limits_{i \in kj} m_i},$$

where

n_{kj} is the target number of schools in stratum k in PSU i, and

m_i is the MOS of the school i in stratum k in PSU i.

For schools sampled using the new school sampling procedure,[3] the school base weight $SCHLBW_i$ was computed as

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[2] Only schools sampled in the base year have base weights. Transfer schools do not have base weights, but children in transfer schools carry with them the base weights of the original sampled schools.

$$SCHLBW_i = \frac{1}{POS_{PSU\,j}} \times \frac{1}{f_i} \times \frac{1}{POS_{SCHL\,i}},$$

and the factor f_i is defined as

$$f_i = \begin{cases} 1 & \text{if the school is a new non-Catholic private school,} \\ p_{LEA} & \text{if the school is a new public school,} \\ p_{DIO} & \text{if the school is a new Catholic school,} \end{cases}$$

where

p_{LEA} is the within stratum selection probability of the school district, and

p_{DIO} is the within stratum selection probability of the diocese.

The school base weight was adjusted for base year school-level nonresponse. A base year responding school was an original sample school with at least one child with a positive C1CW0, C2CW0, C1PW0, or C2PW0 weight. C1CW0 is positive for language minority (not Spanish) children who were screened for English proficiency (regardless of whether they went on to take the assessments), children with disabilities, and children with at least one direct cognitive test score in fall-kindergarten. C1PW0 is positive for children whose parents completed the family structure questions of the parent interview in fall-kindergarten. C2CW0 and C2PW0 weights are positive under similar circumstances but for spring-kindergarten. Schools that did not meet this condition are nonrespondents and their weights were distributed across responding units (at the school level) in this stage. The base year school weight was adjusted within nonresponse weighting classes. The base year nonresponse-adjusted school weight $SCHLADW_i$ was computed as

$$SCHLADW_i = SCHLADF_c \times SCHLBW_i,$$

where

$SCHLBW_i$ is the school base weight, and

$SCHADF_c$ is the base year school nonresponse adjustment factor for schools in cell c, calculated as

$$SCHLADF_i = \frac{\displaystyle\sum_{i \in ER_c, ENR_c} SCHLBW_i \times m_i}{\displaystyle\sum_{i \in ER_c} SCHLBW_i \times m_i},$$

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[3] The sample was expanded to account for newly opened schools and schools not found in the sampling frame. See chapter 3 for more details on how these schools were identified.

where

ER_c denotes the set of eligible school respondents in cell c,

ENR_c denotes the set of eligible school nonrespondents in cell c, and

m_i is the measure of size for school i (i.e., count of students in the school as described in section 3.2.2.2)

Nonresponse cells were created using the Chi-squared Automatic Interaction Detector (CHAID) and variables with known values for both respondents and nonrespondents. Base year school characteristics used for constructing nonresponse cells were the school affiliation (public, Catholic private, non-Catholic religious private, or nonreligious private), the school locale (large city, midsize city, suburb of large city, suburb of midsize city, large town, small town, or rural area), the region where the school is located (Northeast, Midwest, South, or West), and the size classification of the school in terms of school enrollment as described in table 7-1.

Table 7-1.   Size classification for school nonresponse adjustment: School year 1998–99

Size classification	School enrollment	
	Public	Private
1	1 – 24	1 – 11
2	25 – 39	12 – 23
3	40 – 49	24 – 35
4	50 – 59	36 – 47
5	60 – 69	48 – 59
6	70 – 79	60 or more
7	80 – 89	†
8	90 – 99	†
9	100 – 119	†
10	120 – 139	†
11	140 – 179	†
12	180 – 219	†
13	220 or more	†

† Not applicable.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 1999.

7.2.1.2   Base Year Child Weights

Two groups of children were fielded in fifth grade: base year respondents, and eligible children who were sampled in first grade as part of the sample freshening procedure. The base year child weights for the two groups were the same as those computed for the first-grade year. A description of the two weights follows.

7.2.1.2.1   Base Year Child Weights for Base Year Respondents

A base year respondent is a sampled child with a positive C1CW0, C2CW0, C1PW0, or C2PW0 weight. The C1CW0 weights are positive for children belonging in the language minority (not Spanish) group who were screened for English proficiency (regardless of whether they went on to take the assessments), children assessed in fall-kindergarten, and children excluded from assessment because of a disability. The C1PW0 weights are positive for children whose parents completed the family structure questions of the parent interview in fall-kindergarten. The C2CW0 and C2PW0 weights are positive under similar circumstances, but apply to data from spring-kindergarten.

The base year child weight $BYCHLDW_i$ was computed as

$$BYCHLDW_i = SCHLADW_i \times (1 / CHLD\_PROB_i),$$

where
   $SCHLADW_i$ is the base year nonresponse-adjusted school weight described in section 7.2.1.1,
   $CHLD\_PROB_i$ is the probability of selection of the child within a school.

To account for base year nonresponse—children who were not assessed in the base year and whose parent interviews were not completed (i.e., children who did not have at least one positive weight among C1CW0, C2CW0, C1PW0 and C2PW0)—the base year child weight was adjusted for nonresponse. The child weight adjusted for base year child-level nonresponse, $ABYCHLDW_i$, was computed as

$$ABYCHLDW_i = BYADF_c \times BYCHLDW_i,$$

where $BYADF_c$, the adjustment factor, was calculated as

$$BYADF_C = \frac{\underset{i \in BY\_R_C, BY\_NR_C}{\Sigma} BYCHLDW_i}{\underset{i \in BY\_R_C}{\Sigma} BYCHLDW_i},$$

where

BY_R_C denotes the set of base year child respondents in cell *c*, and

BY_NR_c denotes the set of base year child nonrespondents in cell *c*.

The base year child weights were adjusted using weighting classes similar to those developed for the cross-sectional spring-kindergarten child weights. These classes were created with CHAID, using the school characteristics from the school nonresponse adjustments (i.e., school affiliation, locale, region, school enrollment classified into size category), and a set of child characteristics (i.e., year of birth, sex, and race/ethnicity). Data on year of birth were obtained from the parent interviews, while data on sex and race/ethnicity were from the child sampling information, which was provided by the schools. If year of birth was missing from the parent interview, then it was taken from the child sampling information. If sex or race/ethnicity was missing from the child sampling information, then they were obtained from the parent interview data. Any remaining missing data were imputed with the modal value from the school from which the child was sampled for this purpose.

7.2.1.2.2   Base Year Child Weights for Children Sampled in First Grade

In spring-first grade the student sample was freshened to include first-graders who had not been enrolled in kindergarten in 1998–99 and, therefore, had no chance of being included in the ECLS-K base year kindergarten sample. For this group of children who entered the sample in first grade, their weights need to have additional adjustments to account for the freshening procedure. See chapter 3 for a discussion of the student freshening in spring-first grade.

Since each child sampled in first grade was directly linked to a child sampled in kindergarten, the first step was to compute a weight for the children who were sampled in kindergarten that reflects the school freshening subsampling and the school freshening nonresponse (some schools refused to provide the complete alphabetical roster of all students enrolled in first grade needed for freshening). This weight was then linked back to the child sampled in first grade and further adjusted for nonresponse because the data (e.g., assessment data, parent interview data) had not been obtained from

the sample of freshened children. The procedures for computing the base year child weights for children sampled in first grade are described next.

School Weight Adjusted for Subsampling of Schools for Freshening. The school base weight adjusted for base year school-level nonresponse ($SCHLADW_i$) computed in section 7.2.1.1 was adjusted for the subsampling of schools for freshening. As noted earlier, student freshening was done in a 50 percent subsample of schools. The school weight adjusted for school freshening subsampling, $FR1SCHW_i$, was calculated as

$$FR1SCHW_i = FR1ADF_c \times SCHLADW_i,$$

where $FR1ADF_c$, the adjustment factor, was computed as

$$FR1ADF_c = \begin{cases} \dfrac{\sum\limits_{i \in F_c \cup \bar{F}_c} SCHLADW_i}{\sum\limits_{i \in F_c} SCHLADW_i} & \text{if school } i \in F_c, \\ 0 & \text{if school } i \notin F_c, \end{cases}$$

where
F_c denotes the set of schools subsampled for freshening, and
$\bar{F}_c$ denotes the set of schools not subsampled for freshening.

This adjustment was done within cells defined by school affiliation (public, Catholic private, non-Catholic religious private, or nonreligious private) and census region (Northeast, Midwest, South, or West). Adjustment cells were created using CHAID.

School Weight Adjusted for Freshening Nonresponse. The freshening procedure could not be applied in all designated schools because some schools did not provide the information needed for freshening (see chapter 3 for more details on the freshening procedures). These schools were considered nonrespondents. The school weight adjusted for freshening school-level nonresponse, $FR2SCHW_i$, was computed as

$$FR2SCHW_i = FR2ADF_c \times FR1SCHW_i,$$

where $FR2ADF_c$, the adjustment factor, was computed as

$$FR2ADF_i = \frac{\displaystyle\sum_{i \in FER_c \cup FENR_c} FR1SCHW_i \times m_i}{\displaystyle\sum_{i \in FER_c} FR1SCHW_i \times m_i},$$

where

m_i is the original school MOS,

FER_c denotes the set of freshening school respondents in cell c, and

$FENR_c$ denotes the set of freshening school nonrespondents in cell c.

In both the numerator and denominator of this factor, the school measure of size (i.e., the count of students in the school as described in section 3.2.2.2) was incorporated; the school measure of size is relevant because the weights will be used for child-level estimates, not school-level estimates. The nonresponse cells for this adjustment were created with CHAID using school affiliation (public, Catholic private, non-Catholic religious private, or nonreligious private) and type of locale (large city, midsize city, suburb of large city, suburb of midsize city, large town, small town, or rural area).

Base Year Child Weight. Next, the school-adjusted weight was multiplied by the inverse of the probability of sampling the child in the base year to obtain a base year child weight for freshening. The base year child weight was $BYCHLDW_i$:

$$BYCHLDW_i = FR2SCHW_i \times (1/CHLD\_PROB_i),$$

where $CHLD\_PROB_i$ is the within-school child selection probability.

The base year child weight was then adjusted for base year child nonresponse because children who did not respond in the base year could not be linked to children in first grade in spring 2000. The adjusted weight, $ABYCHLDW_i$ was computed as

$$ABYCHLDW_i = BYADF_c \times BYCHLDW_i,$$

where $BYADF_c$, the adjustment factor, was calculated as

$$BYADF_c = \frac{\sum\limits_{i \in BY\_R_c,\,BY\_NR_c} BYCHLDW_i}{\sum\limits_{i \in BY\_R_c} BYCHLDW_i},$$

where
BY_R_c denotes the set of base year child respondents in cell c, and
BY_NR_c denotes the set of base year child nonrespondents in cell c.

The nonresponse cells were created with CHAID using the school characteristics school affiliation, locale, region, and school enrollment size, and the child characteristics age, sex, and race/ethnicity.

Base Year Child Weights Adjusted for Movers. Only children who did not move from their original school were designated as links to children in the freshening procedure. The children who moved and were followed into their new schools were not identified to participate in the freshening process in their new schools. As a result, all children who moved were considered nonrespondents for the freshening process. Additionally, nonmovers and movers who were not in first grade were not eligible for freshening (e.g., if the child was in kindergarten in spring 2000, he or she would be linked only to other kindergarten children and thus was not eligible for the freshening of first-graders). An adjustment was necessary to account for these two groups of children and was done in two steps.

In the first step, an adjustment was made for movers whose grade was unknown. A portion of the movers was assumed to be in first grade. In the second step, the weights were adjusted for children who were in first grade and who were not identified to participate in the freshening process because they moved into a new school. For this two-step adjustment, each child was classified as in table 7-2.

Table 7-2. Groups of children defined for mover adjustments:
School year 1999–2000

Groups	Mover status
MOV1	Mover enrolled in first grade
MOVOTH	Mover enrolled in another grade
MUNK	Mover enrolled in an unknown grade
NM1	Nonmover enrolled in first grade
NMOTH	Nonmover enrolled in another grade

The first step adjustment for movers whose grade in spring 2000 was unknown was computed as

$$R4MOVW_i = R4MOVF1_c \times ABYCHLDW_i,$$

where $R4MOVF1_c$, the adjustment factor, was computed as

$$R4MOVF1_c = \begin{cases} \dfrac{\sum\limits_{i \in MOV1_c \cup MOVOTH_c \cup MUNK_c} ABYCHLDW_i}{\sum\limits_{i \in MOV1_c \cup MOVOTH_c} ABYCHLDW_i} & \text{if child} \in MOV1 \cup MOVOTH \text{ in cell } c, \\ 0 & \text{if child} \in MUNK \text{ in cell } c, \\ 1 & \text{if child} \in NM1 \cup NMOTH \text{ in cell } c. \end{cases}$$

The second step adjustment for movers who could not be used as links for freshening was computed as

$$R4MOVW2_i = R4MOVF2_c \times R4MOVF1_i,$$

where $R4MOVF2_c$, the adjustment factor, was computed as

$$R4MOVF2_c = \begin{cases} \dfrac{\sum\limits_{i \in NM1_c \cup MOV1_c} R4MOVW1_i}{\sum\limits_{i \in NM1_c} R4MOVW1_i} & \text{if child} \in NM1 \text{ in cell } c, \\ 0 & \text{if child} \in MOV1 \text{ in cell } c, \\ 1 & \text{if child} \in NMOTH \cup MOVOTH \text{ in cell } c. \end{cases}$$

This two-step adjustment was done within cells defined by school affiliation and census region.

The weights thus created for children sampled in kindergarten were then linked to the children that they brought into the sample in first grade through sample freshening. In other words, the weight of the child sampled in first grade was defined at this point to be the weight computed for the child sampled in kindergarten that was responsible for bringing the first-grader into the sample.

For the next step in the computation of the fifth-grade child weights, the two groups of children—base year respondents and children sampled in first grade through sample freshening—were put together, and a common variable and label were used to designate the initial child weight. This is the base year child weight as computed above for each group of children:

$$ICHLDW_i = \begin{cases} ABYCHLDW_i & \text{if base year respondent,} \\ R4MOVW2_i & \text{if sampled in first grade.} \end{cases}$$

The initial child weights $ICHLDW_i$ were adjusted for movers between the base year and fifth grade and for nonresponse in fifth grade, and raked to sampled-based control totals to obtain the final fifth-grade child weights. These adjustments and raking procedures are described below.

7.2.2 Adjustment for Movers Between the Base Year and Fifth Grade

First, the initial child weights were adjusted to reflect the subsampling of movers. In the ECLS-K, a child could move more than once and at different times. For example, a child could move out of his original sample school because the school did not have grades higher than kindergarten. Then he could move again between first and third grade, first and fifth grade, or third and fifth grade. Once a child was identified as a mover, he stayed a mover unless he moved back to the original sample school. For example, a child who moved between kindergarten and third grade, but stayed in that same school between third and fifth grade, was considered a mover for the fifth grade.

Each mover in the fifth grade had a flag indicating whether he was followed into the new school. These flags were set according to the mover subsampling plan described in section 3.6.1. Children who were excluded from the fifth-grade data collection because they had moved out of the original

schools and were subsampled out for followup in previous rounds had their flag set to "not followed." In fifth grade, children were fielded as described in exhibit 7-3.

Exhibit 7-3. Movers and nonmovers by retention status: School year 2003–04

Child moved out of original school		Child subsampled for followup		Child fielded in fifth grade
Before fifth grade	During fifth grade	Before fifth grade	During fifth grade	
No	No	†	†	Yes
No	Yes	†	No	No
No	Yes	†	Yes	Yes
Yes	No, did not move again	No	†	No
Yes	No, did not move again	Yes	No	No
Yes	No, did not move again	Yes	Yes	Yes
Yes	Back in original school	†	†	Yes

†Not applicable.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998, spring 1999, fall 1999, spring 2000, spring 2002, and spring 2004.

The initial child weight described in section 7.2.1 was adjusted to reflect this subsampling movers. The initial child weight adjusted for movers $R6CHILDW1_i$ was computed as

$$R6CHLDW1_i = R6ADF1_c \times ICHLDW_i,$$

where $R6ADF1_i$, the adjustment factor, was computed as

$$R6ADF1_c = \begin{cases} 1 & \text{if child in cell } c \text{ is not a mover,} \\ \dfrac{\sum\limits_{\substack{i \in MOVER_c \text{ with} \\ FOLLOW\_F \text{ in } (0,1)}} ICHLDW_i}{\sum\limits_{\substack{ii \in MOVER_c \text{ with} \\ FOLLOW\_F=1}} ICHLDW_i} & \text{if child in cell } c \text{ is a mover and } FOLLOW\_F = 1, \\ 0 & \text{if child in cell } c \text{ is a mover and } FOLLOW\_F = 0, \end{cases}$$

and $MOVER_c$ denotes the set of children that are movers in cell c.

For the cross-sectional weights, the mover adjustment factor was computed within cells created with CHAID using the following characteristics: whether children were sampled in kindergarten

or first grade, and whether they were language minority children.[4] For the longitudinal weights, a longitudinal mover follow status was created that takes into account whether the child moved from his original school in fall-first grade, spring-first grade, or spring-third grade (for longitudinal weights involving the fall-first grade data) or whether the child moved from his or her original school in spring-first grade or spring-third grade (for the other longitudinal weights). If a child moved in either round, he was considered a mover. Appendix A gives the cell definitions for the mover adjustment for cross-sectional and longitudinal weights.

Twelve children with large weights had their weights trimmed by 40 percent. The trimming procedure was the same as in previous years. However, the weights were not redistributed because the total sum of weights was re-established in the raking procedure that came later.

7.2.3   Adjustment for Fifth-Grade Nonresponse

After the adjustment for subsampling movers, the child weights were adjusted for nonresponse. As in spring-first grade and spring-third grade, the nonresponse adjustment was done in two steps. In the first step, the adjustment was for children whose eligibility was not determined (unknown eligibility). A portion of children of unknown eligibility was assumed to be ineligible, equal to the proportion of children of known eligibility who are ineligible. In the second step, the adjustment was for eligible nonrespondents. To carry out these adjustments, each child was classified as (a) an eligible respondent, (b) an eligible nonrespondent, (c) ineligible (out of the country or deceased) or (d) of unknown eligibility (mover who could not be located), as shown in table 7-3.

Table 7-3.   Groups of children defined for nonresponse adjustments: School year 2003–04

Groups	Eligibility and response status
ER	Eligible respondent
ENR	Eligible nonrespondent
IN	Ineligible (out of the country or deceased)
UNK	Unknown eligibility (mover who could not be located)

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

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[4] Fewer characteristics were used than in previous years to create cells for mover adjustments. This is due to cells with a small number of records, requiring them to be collapsed in order to avoid large adjustment factors. This resulted in fewer cells, hence fewer characteristics being used.

The child weight adjusted for nonrespondents with unknown eligibility, $R6CHLDW2_i$, was computed as

$$R6CHLDW2_i = R6ADF2_c \times R6CHLDW1_i,$$

where $R6ADF2_c$, the adjustment factor, was computed as

$$R6ADF2_c = \begin{cases} \dfrac{\sum\limits_{i \in ER_c \cup ENR_c \cup IN_c \cup UNK_c} R6CHLDW1_i}{\sum\limits_{i \in ER_c \cup ENR_c \cup IN_c} R6CHLDW1_i} & \text{if child} \in ER \cup ENR \cup IN \text{ in cell } c, \\[6pt] 0 & \text{if child} \in UNK \text{ in cell } c. \end{cases}$$

In the second adjustment, the child weight was adjusted for eligible nonrespondents. The child weight adjusted for eligible nonrespondents, $R6CHLDW3_i$, was computed as

$$R6CHLDW3_i = R6ADF3_c \times R6CHLDW2_i,$$

where $R6ADF3_c$, the adjustment factor, was computed as:

$$R6ADF3_c = \begin{cases} \dfrac{\sum\limits_{i \in ER_c \cup ENR_c} R6CHLDW2_i}{\sum\limits_{i \in ER_c} R6CHLDW2_i} & \text{if child} \in ER \text{ in cell } c, \\[6pt] 0 & \text{if child} \in ENR \text{ in cell } c, \\[6pt] 1 & \text{if child} \in IN \text{ in cell } c. \end{cases}$$

In both steps of the adjustment, separate nonresponse classes were created for movers and nonmovers with CHAID using various combinations of response status of child assessments and parent interviews in the base year as well as whether children belong to the language minority group, the type of household collected from the parent interviews (all cross-sectional weights except C6CW0), and the school affiliation including whether the child was homeschooled (C6CPTR0, C6CPTM0 and C6CPTS0 only). The adjustment cells for each type of weight are shown in appendix B. Where applicable, very large nonresponse adjusted weights were trimmed by 40 percent. As before, the weights were not redistributed in each case because the total sum of weights was re-established in the raking step that came next.

7.2.4   Raking to Sample-Based Control Totals

To reduce the variability due to the subsampling of schools and movers, the child weights were then raked (i.e., calibrated) to sample-based control totals computed using the initial child weights described in section 7.2.1. A file was created with the initial child weights and school and child characteristics collected in the base year or first-grade year (such as school affiliation, region, urbanicity, sex, age, race/ethnicity, SES, language minority status, whether sampled in kindergarten or first grade, and if sampled in kindergarten, mover status in spring-first grade) to be used in the computation of the control totals. The child records included in this file are records of base-year respondents and records of eligible children sampled in first grade, including records of children who became ineligible in fifth grade. The sum of the initial weights thus calculated is the estimated number of children who were in kindergarten in 1998–99 or first grade in 1999–2000. In the previous steps, the weights of the nonresponding children were distributed to the responding children while the weights of the ineligible children were not affected by this weighting step. The weights of the ineligible children were set to zero at the end of this process because these children are not meant to be included in the analysis of the fifth-grade data. The reason for including the ineligible children in the raking step is that these children were included in the sampled-based control totals.

The raked child weight or fifth-grade final child weight, $R6CHLDW4_i$, was calculated as

$$R6CHLDW4_i = R6ADF4_c \times R6CHLDW3_i,$$

where $R6ADF4_c$, the raking factor for raking cell c, was computed as

$$R6ADF4 = \frac{SMP\_CNT_c}{\displaystyle\sum_{i \in c} R6CHLDW3_i},$$

where SMP_CNT_c is the sample-based control total for raking cell c. Weights of children who become ineligible in fifth grade were set to zero after this step.

This raking procedure is essentially a multivariate poststratification. Raking cells (also known as raking dimensions because they typically involve more than one variable, for example, sex by age) were created with CHAID using school and child characteristics collected in the base year or first-grade year: school affiliation, region, type of locale, sex, age, race/ethnicity, socio-economic scale (SES), language minority status, whether sampled in kindergarten or first grade, and if sampled in kindergarten,

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mover status. These characteristics come from the fifth-grade data collection or previous rounds of data collection if fifth-grade data are missing. Appendix C gives the raking dimensions used for fifth grade.

There was no restriction set in the number of iterations during the raking procedure. The procedure was allowed to run until complete convergence was achieved within a control total. This occurred after 12 to 19 iterations.

7.2.5   Additional Adjustment for Child-Parent-Teacher Cross-Sectional Weights

A new feature of the fifth-grade sample is the subsampling of children for the administration of the mathematics and science teacher questionnaires. While all children had child-level questionnaires filled out by their reading teachers, half were subsampled to have child-level questionnaires filled out by their mathematics teachers and the other half had child-level questionnaires filled out by their science teachers. For this reason, there are three child-parent-teacher weights that will be used to analyze direct child assessment data combined with parent interview data and child data provided by teachers (in conjunction with school level or teacher level data). In all three weights, the presence of at least one completed teacher-level questionnaire determines whether a child would have a positive child-parent-teacher weight in the two subjects to which they were assigned (i.e., reading and mathematics or reading and science.). A child could have one teacher who taught all subjects, in which case the teacher would be asked to fill out both the reading questionnaire and the mathematics questionnaire (if the child was selected for mathematics) or science questionnaire (if the child was selected for science). A child could also have different teachers teaching different subjects, in which case the child may have a reading teacher filling out the reading questionnaire and a mathematics teacher filling out the mathematics questionnaire, and both teachers could have filled out the teacher-level questionnaire. No children have both completed mathematics and science questionnaires because of the subsampling.

Table 7-4 shows the distribution of children who have direct child assessment data, parent interview data and child-level data from the mathematics teacher by the number of teachers they had who filled out the teacher-level questionnaire. The first column in this table shows the number of teachers that each child had: only one teacher who taught both reading and mathematics, or two teachers, one teaching reading and the other teaching mathematics. The second column shows the type of teacher who filled out the teacher-level questionnaire. If the child had only one teacher, then it was this teacher—identified in the table as the reading teacher—who filled out the teacher-level questionnaire (3,142 cases out of 5,009

or 63 percent). If the child had two teachers, then in the majority of cases, both teachers filled out the teacher-level questionnaire (1,803 cases out of 5,009 or 36 percent). There are very few cases where only one of the two teachers filled out the teacher-level questionnaire. Table 7-5 shows the same information for science. Since C6CPTM0 and C6CPTS0 are used for the analysis of child and parent data with data from mathematics and science teachers, another option to define these weights is to use the presence of child-level data from the mathematics/science teachers. However, tables 7-4 and 7-5 show that by considering the presence of teacher-level data in constructing the child-parent-teacher weights, there are more records with positive weights for analysis (5,017 cases with nonzero C6CPTM0 compared with 5,009 in table 7-4; and 5,103 cases with nonzero C6CPTS0 compared with 5,088 in table 7-5).[5] Using teacher-level data to define the child-parent-teacher weights is also consistent with previous years' practice.

Table 7-4.   Number of children with direct child assessment, parent interview and child-level data from mathematics teacher, by number of teachers who filled out teacher-level questionnaire: School year 2003–04

Number of teachers that each child had	Teachers who completed teacher-level questionnaire	Number of children with child-parent-mathematics data from the child-level mathematics questionnaire
Total		5,009
1	Reading	3,142
2	Reading	25
2	Mathematics	39
2	Reading and Mathematics	1,803

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

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[5] See section 4.7.7 of the *Combined User's Manual for the ECLS-K Fifth-Grade Data Files and Electronic Codebooks* (NCES 2006–032) (Tourangeau et al. forthcoming) for a description of the characteristics of the cross-sectional sample weights.

Table 7-5. Number of children with direct child assessment, parent interview, and child-level data from science teacher, by number of teachers who filled out teacher-level questionnaire: School year 2003–04

Number of teachers that each child had	Teachers who completed teacher-level questionnaire	Number of children with child-parent-science data from the child-level science questionnaire
Total		5,088
1	Reading	2,999
2	Reading	42
2	Science	35
2	Reading and Science	2,012

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

An additional adjustment is necessary to adjust for the subsampling of children for whom mathematics or science teacher data questionnaires were administered.[6] Since only half of the children in fifth grade were eligible to have a completed mathematics teacher questionnaire and the other half to have a completed science teacher questionnaire, the weights before adjustment for movers and nonresponse adjustments (described in sections 7.2.2 and 7.2.3, respectively) were adjusted to account for the subsampling of children.

The initial child weight described in section 7.2 was adjusted to reflect the subsampling of children for the mathematics teacher questionnaire as

$$R6CHLDW0_i = R6ADF0_c \times ICHLDW_i,$$

where $R6ADF0_c$, the adjustment factor, was computed as

$$R6ADF0 = \frac{\sum_i ICHLDW_i}{\sum_{i \in MTH} ICHLDW_i},$$

where *MTH* denotes the set of children subsampled for mathematics teacher questionnaires.

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[6] Note that this adjustment occurred prior to the adjustment for subsampling movers, the adjustment for nonresponse, and raking, but it is discussed after section 7.2.4 on raking because it only applies to the child-parent-math/science weights.

Likewise, the adjustment factor for subsampling children for the science teacher questionnaire was computed as

$$R6ADF0 = \frac{\sum\limits_{i} ICHLDW_i}{\sum\limits_{i \in SCI} ICHLDW_i},$$

where *SCI* denotes the set of children subsampled for science teacher questionnaires.

This adjustment was followed by the adjustments for subsampling movers as discussed in section 7.2.2 ($R6CHLDW1_i$ with $ICHLDW_i$ replaced by $R6CHLDW0_i$), the adjustment for nonresponse as discussed in sections 7.2.3 ($R6CHLDW2_i$ and $R6CHLDW3_i$), and raking as discussed in section 7.2.4 ($R6CHLDW4_i$).

7.2.6 Replicate Weights

For each set of cross-sectional and longitudinal weights included in the fifth-grade data file, a set of replicate weights was computed. All adjustments to the full sample weights were repeated for the replicate weights. The replication scheme used for the base year was used for all of the fifth-grade weights that did not contain any fall-first grade component. If a fall-first grade component was included in the definition of the respondents for the weight, then the replication scheme used for fall-first grade estimates was used.

Replicate weights are needed to estimate the standard errors of survey estimates. A total of 90 replicate weights were computed using the paired jackknife method (denoted as JK2) for the fifth-grade weights if no fall-first grade component was included. These replicates take into account the Durbin method of PSU selection (Durbin 1967). A total of 40 replicates using the paired jackknife method were created for the weights that contain a fall-first grade component. The number of replicates is smaller because only 30 percent of the full sample of schools was included in the fall-first grade subsample. Only one of the two sampled PSUs in the non-self-representing strata was kept in the sample. Consequently, the fall-first grade weights do not account for the Durbin PSU sampling method, which required two PSUs per stratum.

The procedures used to compute the replicate weights took into account each step of the weighting process. One feature that is somewhat uncommon in practice is the use of sample-based raking as described in section 7.2.4. The control totals (SMP_CNT_c) used for raking are estimates calculated using the initial child weights ($ICHLDW_i$). When population-based raking is used, these totals are assumed to be numbers that are known and without sampling error. To reflect the variability of the control totals in the sample-based raking, a set of replicate control totals was calculated rather than having a constant set of totals. Each replicate weight was then raked to the corresponding replicate-based control total. The result of this process was that each replicate retained the variability associated with the original sample estimates of the control totals. As with the full sample weight, the raking procedure was allowed to run until complete convergence. For fifth grade, full convergence was achieved after 12 to 19 iterations for each replicate weight.

7.2.6.1 Replicate Weights for Samples Not Involving Fall-First Grade

For the original ECLS-K design in the base year, replicate weights were created taking into account the Durbin method of PSU selection. The Durbin method selects two first-stage units per stratum without replacement, with probability proportional to size and a known joint probability of inclusion.

In the ECLS-K PSU sample design, there were 24 self-representing (SR) strata and 38 non-self-representing (NSR) strata. Among the 38 NSR strata, 11 strata were identified as Durbin strata and were treated as SR strata for variance estimation. The purpose of the Durbin strata is to allow variances to be estimated as if the first-stage units were selected with replacement. This brings the number of SR PSUs to 46 (24 original SR PSUs and 22 Durbin PSUs from the 11 Durbin strata). The remaining 54 NSR PSUs are in 27 NSR strata; thus 27 replicates were formed, each corresponding to one NSR stratum. For the SR strata, 63 replicates were formed. The 90 replicates will yield about 76 degrees of freedom for calculating confidence intervals for many survey estimates.

As stated earlier, the sample of PSUs was divided into 90 replicates or variance strata. The 27 NSR strata formed 27 variance strata of two PSUs each; each PSU formed a variance unit within a variance stratum. All schools within an NSR PSU were assigned to the same variance unit and variance stratum. Sampled schools in the 46 SR PSUs were grouped into 63 variance strata. In the SR PSUs, schools were directly sampled and constituted PSUs. Public schools were sampled from within PSU while private schools were pooled into one sampling stratum and selected systematically (except in the SR

PSUs identified through the Durbin method where private schools were treated as if they were sampled from within PSU). Schools were sorted by sampling stratum, type of school (from the original sample or newly selected as part of freshening), type of frame (for new schools only), and their original order of selection (within stratum). From this sorted list, they were grouped into pairs within each sampling stratum; the last pair in the stratum may be a triplet if the number of schools in the stratum is odd. This operation resulted in a number of ordered preliminary variance strata of two or three units each. The first ordered 63 strata were then numbered sequentially from 1 to 63; the next ordered 63 strata were also numbered sequentially from 1 to 63, and so on until the list was exhausted, thus forming the desired 63 variance strata.

In strata with two units, a unit being a PSU in the case of NSR PSUs and a school in the case of SR PSUs, the base weight of the first unit was doubled to form the replicate weight, while the base weight of the second unit was multiplied by zero. In strata with three units, two variance strata were created: in the first variance stratum, the base weight of two of the three units was multiplied by 1.5 to form the replicate weight, and the base weight of the last unit was multiplied by zero; in the second variance stratum, the base weight of a different group of two units was multiplied by 1.5, and the base weight of the third unit was multiplied by zero. Multiplying the base weight in a unit by zero is equivalent to dropping one unit as required by the jackknife method. All adjustments to the full sample weights were repeated for the replicate weights. For each full sample weight, there are 90 replicate weights with the same weight prefix.

A child sampled in first grade through the freshening process was assigned to the same replicate as the originally sampled child to whom the child was linked. When the child sampled in first grade was assigned a full sample weight, he or she was assigned the replicate weights in the same manner.

7.2.6.2 Replicate Weights for Samples Involving Fall-First Grade

For the two longitudinal weights involving fall-first grade (C1_6SC0 and C1_6SP0), there are 40 replicate weights. The reason for the smaller number of replicates is that only a subsample of schools was included in the fall-first grade sample. The weights associated with the fall-first grade data do not account for the Durbin method of selecting PSUs, since it no longer applied. Rather, they reflect the fact that only one of the two sampled PSUs in the NSR strata was kept in the subsample. To account for this feature, pairs of similar NSR PSUs were collapsed into 19 variance strata. The SR PSUs account for

the remaining 21 variance strata. The 40 replicates will yield about 40 degrees of freedom for calculating confidence intervals for many survey estimates.

7.3   Variance Estimation

7.3.1   Jackknife Method

The final full sample and the adjusted replicate weights can be used to compute estimates of variance for survey estimates using WesVar, AM, SUDAAN, or other software that handles replicate weights. The estimate of variance is the sum of the squared deviations of the replicate estimates from the full-sample estimate:

$$v(\hat{\theta}) = \sum_{g=1}^{G} (\hat{\theta}_{(g)} - \hat{\theta})^2,$$

where
$\quad \theta \quad$ is the population statistic of interest,
$\quad \hat{\theta} \quad$ is the estimate of θ based on the full sample,
$\quad G \quad$ is the number of replicates, and
$\quad \hat{\theta}_{(g)} \quad$ is the gth replicate estimate of θ based on the observations included in the gth replicate.

7.3.2   Taylor Series Method

Variance stratum and variance unit (first-stage sample unit) identifiers were also created to be used in statistical software that computes variance estimates based on the Taylor series method (e.g., SUDAAN, Stata, SAS, SPSS Complex Samples Module, and AM). In this method, a linear approximation to a statistic is formed and then substituted into the formula for calculating the variance of a linear estimate appropriate for the sample design.

If $Y = (Y_1,...,Y_p)'$ denotes a p-dimensional vector of population parameters, $\hat{Y} = (\hat{Y}_1,...,\hat{Y}_p)'$ is the corresponding vector of estimators based on a sample s of size $n(s)$, $\theta = g(Y)$ is the population parameter of interest, and $\hat{\theta} = g(\hat{Y})$ is an estimator of θ, then

$$\hat{\theta} - \theta \doteq \sum_{j=1}^{p} \frac{\partial g(Y)}{\partial y_j}(\hat{Y}_j - Y_j)$$

and

$$v(\hat{\theta}) \doteq v\left(\sum_{j=1}^{p} \frac{\partial g(Y)}{\partial y_i}(\hat{Y}_j - Y_j)\right) = \sum_{j=1}^{p}\sum_{i=1}^{p} \frac{\partial g(Y)}{\partial y_j}\frac{\partial g(Y)}{\partial y_i} Cov\{\hat{Y}_j,\hat{Y}_i\}$$

The Taylor series method relies on a simplified procedure for estimating the variance for a linear statistic even with a complex sample design and is valid in large samples in which the first stage units are sampled with replacement. For the ECLS-K, this simplified method does not capture the variance related to the Durbin sampling method, the effects of the adjustments of the weights for nonresponse, or the sample-based raking procedures. These effects are not captured in the Taylor series variance estimates mainly because each adjustment corresponds to a different estimator that the variance estimation software does not support. In some cases these adjustments may have only a minor effect on the variance estimates, but in other cases the effects could be more substantial.

For software that uses the Taylor series method, the variance strata and PSUs must be defined. For the fifth-grade ECLS-K, the Taylor variance strata were assigned by sequentially numbering the sampling strata and collapsing any stratum with one PSU with an adjacent stratum. In theory, any variance stratum with fewer than two responding units would be combined with an adjacent stratum, but this did not happen in the ECLS-K. The variance units were assigned by sequentially numbering the first-stage sampling units within sampling strata. For example, for C6CW0, Taylor variance strata were numbered sequentially from 1 to 90. Within each Taylor stratum, Taylor units were numbered sequentially from 1 to the total number of units in the stratum. This procedure was done separately for each cross-sectional and longitudinal weight.

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APPENDIX A: MOVER ADJUSTMENT CELLS

Variables used to create mover adjustment cells:

FRESHEE = 0, sampled in kindergarten
1, sampled in first grade

LMSTATUS = 1, home language is not English
2, home language is English

These variables are in the weighting working files. If they are included in the final data file, they do not have the same variable names.

Table A-1. Mover adjustment cells for cross-sectional weights C6CW0, C6PW0 and C6CPTR0: School year 2003–04

Cell	FRESHEE	LMSTATUS	Adjustment factor
1	0	1	2.18502
2	0	2	6.39362
3	1	all	2.46993

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table A-2. Mover adjustment cells for cross-sectional weight C6CPTM0: School year 2003–04

Cell	LMSTATUS	Adjustment factor
1	1	1.51759
2	2	3.26127

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table A-3. Mover adjustment cells for cross-sectional weight C6CPTS0: School year 2003–04

Cell	LMSTATUS	Adjustment factor
1	1	1.48393
2	2	3.38600

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table A-4. Mover adjustment cells for longitudinal weights not involving fall-first grade: School
year 2003–04

Cell	FRESHEE	LMSTATUS	Adjustment factor
1	0	1	2.11188
2	0	2	5.87163
3	1	all	2.35774

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table A-5. Mover adjustment cells for longitudinal weights involving
fall-first grade: School year 2003–04

Cell	LMSTATUS	Adjustment factor
1	1	2.04280
2	2	4.42024

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Appendix B: UNKNOWN ELIGIBILITY AND NONRESPONSE ADJUSTMENT CELLS

Variables used to create unknown eligibility and nonresponse adjustment cells:

HHTYPE = 1, in family of 2 parents plus siblings
2, in family of 2 parents and no siblings
3, in family of 1 parent plus siblings
4, in family of 1 parent and no siblings
5, in other type of family
9, in unknown type of family

HOMESCH = 0, not homeschooled
1, in home school

LFMOVST = 0, not a longitudinal (full sample) mover
1, longitudinal (full sample) mover

LMSTATUS = 1, home language is not English
2, home language is English

LSMOVST = 0, not a longitudinal (subsample) mover
1, longitudinal (subsample) mover

R6MOVST = 0, not a spring-fifth grade mover
1, spring-fifth grade mover

RC12P12 = 1, not assessed due to a disability or language minority (LM) or respondent to child assessment and parent interview in fall-kindergarten and spring-kindergarten (i.e., C1CW0>0 and C2CW0>0 and C1PW0>0 and C2PW0>0)
2, not a respondent to child assessment or parent interview in fall-kindergarten or spring-kindergarten (i.e., C1CW0=0 or C2CW0=0 or C1PW0=0 or C2PW0=0)

RC1245P1245 = 1, not assessed due to a disability or language minority (LM) or respondent to child assessment and parent interview in fall-kindergarten and spring-kindergarten and spring-first grade and spring-third grade (i.e., C1CW0>0 and C2CW0>0 and C4CW0>0 and C5CW0>0 and C1PW0>0 and C2PW0>0 and C4PW0>0 and C5PW0>0)
2, not a respondent to child assessment or parent interview in fall-kindergarten or spring-kindergarten or spring-first grade or spring-third grade(i.e., C1CW0=0 or C2CW0=0 or C4CW0=0 or C5CW0=0 or C1PW0=0 or C2PW0=0 or C4PW0=0 or C5PW0=0)

RC125P125 = 1, not assessed due to a disability or language minority (LM) or respondent to child assessment and parent interview in fall-kindergarten and spring-kindergarten and spring-third grade (i.e., C1CW0>0 and C2CW0>0 and C5CW0>0 and C1PW0>0 and C2PW0>0 and C5PW0>0)

2, not a respondent to child assessment or parent interview in fall-kindergarten or spring-kindergarten or spring-third grade (i.e., C1CW0=0 or C2CW0=0 or C5CW0=0 or C1PW0=0 or C2PW0=0 or C5PW0=0)

RC5   =   1, not assessed due to a disability or LM or respondent to spring-third grade child assessment (i.e., C5CW0>0)
2, not a respondent to spring-third grade child assessment (i.e., C5CW0=0)

RP4   =   1, a respondent to parent interview in spring-first grade (i.e., C4PW0>0)
2, not a respondent to parent interview in spring-first grade (i.e., C4PW0=0)

RP5   =   1, a respondent to parent interview in spring-third grade (i.e., C5PW0>0)
2, not a respondent to parent interview in spring-third grade (i.e., C5PW0=0)

STYPE   =   1, Catholic
2, Other religious private
3, Nonreligious private
4, public
9, unknown

These variables are in the weighting working files. If they are included in the final data file, they do not have the same variable names.

Table B-1.   Unknown eligibility and nonresponse adjustment cells for C6CW0: School year 2003–04

Cell	R6MOVST	RC125P125	RP4	LMSTATUS	Adjustment factor	
					Unknown eligibility	Nonresponse
1	0	1	all	All	1.00000	1.00520
2	0	2	1	All	1.00780	1.04758
3	0	2	2	1	1.45563	1.01915
4	0	2	2	2	2.02103	1.13393
5	1	1	all	All	1.04393	1.19431
6	1	2	all	All	1.12945	1.80780

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-2.   Unknown eligibility and nonresponse adjustment cells for C6PW0: School year 2003–04

Cell	R6MOVST	HHTYPE	RP5	LMSTATUS	RC5	Adjustment factor	
						Unknown eligibility	Nonresponse
1	0	1, 2, 4, 5	1	1	all	1.00000	1.06209
2	0	1, 2, 4, 5	1	2	all	1.00000	1.03967
3	0	1, 2, 4, 5	2	1	all	1.26456	1.38246
4	0	1, 2, 4, 5	2	2	all	1.40014	1.57344
5	0	3, 9	1	all	all	1.00000	1.08564
6	0	3, 9	2	1	all	1.29265	1.37617
7	0	3, 9	2	2	all	1.79527	1.85378
8	1	1, 2, 4, 5	1	all	1	1.03383	1.07452
9	1	1, 2, 4, 5	1	all	2	1.05715	1.14946
10	1	1, 2, 4, 5	2	all	all	1.28633	1.60367
11	1	3, 9	1	all	1	1.08367	1.11359
12	1	3, 9	1	all	2	1.17165	1.02198
13	1	3, 9	2	all	all	1.16237	1.81606

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-3.   Unknown eligibility and nonresponse adjustment cells for C6CPTR0: School year 2003–04

							Adjustment factor	
Cell	HOMESCH	R6MOVST	HHTYPE	RP5	LMSTATUS	STYPE	Unknown eligibility	Nonresponse
1	1	all	all	all	all	all	1.00000	1.58484
2	0	0	1,2,4,5	1	1	1,2,3	1.00000	1.07445
3	0	0	1,2,4,5	1	1	4,9	1.00000	1.12005
4	0	0	1,2,4,5	1	2	1,2,3	1.00000	1.04118
5	0	0	1,2,4,5	1	2	4,9	1.00000	1.06871
6	0	0	1,2,4,5	2	1	all	1.26456	1.45233
7	0	0	1,2,4,5	2	2	all	1.40014	1.64009
8	0	0	3,9	1	all	all	1.00000	1.10832
9	0	0	3,9	2	1	all	1.29265	1.48494
10	0	0	3,9	2	2	all	1.79527	1.89980
11	0	1	all	all	all	1,2,3	1.00000	1.21747
12	0	1	all	all	1	4,9	1.11289	1.64403
13	0	1	all	all	2	4,9	1.08163	1.84413

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-4.   Unknown eligibility and nonresponse adjustment cells for C6CPTM0: School year 2003–04

							Adjustment factor	
Cell	HOMESCH	R6MOVST	HHTYPE	STYPE	RP5	LMSTATUS	Unknown eligibility	Nonresponse
1	1	All	all	all	all	all	1.00000	2.07187
2	0	0	1,5	1,2,3	all	1	1.00000	1.08125
3	0	0	1,5	1,2,3	all	2	1.00000	1.05655
4	0	0	1,5	4,9	1	1	1.00000	1.11565
5	0	0	1,5	4,9	1	2	1.00000	1.07240
6	0	0	1,5	4,9	2	1	1.00000	1.43444
7	0	0	1,5	4,9	2	2	1.00000	1.62500
8	0	0	2,3,4,9	1,2,3	all	1	1.00000	1.35998
9	0	0	2,3,4,9	1,2,3	all	2	1.00000	1.16894
10	0	0	2,3,4,9	4,9	1	all	1.00000	1.10150
11	0	0	2,3,4,9	4,9	2	1	1.00000	1.39477
12	0	0	2,3,4,9	4,9	2	2	1.00000	1.55784
13	0	1	all	1,2,3	all	all	1.00000	1.15601
14	0	1	all	4,9	1	1	1.07308	1.51809
15	0	1	all	4,9	1	2	1.04336	1.87984
16	0	1	all	4,9	2	all	1.20402	2.13094

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-5.   Unknown eligibility and nonresponse adjustment cells for C6CPTS0: School year 2003–04

| Cell | HOMESCH | R6MOVST | RP5 | STYPE | LMSTATUS | HHTYPE | Adjustment factor | |
							Unknown eligibility	Nonresponse
1	1	All	all	all	all	all	1.00000	1.10612
2	0	0	1	1,2,3	1	all	1.00000	1.06891
3	0	0	1	1,2,3	2	all	1.00000	1.04568
4	0	0	1	4,9	1	1,2,3	1.00000	1.11746
5	0	0	1	4,9	1	4,5,9	1.00000	1.20287
6	0	0	1	4,9	2	1,2,4	1.00000	1.06330
7	0	0	1	4,9	2	3,5,9	1.00000	1.10587
8	0	0	2	all	1	all	1.00000	1.47316
9	0	0	2	all	2	all	1.00000	1.83441
10	0	1	all	1,2,3	all	all	1.00000	1.28755
11	0	1	all	4,9	1	all	1.11629	1.69071
12	0	1	all	4,9	2	all	1.09946	1.81234

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-6.   Unknown eligibility and nonresponse adjustment cells for C56CW0: School year 2003–04

Cell	LFMOVST	RC125P125	LMSTATUS	Adjustment factor Unknown eligibility	Nonresponse
1	0	1	all	1.00000	1.00499
2	0	2	all	1.20681	1.09388
3	1	1	all	1.04013	1.17679
4	1	2	1	1.16114	1.81191
5	1	2	2	1.09921	2.14838

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-7.   Unknown eligibility and nonresponse adjustment cells for C56PW0: School year 2003–04

Cell	LFMOVST	RC125P125	STYPE	LMSTATUS	HHTYPE	Adjustment factor Unknown eligibility	Nonresponse
1	0	1	1, 2, 3	all	all	1.00000	1.02039
2	0	1	4, 9	all	all	1.00000	1.04605
3	0	2	all	1	all	1.14175	2.19706
4	0	2	all	2	all	1.22822	1.86073
5	1	1	all	all	all	1.04013	1.07404
6	1	2	all	all	1, 4, 5	1.10370	1.66966
7	1	2	all	all	2, 3, 9	1.13694	2.13831

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-8.   Unknown eligibility and nonresponse adjustment cells for C456CW0: School year 2003–04

Cell	LFMOVST	RC1245P1245	STYPE	RC12P12	LMSTATUS	Adjustment factor Unknown eligibility	Nonresponse
1	0	1	all	all	all	1.00000	1.00498
2	0	2	all	1	all	1.06836	1.27287
3	0	2	all	2	all	1.25666	1.09852
4	1	all	1, 2, 3	all	all	1.00000	1.18872
5	1	all	4, 9	1	all	1.07156	1.51868
6	1	all	4, 9	2	1	1.13642	1.63119
7	1	all	4, 9	2	2	1.08907	1.97756

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-9.   Unknown eligibility and nonresponse adjustment cells for C456PW0: School year 2003–04

| Cell | LFMOVST | LMSTATUS | HHTYPE | STYPE | RC12P12 | Adjustment factor | |
						Unknown eligibility	Nonresponse
1	0	1	1, 5	all	all	1.03557	1.29913
2	0	1	2, 3, 4, 9	all	all	1.06620	1.51069
3	0	2	1, 2	1, 2, 3	all	1.04308	1.09147
4	0	2	1, 2	4, 9	all	1.02968	1.17355
5	0	2	3, 4, 5, 9	all	all	1.12449	1.36726
6	1	1	1	all	all	1.08017	1.41610
7	1	1	2, 3, 4, 5, 9	all	all	1.13332	1.77362
8	1	2	1, 2, 4, 5	all	1	1.04744	1.22519
9	1	2	1, 2, 4, 5	all	2	1.09761	1.73074
10	1	2	3, 9	all	1	1.10180	1.53178
11	1	2	3, 9	all	2	1.06019	2.05338

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-10. Unknown eligibility and nonresponse adjustment cells for C2_6FC0: School year 2003–04

| Cell | LFMOVST | RC1245P1245 | STYPE | HHTYPE | RC12P12 | Adjustment factor | |
						Unknown eligibility	Nonresponse
1	0	1	all	all	all	1.00000	1.00498
2	0	2	1,2,3	1,2,5	1	1.10270	1.27759
3	0	2	1,2,3	1,2,5	2	1.23869	1.08868
4	0	2	1,2,3	3,4,9	all	1.48098	1.37939
5	0	2	4,5,9	1,2,5	1	1.06672	1.33018
6	0	2	4,5,9	1,2,5	2	1.17624	1.14951
7	0	2	4,5,9	3,4,9	all	1.30405	1.17559
8	1	all	all	1,2,3	all	1.07001	1.53865
9	1	all	all	4,5,9	all	1.09007	1.95635

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-11. Unknown eligibility and nonresponse adjustment cells for C2_6FP0: School year 2003–04

| Cell | LFMOVST | LMSTATUS | HHTYPE | STYPE | Adjustment factor | |
					Unknown eligibility	Nonresponse
1	0	1	all	all	1.04424	1.37476
2	0	2	all	1, 2, 3	1.06020	1.11509
3	0	2	1-2	4, 9	1.03026	1.19437
4	0	2	3-9	4, 9	1.11064	1.40976
5	1	1	1	all	1.07866	1.43354
6	1	1	2-9	all	1.13166	1.86774
7	1	2	1, 2, 4, 5	all	1.05586	1.33576
8	1	2	3, 9	all	1.09101	1.74837

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-12.   Unknown eligibility and nonresponse adjustment cells for C1_6FC0: School year 2003–04

Cell	LFMOVST	STYPE	RC1245P1245	LMSTATUS	Adjustment factor	
					Unknown eligibility	Nonresponse
1	0	1, 2, 3	all	all	1.06076	1.19946
2	0	4, 9	1	all	1.00000	1.00476
3	0	4, 9	2	1	1.12199	1.48187
4	0	4, 9	2	2	1.20797	1.86898
5	1	1, 2, 3	all	all	1.00000	1.29333
6	1	4, 9	all	1	1.10195	1.65526
7	1	4, 9	all	2	1.07065	1.77467

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 third (ECLS-K), spring 2004.

Table B-13.   Unknown eligibility and nonresponse adjustment cells for C1_6FP0: School year 2003–04

Cell	LFMOVST	LMSTATUS	HHTYPE	STYPE	Adjustment factor	
					Unknown eligibility	Nonresponse
1	0	1	all	all	1.04424	1.51744
2	0	2	1-2	all	1.03228	1.29147
3	0	2	3-9	all	1.11400	1.56542
4	1	1	1	all	1.07866	1.60947
5	1	1	2-9	all	1.13166	2.08877
6	1	2	all	1, 2, 3	1.00000	1.33747
7	1	2	1, 2, 5	4, 9	1.06203	1.42833
8	1	2	3, 4, 9	4, 9	1.08873	1.94624

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-14. Unknown eligibility and nonresponse adjustment cells for C1_6SC0: School year 2003–04

| | | | | Adjustment factor | |
Cell	LSMOVST	STYPE	HHTYPE	Unknown eligibility	Nonresponse
1	0	1, 2, 3	all	1.08002	1.10377
2	0	4, 9	1, 3, 5	1.04662	1.14636
3	0	4, 9	2, 4, 9	1.20938	1.29705
4	1	1, 2, 3	all	1.00000	1.30250
5	1	4, 9	all	1.06725	1.86940

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table B-15. Unknown eligibility and nonresponse adjustment cells for C1_6SP0: School year 2003–04

| | | | | | Adjustment factor | |
Cell	LSMOVST	LMSTATUS	STYPE	HHTYPE	Unknown eligibility	Nonresponse
1	0	1	all	all	1.04988	1.58359
2	0	2	1, 2, 3	all	1.07635	1.25392
3	0	2	4, 9	1, 2	1.04169	1.30604
4	0	2	4, 9	3-9	1.15726	1.64778
5	1	all	1, 2, 3	all	1.00000	1.29231
6	1	all	4, 9	1, 2	1.06374	1.56525
7	1	all	4, 9	3-9	1.07412	2.20842

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

APPENDIX C: RAKING DIMENSIONS

The raking dimensions are in the weighting working files. They are not included in any delivery files.

Table C-1. Raking dimension 1—sex by age: School year 2003–04

DIM1[1]	NEWGENDER	NEWAGE	Description
11	1	1	Male; age 7 or 8
12	1	2	Male; age 9 or missing
13	1	3	Male; age 10 or 11
21	2	1	Female; age 7 or 8
22	2	2,3	Female; age 9, 10, 11 or missing

[1]For C1_6SC0 and C1_6SP0, cell 13 was merged with cell 12.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table C-2. Raking dimension 2—region by locale: School year 2003–04

DIM2	NEWREGION	NEWLOCALE	Description
11	1	1	Northeast; central city
12	1	2	Northeast; suburb/large town
13	1	3	Northeast; small town/rural
21	2	1	Midwest; central city
22	2	2	Midwest; suburb/large town
23	2	3	Midwest; small town/rural
31	3	1	South; central city
32	3	2	South; suburb/large town
33	3	3	South; small town/rural
41	4	1	West; central city
42	4	2	West; suburb/large town
43	4	3	West; small town/rural

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table C-3.   Raking dimension 3—race/ethnicity by SES quintile: School year 2003–04

DIM3[1]	NEWRACE	NEWSESQ5	Description
11	1	1	White; SES Q1
12	1	2	White; SES Q2
13	1	3	White; SES Q3
14	1	4	White; SES Q4
15	1	5	White; SES Q5
21	2	1	Black; SES Q1
22	2	2	Black; SES Q2
23	2	3	Black; SES Q3
24	2	4,5	Black; SES Q4 or Q5
31	3	1	Hispanic; SES Q1
32	3	2	Hispanic; SES Q2
33	3	3	Hispanic; SES Q3
34	3	4	Hispanic; SES Q4
35	3	5	Hispanic; SES Q5
41	4	1,2	API; SES Q1 or Q2
42	4	3,4	API; SES Q3 or Q4
43	4	5	API; SES Q5
51	5	all	American Indian/Alaskan
61	6	all	Other race

[1]For C1_6SC0 and C1_6SP0, cell 23 was merged with cell 22; cell 35 was merged with cell 34; cells 42 and 43 were merged with cell 41

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table C-4.   Raking dimension 4—school affiliation: School year 2003–04

DIM4	NEWSTYPE	Description
10	1	Catholic
20	2	Other religious private
30	3	Nonreligious private
40	4	Public

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table C-5.   Raking dimension 5—language minority status:
            School year 2003–04

DIM5	LMSTATUS	Description
10	1	Language minority
20	2	Non-language minority

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

Table C-6.   Raking dimension 6—mover status in spring-first grade: School
            year 2003–04

DIM6[1]	MOVERST	Description
10	0	Sampled in KG, spring-first grade nonmover
20	1	Sampled in KG, spring first-grade mover
30	9	Sampled in first grade

[1]For longitudinal weights involving spring-kindergarten data, cell 30 was not applicable.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004.

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