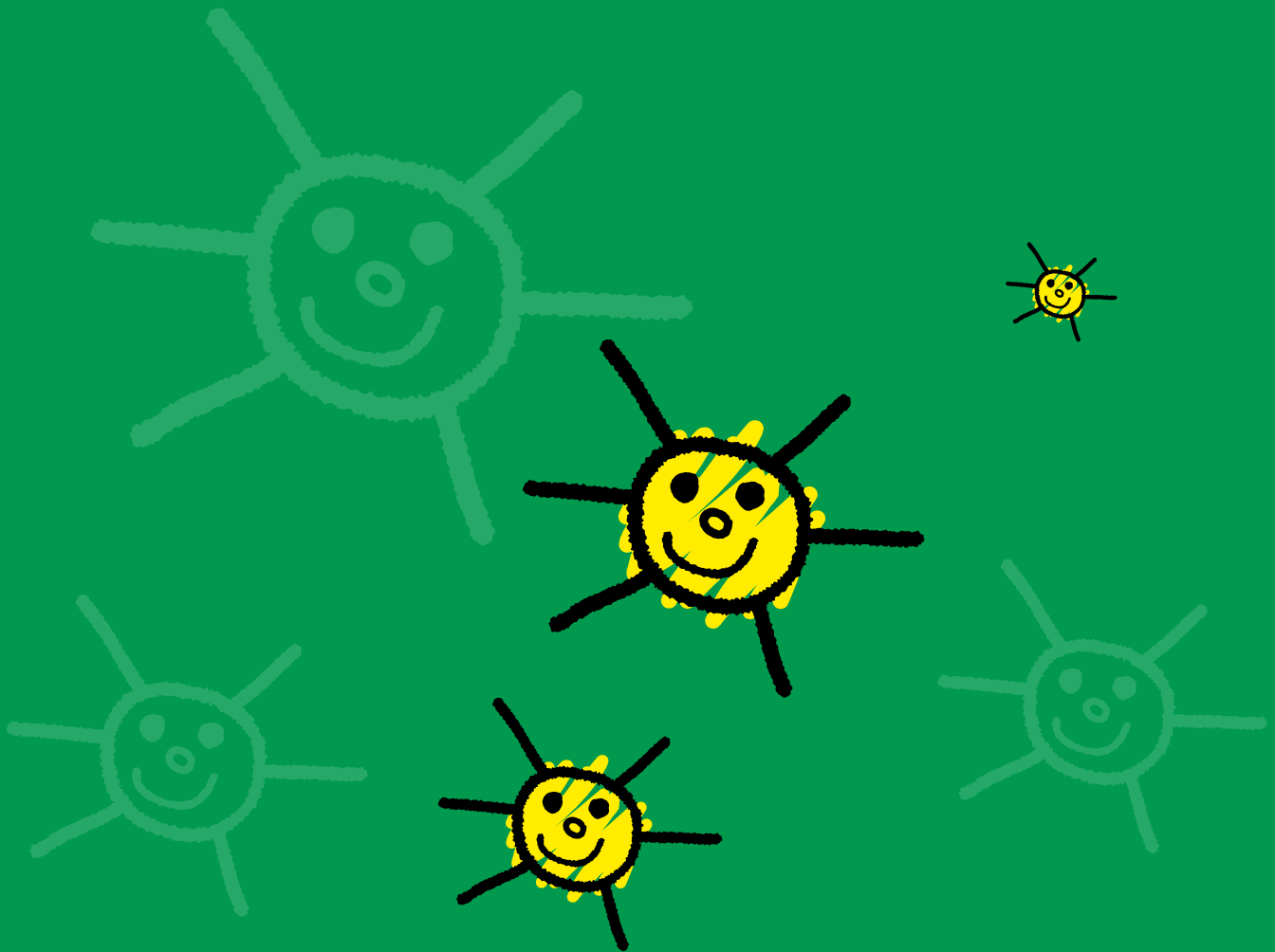


# **Eighth Grade:**

**First Findings From the Final Round of the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K)**

**First Look**





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## **FIRST LOOK**

September 2008

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# Introduction

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This brief report uses data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) to describe the middle school experiences of the cohort. The ECLS-K followed the educational, socioemotional, and physical development of a nationally representative sample of kindergartners in public and private schools in the United States from the fall of 1998 through the spring of 2007. Information was collected from the children, their parents, their teachers, and school administrators. Since the base-year fall and spring kindergarten (1998-99) data collection, sample members participated in five more rounds of data collections: fall and spring of first grade (1999-2000), spring of third grade (2002), spring of fifth grade (2004), and spring of eighth grade (2007). The ECLS-K represents nearly 4 million children who attended kindergarten in the United States in the 1998-99 school year, or attended first grade in the United States in the 1999-2000 school year.<sup>1</sup> About 87 percent of these children were in the eighth grade in 2007; 13 percent were enrolled below eighth grade because they had been retained at least once since kindergarten (see table A-1 for data for this group of students). About one-third of 1 percent of the children had, at some time, been promoted a grade ahead of schedule and were above eighth grade in 2007. This report uses data collected from the final round of the ECLS-K when most of the cohort was in the eighth grade and provides information about their academic achievement, school activities, and educational aspirations.

This report is intended to provide a snapshot of the eighth-grade round of the ECLS-K and make the data available to encourage more in-depth analysis of the data using more sophisticated statistical methods. It focuses on multiple aspects of the cohort's middle school years in the spring of the 2007. It presents information about children's overall achievement in reading, mathematics, and science (table 1); attainment of specific reading proficiencies (table 2); attainment of specific mathematics proficiencies (table 3); participation in various school-sponsored activities (table 4); time spent on homework (table 5); and educational aspirations (table 6). Children remained in the sample regardless of their grade level status (i.e., whether or not they repeated or "skipped" a grade). Since many of the characteristics examined in this report are related to grade level, estimates are provided separately for three groups of the sample: (1) children who had been retained at some point since kindergarten (i.e., those in seventh grade or below); (2) children in eighth grade; and (3) children who had been promoted ahead of schedule at some point since kindergarten (i.e., those in ninth grade or higher). The majority of the cohort was promoted on schedule, and for these eighth-graders, the estimates in the tables are presented by various child and family characteristics.

Readers are cautioned not to draw causal inferences based on the results presented. It is important to note that many of the variables examined in this report may be related to one another, and complex interactions and relationships among the variables were not explored in this report. The variables examined here are just a few of the several thousand that can be examined in these data; they were selected to demonstrate some of the information available from the study. These findings are examples of estimates that can be obtained from the data and are not designed to emphasize any particular issue.

All comparisons referred to in the text were tested for statistical significance to ensure that the differences were larger than might be expected due to sampling variation. All differences reported are significant at the  $p < .05$  level. Adjustments were not made for multiple comparisons. In this report, a "substantive difference" is defined as a percentage point difference of 5 points or greater, or a mean score difference of one-fifth of a standard deviation or more. Differences discussed in the text of this report are both

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<sup>1</sup> Because the sample was freshened at first grade, this population also includes children who were first-graders in 1999-2000, but were not enrolled in kindergarten in the United States in 1998-99.

statistically significant and substantive. Appendix A provides technical documentation for the estimates presented in this report, a glossary describing the variables, and general information about the study. Additional information about the study can be found online at <http://nces.ed.gov/ecls/kindergarten.asp>. Appendix B reports the standard errors for tables 1 through 6.

## Selected Findings

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**Academic achievement.** Cohort members in eighth grade whose mothers had higher levels of education had higher scores on measures of reading, mathematics and science compared to their peers whose mothers had lower levels of education (table 1). This pattern was apparent between each level of maternal education (less than high school completion, high school diploma or equivalent, some college or vocational technical degree, bachelor's degree or higher). For example, cohort members in eighth grade whose mothers did not complete high school scored, on average, 147 on the reading battery, those whose mothers had completed high school had an average score of 163, children whose mothers had attended some college had an average score of 170, and children whose mothers had earned at least a bachelor's degree had an average score of 184. This pattern between achievement and maternal education was also apparent for both mathematics and science (table 1). Furthermore, maternal education was positively associated with the performance of cohort members in eighth grade on specific reading and mathematics proficiency skill levels (tables 2 and 3).

**School-sponsored activities.** Sixty percent of cohort members in eighth grade reported that they participated in school-sponsored sports, 41 percent in school-sponsored drama or music activities, and 33 percent in a school club (table 4). A higher percentage of Whites, Blacks, and Other, non-Hispanics<sup>2</sup> reported playing school sports (64, 59, and 67 percent respectively) compared to Hispanics (52 percent). A smaller percentage of Asians reported playing school sports (42 percent) compared to White, Black, Hispanic, and Other, non-Hispanic children (52 to 67 percent). A higher percentage of Whites (45 percent) and Asians (46 percent) reported participating in drama or music compared to Hispanics (33 percent). A smaller percentage of Blacks reported participating in drama or music (36 percent) compared to Whites (45 percent). A smaller percentage of Hispanics reported participating in a school-sponsored club (25 percent) compared to Whites, Blacks, or Asians (34 to 36 percent).

**Homework.** The cohort members in eighth grade spent, on average, about 5 hours a week doing homework.<sup>3</sup> Those attending private schools spent more time doing homework, in general, than did their peers in public schools. For example, 39 percent of private school children reported spending 11 or more hours per week on homework compared to 21 percent of public school children (table 5).

**Expectations for future education.** Nearly three-quarters of the cohort members in eighth grade expected to complete a bachelor's degree (37 percent) or higher (36 percent) (table 6). A higher percentage from primarily English-speaking homes reported that they expected to complete a 4-year college degree or higher (74 percent) compared to those from a home where English was not the primary language (62 percent).<sup>4</sup> A larger percentage of children from homes where English was not the primary language than from homes where English was the primary language did not know what level of education they would complete (23 vs. 14 percent).

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<sup>2</sup> "White" means "White, non-Hispanic;" "Black" means "Black, non-Hispanic;" "Asian," means, "Asian, non-Hispanic;" "Other" means "Other, non-Hispanic" and includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup> Estimate not in tables. This average is the median value of the full distribution of children's responses. See the glossary for more information about this variable.

<sup>4</sup> Estimates not in tables. Bachelor's degree and beyond a bachelor's degree categories are combined for these estimates and corresponding statistical tests.



Table 1. Mean reading, mathematics, and science scale scores, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Mean reading scale score	Mean mathematics scale score	Mean science scale score
Total <sup>1</sup>	167	140	83
Grade level of student			
Below eighth grade	143	121	69
Eighth grade	171	142	85
Above eighth grade	190	157	98
Characteristics of students in eighth grade			
Sex			
Male	168	143	86
Female	173	141	83
Race/ethnicity <sup>2</sup>			
White, non-Hispanic	177	147	89
Black, non-Hispanic	155	130	73
Hispanic	160	136	79
Asian, non-Hispanic	179	152	89
Other, non-Hispanic	171	142	83
Poverty status <sup>3</sup>			
Below federal poverty level	151	129	74
At or above federal poverty level	175	145	87
Mother's education			
Less than high school	147	127	72
High school diploma or equivalent	163	136	80
Some college or vocational technical degree	170	142	84
Bachelor's degree or higher	184	152	92
Family type			
Two parents	174	145	87
Single parent	162	137	80
Other <sup>4</sup>	155	128	75
Primary home language			
English	173	143	86
Not English	156	134	77
School type			
Public school	169	142	84
Private school	182	148	89

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Estimates were weighted by C7PW0. The distributions of the eighth-grade students' reading, mathematics, and science scores have standard deviations of 27.4, 21.8, and 15.9 points, respectively.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

Table 2. Percentage of students who demonstrate specific reading knowledge and skills, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Reading skills and knowledge				
	Level 6: Literal inference	Level 7: Extrapolation	Level 8: Evaluation	Level 9: Evaluating non-fiction	Level 10: Evaluating complex syntax
Total <sup>1</sup>	91.7	81.1	64.4	27.8	6.1
Grade level of student					
Below eighth grade	80.0	58.8	39.1	8.6	1.7
Eighth grade	93.4	84.3	67.9	30.4	6.7
Above eighth grade	97.8	95.3	88.1	65.9	19.0
Characteristics of students in eighth grade					
Sex					
Male	92.5	82.4	65.6	28.0	6.0
Female	94.3	86.1	70.2	32.9	7.3
Race/ethnicity <sup>2</sup>					
White, non-Hispanic	95.9	89.6	75.1	38.2	8.7
Black, non-Hispanic	88.4	72.8	51.5	12.3	2.2
Hispanic	89.2	75.9	57.1	18.4	3.4
Asian, non-Hispanic	96.3	90.2	76.6	44.1	10.5
Other, non-Hispanic	93.8	84.9	68.3	29.4	5.3
Poverty status <sup>3</sup>					
Below federal poverty level	85.4	67.7	47.1	11.2	1.9
At or above federal poverty level	95.1	87.7	72.3	34.5	7.6
Mother's education					
Less than high school	82.7	64.1	43.9	8.1	1.3
High school diploma or equivalent	91.4	79.6	60.3	20.3	3.5
Some college or vocational technical degree	93.9	84.8	67.5	27.2	5.0
Bachelor's degree or higher	97.7	93.6	81.8	49.1	12.8
Family type					
Two parents	94.8	87.1	71.5	34.0	7.7
Single parent	89.9	76.9	58.9	21.6	4.1
Other <sup>4</sup>	87.7	72.1	51.2	11.7	1.6
Primary home language					
English	94.2	85.9	69.9	32.4	7.1
Not English	87.5	72.0	52.8	16.3	3.5
School type					
Public school	93.0	83.3	66.5	28.5	6.0
Private school	97.1	92.2	79.5	46.1	11.6

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup> Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup> Other refers to related and unrelated guardian(s).

NOTE: Proficiency levels 1 through 5 were mastered by nearly all (98 percent or more) of the children at eighth grade. Estimates were weighted by C7PW0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.



Table 3. Percentage of students who demonstrate specific mathematics knowledge and skills, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Mathematic skills and knowledge			
	Level 6: Place value	Level 7: Rate and measurement	Level 8: Fractions	Level 9: Area and volume
Total <sup>1</sup>	89.3	67.0	37.1	15.9
Grade level of student				
Below eighth grade	71.2	38.0	13.5	4.2
Eighth grade	91.9	71.1	40.4	17.5
Above eighth grade	97.4	88.2	75.1	51.3
Characteristics of students in eighth grade				
Sex				
Male	92.0	73.1	43.2	19.3
Female	91.9	69.2	37.7	15.8
Race/ethnicity <sup>2</sup>				
White, non-Hispanic	94.7	78.5	48.4	21.7
Black, non-Hispanic	84.7	52.3	17.0	4.6
Hispanic	88.8	61.3	29.7	10.7
Asian, non-Hispanic	94.3	82.6	61.7	39.5
Other, non-Hispanic	91.2	69.6	41.4	20.4
Poverty status <sup>3</sup>				
Below federal poverty level	82.2	50.6	19.4	5.3
At or above federal poverty level	94.0	75.4	44.8	20.1
Mother's education				
Less than high school	79.8	47.3	18.7	6.2
High school diploma or equivalent	88.0	62.0	28.0	10.0
Some college or vocational technical degree	93.0	70.7	37.8	14.5
Bachelor's degree or higher	97.6	86.1	59.8	31.1
Family type				
Two parents	93.4	74.5	44.7	20.4
Single parent	88.6	63.3	29.6	10.1
Other <sup>4</sup>	81.9	47.4	18.5	4.6
Primary home language				
English	92.6	72.8	41.9	18.3
Not English	86.7	57.8	29.1	11.7
School type				
Public school	91.3	70.0	39.3	17.0
Private school	97.0	80.0	49.5	22.3

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup> Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup> Other refers to related and unrelated guardian(s).

NOTE: Proficiency levels 1 through 5 were mastered by nearly all (98 percent or more) of the children at eighth grade. Estimates were weighted by C7PW0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

Table 4. Percentage of students who participated in various school-sponsored activities, by grade level and by eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Participation in school-sponsored activities		
	Sport	Drama or music	Club
Total <sup>1</sup>	59.1	40.1	32.1
Grade level of student			
Below eighth grade	52.0	31.0	27.8
Eighth grade	60.1	41.4	32.7
Above eighth grade	74.3	23.8	39.1
Characteristics of students in eighth grade			
Sex			
Male	62.4	34.4	25.7
Female	57.8	48.4	39.7
Race/ethnicity <sup>2</sup>			
White, non-Hispanic	63.7	45.2	34.6
Black, non-Hispanic	59.0	36.0	33.8
Hispanic	51.7	33.5	24.7
Asian, non-Hispanic	41.7	46.0	35.6
Other, non-Hispanic	67.3	41.9	34.9
Poverty status <sup>3</sup>			
Below federal poverty level	50.6	31.1	28.7
At or above federal poverty level	62.1	43.6	33.6
Mother's education			
Less than high school	46.7	25.2	27.5
High school diploma or equivalent	58.1	34.3	28.1
Some college or vocational technical degree	60.1	40.4	32.0
Bachelor's degree or higher	66.0	53.2	38.6
Family type			
Two parents	62.2	43.2	34.3
Single parent	55.5	37.7	27.2
Other <sup>4</sup>	45.5	26.2	38.9
Primary home language			
English	62.2	42.7	33.9
Not English	44.8	31.2	24.6
School type			
Public school	58.6	40.9	31.8
Private school	73.4	47.7	40.7

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Estimates were weighted by C7PW0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

Table 5. Percentage distribution of the number of hours students report doing homework each week, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Time spent doing homework each week				
	0 or 1 hours	2 or 3 hours	4 to 6 hours	7 to 10 hours	11 or more hours
Total <sup>1</sup>	11.3	22.5	23.6	20.9	21.7
Grade level of student					
Below eighth grade	22.1	27.7	20.1	18.0	12.1
Eighth grade	9.7	21.8	24.1	21.3	23.1
Above eighth grade	14.5	2.5	33.0	19.6	30.4
Characteristics of students in eighth grade					
Sex					
Male	10.9	22.9	23.9	21.9	20.5
Female	8.5	20.8	24.3	20.7	25.6
Race/ethnicity <sup>2</sup>					
White, non-Hispanic	7.0	19.5	26.4	23.3	23.8
Black, non-Hispanic	21.9	26.9	19.0	16.2	16.0
Hispanic	9.2	24.8	21.7	20.3	24.0
Asian, non-Hispanic	7.9	19.7	14.8	21.3	36.4
Other, non-Hispanic	9.7	27.1	25.3	13.0	24.9
Poverty status <sup>3</sup>					
Below federal poverty level	15.5	29.6	21.0	16.3	17.6
At or above federal poverty level	8.5	20.2	24.8	22.4	24.2
Mother's education					
Less than high school	14.9	25.9	24.5	17.5	17.2
High school diploma or equivalent	13.1	25.5	22.2	19.6	19.7
Some college or vocational technical degree	11.2	21.9	25.1	19.6	22.1
Bachelor's degree or higher	3.8	17.7	23.4	26.3	28.8
Family type					
Two parents	8.0	21.7	23.7	22.3	24.3
Single parent	13.5	22.7	24.2	19.8	19.8
Other <sup>4</sup>	22.0	18.1	36.3	6.2	17.3
Primary home language					
English	9.7	21.6	24.6	21.2	23.0
Not English	10.0	23.2	20.3	22.1	24.4
School type					
Public school	10.5	23.3	24.3	20.8	21.1
Private school	2.8	10.1	22.3	26.0	39.0

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Detail may not sum to totals because of rounding. Estimates were weighted by C7PW0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

Table 6. Percentage distribution of student's education expectations, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Education expectations				
	Complete high school/ GED or less	Attend college, but less than a four-year degree	Graduate from a 4-year college	Post-graduate degree (e.g., Master's, Ph.D., MD)	Don't know
Total <sup>1</sup>	5.0	9.0	35.7	34.1	16.2
Grade level of student					
Below eighth grade	11.2	13.3	29.7	20.2	25.6
Eighth grade	4.1	8.4	36.7	36.0	14.8
Above eighth grade	4.7	5.7	12.1	74.5	3.1
Characteristics of students in eighth grade					
Sex					
Male	5.5	9.7	39.2	30.2	15.4
Female	2.7	7.1	34.2	41.8	14.2
Race/ethnicity <sup>2</sup>					
White, non-Hispanic	3.0	7.9	38.2	38.0	12.9
Black, non-Hispanic	6.1	8.8	38.8	32.0	14.3
Hispanic	6.0	9.9	31.7	31.7	20.7
Asian, non-Hispanic	1.6	4.8	25.8	50.6	17.2
Other, non-Hispanic	5.6	10.7	35.7	32.3	15.6
Poverty status <sup>3</sup>					
Below federal poverty level	10.3	14.6	29.5	23.9	21.8
At or above federal poverty level	2.8	7.1	38.2	38.6	13.3
Mother's education					
Less than high school	11.7	13.3	29.0	23.1	22.9
High school diploma or equivalent	6.0	13.0	37.2	25.2	18.5
Some college or vocational technical degree	3.5	7.4	39.2	34.5	15.4
Bachelor's degree or higher	1.0	3.6	35.6	50.5	9.2
Family type					
Two parents	3.1	7.1	36.8	38.4	14.6
Single parent	7.0	12.1	37.4	28.9	14.6
Other <sup>4</sup>	6.0	10.0	27.0	34.0	23.0
Primary home language					
English	3.9	8.2	37.5	36.6	13.8
Not English	5.8	9.7	29.1	32.6	22.8
School type					
Public school	4.4	8.7	36.6	35.5	14.7
Private school	1.1	5.3	37.4	41.9	14.3

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Detail may not sum to totals because of rounding. Estimates were weighted by C7PW0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

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## **Appendix A: Survey Methodology and Glossary**

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## Survey Methodology

The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) is sponsored by the National Center for Education Statistics (NCES) in the Institute of Education Sciences of the U. S. Department of Education to provide detailed information on the school achievement and experiences of children. Westat, Inc. assisted with the design of the study and collected the data upon which this report is based. The children participating in the ECLS-K were followed longitudinally from kindergarten through the eighth grade. These children represent all children who attended a kindergarten in the U.S. in the fall of 1998 or who attended first grade in the spring of 2000. About 87 percent of these children were in the eighth grade in 2007; 13 percent were enrolled below eighth grade because they had been retained at least once since kindergarten. About one-third of 1 percent of the children had, at some time, been promoted a grade ahead of schedule and were above eighth grade in 2007. Estimates in this report are based on data collected from about 8,800 children in the spring of 2007. Table A-1 shows the weighted percentage distributions by student, family and school characteristics for the children who were enrolled below eighth grade and those in eighth grade.

### **Sample Design**

A nationally representative sample of 22,782 children enrolled in 944 kindergarten programs during the 1998–99 school year participated in the ECLS-K. The children attended both public and private kindergartens. The sample includes children from different racial/ethnic and socioeconomic backgrounds and includes oversamples of Asian/Pacific Islanders, private kindergartens, and private kindergartners.

Sampling for the ECLS-K involved a dual-frame, multistage sampling design. The first stage of sampling involved the selection of 100 primary sampling units (PSU) from a national sample of PSUs. The PSUs were counties and county groups. Public and private schools were then selected within the PSUs, and children were sampled from the selected schools. Public schools were selected from the NCES 1995–96 Common Core of Data (CCD) Universe File, which is a public school frame, and private schools were selected from a private school frame developed from the 1995–96 Private School Survey (PSS), another NCES survey.<sup>1</sup> Approximately 23 kindergartners were selected in each of the sampled schools. In the spring of first grade, the sample was freshened to obtain a nationally representative sample of first-graders by bringing into the study first-graders who were not enrolled in kindergarten during the 1998–99 school year and therefore did not have an opportunity for selection in the base year. The sample was not freshened in grades 3, 5, or 8.

All students still enrolled in their previous year schools were recontacted, while students who had transferred from their previous year schools were subsampled in grades 1, 3, and 5. In the eighth-grade sample the ineligible children were those who moved out of the country, were deceased, or moved to another school and were not subsampled for follow-up in an earlier grade. In eighth grade, there was no subsampling of movers for follow-up as in previous rounds since the majority of children did not remain in the same school from fifth grade to eighth grade (having moved out of elementary schools into middle schools).

For information on the sampling design and sampling procedures at each round from kindergarten through the eighth grade, refer to the *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Combined User’s Manual for the ECLS-K Eighth-Grade and K-8 Full Sample Data Files and Electronic Codebooks* (Tourangeau, Nord, Lê, Sorongon, and Najarian forthcoming).

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<sup>1</sup> During the spring of 1998, Westat identified new schools that were not found on either frame. A sample of these schools was included in the ECLS-K school sample.

Table A-1. Percentage distribution of ECLS-K students, by grade level and student, family, and school characteristics: Spring 2007

Characteristic	Grade level	
	Eighth grade	Below eighth grade
Total	100	100
Sex		
Male	50	64
Female	50	37
Race/ethnicity <sup>1</sup>		
White, non-Hispanic	59	45
Black, non-Hispanic	15	32
Hispanic	19	16
Asian, non-Hispanic	3	1
Other, non-Hispanic	4	6
Poverty status <sup>2</sup>		
Below federal poverty level	18	41
At or above federal poverty level	82	59
Mother's education		
Less than high school	10	21
High school diploma or equivalent	23	33
Some college or vocational technical degree	37	33
Bachelor's degree or higher	30	13
Family type		
Two parents	73	59
Single parent	25	37
Other <sup>3</sup>	3	4
Primary home language		
English	88	90
Not English	12	10
School type		
Public school	89	95
Private school	11	5

<sup>1</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>2</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>3</sup>Other refers to related and unrelated guardian(s).

NOTE: Percentages may not sum to 100 due to rounding. Estimates were weighted by C7PW0. Estimates represent students in 2007 who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000. The students in the cohort who were enrolled in the 9th grade or higher are not included in this table because there are too few to support stable estimates.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

## Data Collection

The eighth-grade direct child assessments were conducted from March through early June 2007, the same time of year as in prior spring data collections. About 81 percent of the assessments were completed between March and April; about 18 percent were completed in May, and less than 1 percent were completed in June. In year-round schools, multiple assessment visits to the school were made, as needed, to assess all of the sampled children in each track.

## Response Rates

A total of 944 of the 1,277 originally sampled schools participated during the base year of the study. This translates into a weighted response rate (weighted by the base weight) of 74 percent for the base year of the study. The weighted child base-year survey response rate was 92 percent (i.e., 92 percent of the children were assessed at least once during kindergarten). The weighted parent base-year unit response rate was 89 percent (i.e., a parent interview was completed at least once during kindergarten). Thus, the overall base-year response rate for children was 68 percent (74 percent of schools x 92 percent of sampled children) and the base-year overall response rate for the parent interview was 66 percent (74 percent of schools x 89 percent of parents of sampled children). About 76 percent of children and 72 percent of parents eligible for the eighth grade data collection (spring 2007) participated (Tourangeau et al. forthcoming).

A nonresponse bias analysis was conducted to determine if substantial bias was introduced as a result of the base-year school nonresponse. Findings from that analysis suggest that there is not a substantial bias due to nonresponse. For information on the nonresponse bias analysis, refer to the *ECLS-K, Base Year Public-Use Data File, Kindergarten Class of 1998-99: Data Files and Electronic Code Book (Child, Teacher, School Files), and User's Manual* (U.S. Department of Education 2001). As in most longitudinal surveys, nonresponse in the ECLS-K generally increased as the sample aged. Chapter 6 of the *ECLS-K Methodology Report for the Eighth Grade* (Tourangeau, Lê, Nord, and Sorongon forthcoming) and the *Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Fifth-Grade Methodology Report* (Tourangeau, Lê, and Nord 2005) includes an examination of the potential for nonresponse bias using three methods: (1) comparison of respondents and nonrespondents using the available sample frame, (2) multivariate analysis to identify the characteristics of cases most likely to respond, and (3) analysis of attrition bias applicable to longitudinal studies. Nonresponse bias of the estimates from the eighth grade was present but small.

The item nonresponse rates for the variables used in this report are low, ranging from 0 to about 2.5 percent for the analysis sample. A few of the variables were imputed and have no missing data (e.g., mother's education). More information on item missing data can be found in the *Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Combined User's Manual for the ECLS-K Eighth-Grade and K-8 Full Sample Data Files and Electronic Codebooks* (Tourangeau et al. forthcoming).

## Data Reliability

Estimates produced using data from the ECLS-K are subject to two types of error, sampling and nonsampling errors. Nonsampling errors are errors made in the collection and processing of data. Sampling errors occur because the data are collected from a sample rather than a census of the population. A detailed discussion of these types of errors can be found in *America's Kindergartners* (West, Denton, and Germino-Hausken 2000).

## Standard Errors and Weights

As in previous years, the ECLS-K data are weighted to compensate for unequal probabilities of selection at each sampling stage and to adjust for the effects of school, child, teacher, and parent nonresponse. A brief description of the weighting process follows. The first stage of the weighting process assigns weights to the sampled primary sampling units (PSUs) that are equal to the inverse of the PSU probability of selection.<sup>2</sup> The second stage of the weighting process assigns weights to the schools sampled within PSUs. The base weight for each sampled school is the PSU weight multiplied by the inverse of the probability of selecting the school. The base weights for eligible schools are adjusted for nonresponse. These adjustments are made separately for public and private schools.

The base weight for each child in the sample is the school nonresponse adjusted weight for the school the child attends, multiplied by a post-stratified within-school student weight (total number of students in the school, divided by the number of students sampled in the school). The child cross-sectional weight (C7PW0), which is the weight used to produce the estimates found in this report, is the base-year child weight adjusted for nonresponse to the child assessments and parent interviews at the eighth-grade round. Only those cases with child data and parent interview data in the spring of eighth grade are included in this weighting procedure.<sup>3</sup> Again, these adjustments are made separately for public and private schools. This weight sums to the population of all children who attended kindergarten in the fall of 1998 or first grade in 1999-2000.

In addition to properly weighting the responses, special procedures for estimating the statistical significance of the estimates were employed, because the data were collected using a complex sample design. Complex sample designs, like that used in the ECLS-K, result in data that violate the assumptions that are normally required to assess the statistical significance of results. Frequently, standard errors of estimates based on complex samples are larger than those based on simple random samples. Replication methods of variance estimation were used to reflect the multistage sample design used in the ECLS-K. Using AM statistical software,<sup>4</sup> the jackknife replication method (JK2) was used with 90 ECLS-K replicate weights to compute approximately unbiased estimates of the standard errors of the estimates in the report.<sup>5</sup>

## Statistical Procedures

Comparisons made in the text were tested for statistical significance at the  $p < .05$  level to ensure that the differences were larger than might be expected due to sampling variation. When comparing estimates between categorical groups (e.g., sex, race/ethnicity),  $t$  statistics were calculated. The formula used to compute the  $t$  statistic was:

$$t = \text{Est}_1 - \text{Est}_2 / (\text{SQRT}[(se_1)^2 + (se_2)^2])$$

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<sup>2</sup> The approach used to develop weights for the ECLS-K is described in the *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Combined User’s Manual for the ECLS-K Eighth-Grade and K-8 Full Sample Data Files and Electronic Codebooks* (Tourangeau et al. forthcoming).

<sup>3</sup> Children received a valid child assessment weight if they participated in any part of the child assessment, such as the height and weight measurements. Thus, children who were unable to take the cognitive assessments because of their disability could still have a valid child assessment weight.

<sup>4</sup> AM statistical software is designed to calculate estimates and appropriate standard errors for multistage, stratified, and unequal probability sample designs.

<sup>5</sup> Details about the paired jackknife replication method are provided in the *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Combined User’s Manual for the ECLS-K Eighth-Grade and K-8 Full Sample Data Files and Electronic Codebooks* (Tourangeau et al. forthcoming).

where  $Est_1$  and  $Est_2$  are the estimates being compared and  $se_1$  and  $se_2$  are their corresponding standard errors. Due to the large sample size, many differences (no matter how substantively minor) are statistically significant. No adjustments were made for multiple comparisons. In this report, a “substantive difference” is defined as a percentage difference of 5 points or greater, or a mean score difference of one-fifth of a standard deviation or more. Differences discussed in the text of this report are both statistically significant and substantive.

Regression analyses were conducted to evaluate the overall relationships between mother’s education level and each of the reading and mathematics proficiency level scores. Coefficients were estimated using ordinary least squares (OLS) and statistical significance was set at .05.

## Glossary: Constructs and Variables Used in Analysis

### **Direct Cognitive Assessment: Reading, Mathematics, and Science**

The ECLS-K eighth-grade direct cognitive assessment battery was designed to assess children’s academic achievement in reading, mathematics and science in eighth grade, and to provide a means of measuring growth since kindergarten entry. The cognitive assessments used in the study (the K-1, third-, fifth-, and eighth-grade assessments) were administered using two-stage adaptive tests with multiple test forms of varying difficulties to maximize the accuracy of measurement and reduce administration time.

Overlapping items for the test forms within a grade as well as across grades link the forms to a vertical scale for measuring longitudinal gains. The kindergarten-first grade (K-1), third-, and fifth-grade assessments were individually administered by trained assessors using computer assisted technology and small easel test books of the test items. The assessor first administered a routing test of a content area followed by a second stage level test as determined by the child’s scores on the routing test. In the eighth grade, children completed the two-stage assessments in proctored groups, with a routing test followed by a second-stage level test. Unlike the assessments administered at the first six time points, the eighth-grade assessments were self-administered paper-pencil tests.

**Reading.** The eighth-grade reading assessment included some items from the fifth-grade reading assessment and newer items which were more difficult and contributed to the formation of a proficiency level where children demonstrated a higher level of conceptual understanding of the text through deeper inferences that relied on complex vocabulary and interpretation in both the reading passage and the assessment items (Princiotta, Flanagan, and Germino Hausken 2006) Children were required to infer the opinions and/or beliefs of the author, evidence for and against theories discussed in the text, and conclusions that could be drawn from the text.

In addition to providing an overall indicator of children’s reading knowledge and skills over time (i.e., overall scale scores), the ECLS-K reading batteries provided information on the following specific levels of reading skills (i.e., proficiency scores): (1) identifying upper- and lower-case letters of the alphabet by name (letter knowledge); (2) associating letters with sounds at the beginning of words (beginning sounds); (3) associating letters with sounds at the end of words (ending sounds); (4) recognizing common “sight” words (sight words); (5) reading words in context (words in context); (6) making inferences using cues that were directly stated with key words in text (literal inference); (7) identifying clues used to make inferences (extrapolation); (8) demonstrating understanding of author’s craft and making connections between a problem in the narrative and similar life problems (evaluation); (9) comprehension of biographical and expository text (evaluating nonfiction); and (10) evaluating complex syntax and understanding high-level nuanced vocabulary in biographical text (evaluating complex syntax).

This report presents information on children’s overall reading knowledge and skills at eighth grade. Additionally, this report presents information on specific levels of reading skills associated with eighth grade (proficiency levels 6 through 10). Proficiency levels 1 through 5 were achieved by nearly all (98 percent or more) children by the eighth grade and thus are not addressed in this report.

**Mathematics.** The eighth-grade mathematics assessments included increasingly difficult items which addressed the following content strands: number sense, properties, and operations; measurement; geometry and spatial sense; data analysis, statistics, and probability; and patterns, algebra, and functions. The cognitive processes (conceptual, procedural, and problem solving) were assessed in each of the strands. Some of the items drew upon knowledge from more than one strand. For example, an item might require that a child apply knowledge about geometry, measurement, and number operations to answer the question correctly.

In addition to providing an overall indicator of children’s mathematics knowledge and skills over time (i.e., overall scale scores), the ECLS-K mathematics battery provides information on the following specific levels of mathematics skills (i.e., proficiency scores): (1) identifying some one-digit numerals, recognizing geometric shapes, and one-to-one counting up to 10 objects (number and shape); (2) reading all one-digit numerals, counting beyond 10, recognizing a sequence of patterns, and using nonstandard units of length to compare the size of objects (relative size); (3) reading two-digit numerals, recognizing the next number in a sequence, identifying the ordinal position of an object, and solving a simple word problem (ordinality and sequence); (4) solving simple addition and subtraction problems (addition and subtraction); (5) solving simple multiplication and division problems and recognizing more complex number patterns (multiplication and division); (6) demonstrating understanding of place value in integers to the hundreds place (place value); (7) using knowledge of measurement and rate to solve word problems (rate and measurement); (8) solving problems using fractions (fractions); and (9) solving word problems involving area and volume (area and volume).

This report presents information on children’s overall mathematics knowledge and skills at eighth grade. Additionally, this report presents information on specific levels of mathematics skills associated with eighth grade (proficiency levels 6 through 9). Proficiency levels 1 through 5 were mastered by nearly all (98 percent or more) of the children at eighth grade and are not presented in this report.

**Science.** In the eighth-grade assessment, equal emphasis was placed on life science, earth and space science, and physical science. Children needed to demonstrate understanding of the physical and natural world, draw inferences, and comprehend relationships. In addition, they had to interpret scientific data, formulate hypotheses, and identify the best plan to investigate a given question. No set of proficiency levels was developed. The subject matter content of the science assessment domain was too diverse and the items insufficiently ranked or graded to permit the formation of a set of proficiency levels. Instead, a single score was calculated to represent each child’s breadth and depth of understanding and knowledge of science.

### **Student’s School Experiences and Expectations**

In the eighth grade data collection, children completed a student questionnaire after completing the routing test. The student questionnaire covered many topics about the child’s school experiences, school-sponsored and out-of school activities, self-perceptions of social and academic competence and interests, weight and exercise, and diet. All children in the cohort were given this questionnaire, regardless of their grade level. Variables used in analysis in this report are described below. The names of the variables as they are found on the *ECLS-K Eighth-Grade Restricted-Use Data File* or the *ECLS-K K-8 Full Sample Data File* appear in brackets below.

**School-sponsored activities.** These variables indicate whether or not students participated in school sports [C7SPORTS], in drama or music [C7DRAMA], and in school clubs (e.g., school yearbook, newspaper, hobby club, photography) [C7CLUB] in the current school year. For each activity they marked either, “Did not participate,” “Participated,” or “Participated as an officer, leader or captain.” For the purpose of this report, “Participated” and “Participated as an officer, leader or captain” were combined into a single category.

**Homework [C7HRSWRK].** This variable indicates the number of hours spent on homework each week both in and out of school combined. The full distribution of answers to this item was examined and categories were created for this report. The lowest category consisted of "0 or 1 hour" since there were very few “0” hour responses. The remaining four categories were defined so that each category included approximately the same percent of children (2 or 3 hours; 4 to 6 hours, 7 to 10 hours, 11 or more hours).

**Education expectations [C7HOWFAR].** Children were asked the question, “As things stand now, how far in school do you think you will get?” The eight response options were: Less than high school graduation; High school graduation or GED<sup>6</sup> only; Attend or complete a 2-year program in a community college or vocational school; Attend college, but not complete a 4-year degree; Graduate from a 4-year college; Obtain a Master’s degree or equivalent; Obtain a Ph.D., M.D., or other advanced degree; and Don’t know. For this report, these responses were collapsed into five categories: Complete high school/GED or less; Attend college, but less than a four-year degree; Graduate from a 4-year college; Post-graduate degree (e.g., Master's, Ph.D., MD); and Don’t know.

## Student and Family Characteristics

A number of variables used in this report were derived by combining information from one or more questions in the ECLS-K study instruments. More information on the derivation of key variables is described in Chapter 7 of the *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Combined User’s Manual for the ECLS-K Eighth-Grade and K-8 Full Sample Data Files and Electronic Codebooks* (Tourangeau, Nord et al. forthcoming).

**Grade level of child [T7GLVL].** To create the grade-level composite (T7GLVL), two sources of grade-level data were used: (1) information from the special education teacher part B questionnaire (for those children that had a special education teacher), and (2) information collected about each child from the schools by the field staff.

**Child’s sex [R7GENDER].** This composite is brought forward from information originally confirmed in the fall kindergarten parent interview. If the parent interview indicated a sex different from the field management system, then the parent interview information took priority.

**Child’s race/ethnicity [W8RACETH].** In spring of eighth grade, the race of the focal child was no longer collected in the parent interview; thus, race information is based on race collected in previous parent interviews and the field management system (FMS). The race/ethnicity composite as constructed from two parent reported variables: ethnicity and race. Following the 1997 Office of Management and Budget guidelines, respondents were allowed to indicate that their child belonged to more than one of the following race categories: White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander. In addition, each respondent was asked to identify whether the child was Hispanic. The following are the five composite race/ethnicity categories presented in this

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<sup>6</sup> The tests of General Educational Development (GED) provide an opportunity to earn a high school credential. The GED program, sponsored by the American Council on Education, enables individuals to demonstrate that they have acquired a level of learning comparable to that of high school graduates.

report: White non-Hispanic, Black non-Hispanic, Hispanic, Asian, and Other, non-Hispanic (which includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic children of more than one race). When race/ethnicity differences are presented in this report, White refers to White, non-Hispanic, and Black refers to Black, non-Hispanic.

**Poverty status [W8POVRTY].** The federal poverty level status composite variable is derived from household income and the total number of household members. Federal poverty thresholds are used to define households below the poverty level. Households whose income fell below the appropriate threshold based on Census information from 2006 were classified as living in poverty. For example, if a household contained four members, and the household income was lower than \$20,614, then the household was considered to be below the poverty threshold.

**Mother's highest level of education [W8MOMED].** This composite is derived from parent interview information on the mother's educational attainment, and is imputed using hot-deck procedures if missing. For this report, the composite was collapsed into a four-category variable: Less than high school, High school diploma or equivalent, Some college or vocational technical degree, and Bachelor's degree or higher. Those with an Associate degree are included with "Some college or vocational technical degree."

The 406 children without mothers in the household in the eighth-grade year do not have values for this variable.

**Family type [P7HFAMIL].** This composite is derived from parent interview information on the number of parents and siblings in the home. For this report, the composite was collapsed into a three-category variable: Two-parents, Single parent, and Other. Other households include related and/or unrelated guardians.

**Primary home language.** Children are classified as having either English or a non-English language as their primary home language. This variable includes information from two questions on the eighth grade parent interview. Parents were asked if there was any language regularly spoken at home other than English [P7ANYLNG] and if they answered yes to this, they were asked other questions including one about the primary language spoken at home [P7PRMLNG]. If the parent answered that no language other than English was spoken in the home or if they answered that another language was spoken but English was the primary language, then the child was classified as having English as their primary home language. If the parent answered that there was another language other than English spoken at home and then went on to indicate a non-English language as their primary language (or they were not asked the primary language question because intermediate questions indicated that the non-English language was the only language spoken at home), then they were classified as having a non-English primary home language.

**School type [S7PUPRI].** This variable indicates whether a child attended a public or private school in the spring of eighth grade. Public schools included Bureau of Indian Affairs and tribal schools, public schools of choice (e.g., charter schools), and public schools with magnet programs. Private schools included Catholic schools, other religious private schools, and nonreligious private schools.



## **Appendix B: Standard Error Tables**

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Table B-1. Standard errors for table 1: Mean reading, mathematics, and science scale scores, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Characteristic	Mean reading scale score	Mean mathematics scale score	Mean science scale score
Total <sup>1</sup>	0.8	0.6	0.4
Grade level of student			
Below eighth grade	1.7	1.7	1.1
Eighth grade	0.8	0.6	0.4
Above eighth grade	5.1	4.8	3.6
Characteristics of students in eighth grade			
Sex			
Male	1.0	0.7	0.5
Female	0.9	0.7	0.5
Race/ethnicity <sup>2</sup>			
White, non-Hispanic	0.7	0.6	0.4
Black, non-Hispanic	2.2	1.6	1.0
Hispanic	1.3	1.0	0.7
Asian, non-Hispanic	1.7	1.8	1.0
Other, non-Hispanic	3.5	2.7	1.9
Poverty status <sup>3</sup>			
Below federal poverty level	1.7	1.1	1.0
At or above federal poverty level	0.6	0.5	0.4
Mother's education			
Less than high school	1.6	1.4	1.1
High school diploma or equivalent	1.5	1.4	0.8
Some college or vocational technical degree	1.1	0.8	0.6
Bachelor's degree or higher	0.7	0.6	0.4
Family type			
Two parents	0.7	0.6	0.4
Single parent	1.6	1.2	0.8
Other <sup>4</sup>	2.9	2.8	1.8
Primary home language			
English	0.8	0.6	0.4
Not English	1.8	1.2	0.9
School type			
Public school	0.8	0.6	0.4
Private school	1.6	1.1	0.8

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Standard errors estimated with replicate weights C7PW1 through C7PW90.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

Table B-2. Standard errors for table 2: Percentage of students who demonstrate specific reading knowledge and skills, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Reading skills and knowledge				
	Level 6: Literal inference	Level 7: Extrapolation	Level 8: Evaluation	Level 9: Evaluating non-fiction	Level 10: Evaluating complex syntax
Total <sup>1</sup>	0.40	0.71	0.81	0.85	0.26
Grade level of student					
Below eighth grade	1.20	1.87	1.74	1.35	0.45
Eighth grade	0.34	0.65	0.80	0.90	0.27
Above eighth grade	1.85	3.11	5.24	9.57	7.33
Characteristics of students in eighth grade					
Sex					
Male	0.43	0.83	1.02	1.14	0.36
Female	0.42	0.78	0.94	1.10	0.37
Race/ethnicity <sup>2</sup>					
White, non-Hispanic	0.29	0.54	0.71	1.02	0.38
Black, non-Hispanic	1.30	2.34	2.30	1.59	0.33
Hispanic	0.75	1.33	1.39	1.26	0.29
Asian, non-Hispanic	0.62	1.23	1.80	2.92	1.25
Other, non-Hispanic	1.34	2.85	3.79	3.78	0.82
Poverty status <sup>3</sup>					
Below federal poverty level	0.96	1.77	1.76	1.17	0.32
At or above federal poverty level	0.26	0.49	0.65	0.89	0.30
Mother's education					
Less than high school	1.13	1.75	1.57	1.12	0.30
High school diploma or equivalent	0.72	1.34	1.62	1.53	0.30
Some college or vocational technical degree	0.52	1.01	1.16	1.31	0.31
Bachelor's degree or higher	0.20	0.42	0.69	1.33	0.63
Family type					
Two parents	0.30	0.58	0.74	0.97	0.31
Single parent	0.84	1.53	1.71	1.54	0.46
Other <sup>4</sup>	2.12	3.11	2.77	1.87	0.26
Primary home language					
English	0.36	0.68	0.85	0.98	0.29
Not English	0.98	1.88	1.85	1.15	0.38
School type					
Public school	0.38	0.72	0.85	0.93	0.26
Private school	0.57	1.24	1.73	2.41	0.96

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Standard errors estimated with replicate weights C7PW1 through C7PW90.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

Table B-3. Standard errors for table 3: Percentage of students who demonstrate specific mathematic knowledge and skills, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Mathematic skills and knowledge			
	Level 6: Place value	Level 7: Rate and measurement	Level 8: Fractions	Level 9: Area and volume
Total <sup>1</sup>	0.55	0.91	1.01	0.73
Grade level of student				
Below eighth grade	2.15	2.61	1.86	1.03
Eighth grade	0.51	0.93	1.07	0.75
Above eighth grade	2.00	6.26	11.64	14.60
Characteristics of students in eighth grade				
Sex				
Male	0.66	1.09	1.53	1.06
Female	0.72	1.10	1.13	0.86
Race/ethnicity <sup>2</sup>				
White, non-Hispanic	0.55	0.87	1.24	0.98
Black, non-Hispanic	1.86	2.68	2.32	1.01
Hispanic	0.96	1.70	1.62	0.98
Asian, non-Hispanic	1.77	2.36	3.16	3.50
Other, non-Hispanic	2.00	4.20	4.72	3.95
Poverty status <sup>3</sup>				
Below federal poverty level	1.39	2.02	1.55	0.64
At or above federal poverty level	0.44	0.79	1.02	0.78
Mother's education				
Less than high school	1.99	2.19	2.07	1.11
High school diploma or equivalent	1.52	2.22	1.81	0.97
Some college or vocational technical degree	0.66	1.22	1.54	0.98
Bachelor's degree or higher	0.51	0.73	1.24	1.32
Family type				
Two parents	0.51	0.91	1.10	0.83
Single parent	1.17	1.91	1.90	0.95
Other <sup>4</sup>	3.70	3.96	4.21	2.00
Primary home language				
English	0.55	0.97	1.15	0.80
Not English	1.16	1.95	1.87	1.11
School type				
Public school	0.58	1.03	1.11	0.75
Private school	0.72	1.69	2.57	1.86

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Standard errors estimated with replicate weights C7PW1 through C7PW90.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

Table B-4. Standard errors for the table 4: Percentage of students who participated in various school-sponsored activities, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Participation in school-sponsored activities		
	Sport	Drama or music	Club
Total <sup>1</sup>	1.07	1.10	0.86
Grade level of student			
Below eighth grade	3.00	2.66	2.25
Eighth grade	1.13	1.10	0.86
Above eighth grade	12.87	13.38	17.22
Characteristics of students in eighth grade			
Sex			
Male	1.52	1.49	1.18
Female	1.33	1.22	1.18
Race/ethnicity <sup>2</sup>			
White, non-Hispanic	1.50	1.24	1.28
Black, non-Hispanic	2.11	3.71	2.90
Hispanic	2.51	2.05	1.48
Asian, non-Hispanic	3.76	4.26	3.43
Other, non-Hispanic	5.04	4.70	4.32
Poverty status <sup>3</sup>			
Below federal poverty level	2.92	2.62	2.42
At or above federal poverty level	1.05	1.24	0.98
Mother's education			
Less than high school	2.56	2.30	2.90
High school diploma or equivalent	2.12	1.79	1.56
Some college or vocational technical degree	1.77	1.61	1.60
Bachelor's degree or higher	1.46	1.88	1.57
Family type			
Two parents	1.20	1.04	0.86
Single parent	2.27	2.20	1.81
Other <sup>4</sup>	7.34	4.46	7.98
Primary home language			
English	1.21	1.14	1.01
Not English	2.58	2.22	1.60
School type			
Public school	1.28	1.18	0.92
Private school	2.40	2.58	2.56

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Standard errors estimated with replicate weights C7PW1 through C7PW90.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

Table B-5. Standard errors for table 5: Percentage distribution of the number of hours students report doing homework each week, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Grade level and characteristic	Time spent doing homework each week				
	0 or 1 hours	2 or 3 hours	4 to 6 hours	7 to 10 hours	11 or more hours
Total <sup>1</sup>	0.58	0.87	0.81	0.80	0.86
Grade level of student					
Below eighth grade	2.57	2.48	2.31	2.88	2.00
Eighth grade	0.62	0.88	0.78	0.78	0.93
Above eighth grade	11.06	1.99	21.45	11.24	15.50
Characteristics of students in eighth grade					
Sex					
Male	0.87	1.06	1.12	1.09	1.23
Female	0.75	1.26	1.07	1.19	1.21
Race/ethnicity <sup>2</sup>					
White, non-Hispanic	0.63	1.06	1.09	1.01	1.21
Black, non-Hispanic	2.47	2.88	2.50	2.69	2.16
Hispanic	1.09	1.82	1.52	1.42	1.53
Asian, non-Hispanic	1.96	2.90	2.45	3.19	4.79
Other, non-Hispanic	2.02	4.56	4.34	2.05	4.74
Poverty status <sup>3</sup>					
Below federal poverty level	1.68	2.16	1.89	1.97	1.66
At or above federal poverty level	0.61	0.98	0.89	0.86	1.02
Mother's education					
Less than high school	2.34	2.67	2.86	2.14	2.46
High school diploma or equivalent	1.49	1.98	1.55	1.52	1.63
Some college or vocational technical degree	0.99	1.74	1.13	1.24	1.40
Bachelor's degree or higher	0.53	1.48	1.42	1.45	1.73
Family type					
Two parents	0.54	0.99	0.88	0.78	1.00
Single parent	1.63	1.77	1.83	1.97	1.77
Other <sup>4</sup>	4.10	4.02	4.27	2.11	4.82
Primary home language					
English	0.69	1.01	0.84	0.92	1.02
Not English	1.16	2.14	1.94	2.07	2.04
School type					
Public school	0.68	0.97	0.91	0.88	0.93
Private school	0.70	1.18	2.49	2.20	2.76

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Standard errors estimated with replicate weights C7PW1 through C7PW90.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.

Table B-6. Standard errors for table 6: Percentage distribution of student's education expectations, by grade level and eighth-graders' student, family, and school characteristics: Spring 2007

Characteristic	Education expectations				
	Complete high school/ GED or less	Attend college, but less than a four-year degree	Graduate from a 4-year college	Post-graduate degree (e.g., Master's, Ph.D., MD)	Don't know
Total <sup>1</sup>	0.38	0.54	1.07	0.78	0.72
Grade level of student					
Below eighth grade	1.98	1.80	2.82	1.88	2.81
Eighth grade	0.39	0.64	1.11	0.82	0.78
Above eighth grade	5.00	3.93	9.95	12.47	2.14
Characteristics of students in eighth grade					
Sex					
Male	0.65	0.89	1.42	1.11	1.06
Female	0.44	0.73	1.45	1.20	0.93
Race/ethnicity <sup>2</sup>					
White, non-Hispanic	0.44	0.71	1.19	0.99	0.88
Black, non-Hispanic	1.52	2.07	2.74	2.71	2.30
Hispanic	0.99	1.34	2.11	2.39	1.49
Asian, non-Hispanic	0.49	1.52	3.21	3.74	2.60
Other, non-Hispanic	1.03	1.95	4.59	4.16	2.78
Poverty status <sup>3</sup>					
Below federal poverty level	1.39	1.76	2.83	1.95	2.42
At or above federal poverty level	0.37	0.56	1.05	0.91	0.83
Mother's education					
Less than high school	2.13	2.36	3.01	2.93	2.98
High school diploma or equivalent	1.05	1.56	1.98	1.72	1.47
Some college or vocational technical degree	0.61	0.84	1.81	1.48	1.37
Bachelor's degree or higher	0.31	0.71	1.49	1.69	1.07
Family type					
Two parents	0.36	0.57	1.13	0.97	0.88
Single parent	1.27	1.45	2.31	1.62	1.35
Other <sup>4</sup>	2.83	4.34	5.49	6.09	5.76
Primary home language					
English	0.43	0.70	1.14	0.86	0.85
Not English	0.90	1.66	2.20	2.30	1.83
School type					
Public school	0.43	0.70	1.21	0.91	0.85
Private school	0.31	1.23	2.14	2.51	1.93

<sup>1</sup>The total ECLS-K cohort represents all U.S. students who attended a U.S. kindergarten in 1998-99 or a U.S. first grade in 1999-2000.

<sup>2</sup>Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian, Pacific Islanders, American Indians, Alaska Natives, and non-Hispanic students of more than one race.

<sup>3</sup>Poverty status is a function of household size and household income. Based on 2006 Census information, a household of four with a total income below \$20,615 was considered to be below the federal poverty threshold.

<sup>4</sup>Other refers to related and unrelated guardian(s).

NOTE: Standard errors estimated with replicate weights C7PW1 through C7PW90.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Eighth-Grade Restricted-Use Data File.