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Preschool: First Findings From the Preschool Follow-up of the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B)

U.S. Department of Education
NCES 2008-025

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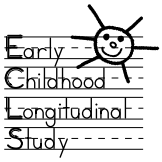

Preschool: First Findings From the Third Follow-up of the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B)

U.S. Department of Education
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October 2007

FIRST LOOK

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Contents

List of Tables

Introduction

The Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) is designed to provide detailed information on children's development, health, and early learning experiences in the years leading up to entry into school. The ECLS-B is the first nationally representative study within the United States to directly assess children's early mental and physical development, the quality of their early care and education settings, and the contributions of their fathers, as well as their mothers, in their lives. The children participating in the ECLS-B are followed from birth through kindergarten entry. To date, information has been collected from children and their parents during three rounds of data collection, conducted when the children were about 9 months of age (2001), about 2 years of age (2003), and about preschool age (age 4, 2005). Their experiences are representative of the experiences of the approximately 4 million children born in the United States in 2001. This First Look report provides information on certain characteristics of this population of children when they were about age 4. The information in this report complements that presented in *Children Born in 2001: First Results from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B)* (Flanagan and West 2004) and *Age 2: Findings From the 2-Year-Old Follow-up of the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B)* (Mulligan and Flanagan 2006).

The purpose of this First Look report is to introduce new ECLS-B survey data through the presentation of selected descriptive information. Readers are cautioned not to draw causal inferences based on the univariate and bivariate 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 have not been explored. The variables examined here are also just a few of the several thousand that can be examined in these data; they were selected to demonstrate the range of 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. The release of this report is intended to encourage more in-depth analysis of the data using more sophisticated statistical methods.

The tables in this report present information collected during the preschool wave of the ECLS-B in the following areas: demographic characteristics of children and their families (table 1); children's language, literacy, mathematics, color knowledge, and fine motor skills (tables 2 through 6); and children's experiences in early care and education (table 7).

Performance on measures of children's language, literacy, mathematics, color knowledge, and children's fine motor skills is sensitive to the age at which the children were assessed. The preschool data collection of the ECLS-B was intended to assess children when the majority of the sample would be about 48 through 57 months of age. However, during the preschool round, children were assessed when they were as young as 44 months and as old as 65 months. Therefore, in this report, the first table on language, literacy, mathematics, color knowledge, and fine motor skills presents information by age at the time of assessment (table 2). For this table, age at assessment is divided into three categories: less than 48 months; 48 through 57 months (roughly the target age for the assessment), and more than 57 months. Because age at assessment is not independent of certain child and family characteristics (certain groups of children may be older when assessed in a given wave),[1] it is inappropriate to analyze the ECLS-B cognitive and fine motor information without addressing age at assessment (for more information on this issue please see the *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Methodology Report for the Preschool Data Collection (2005-06), Volume I: Psychometrics* [Najarian, Lennon, and Snow 2007]). Therefore, after a table presenting cognitive and fine motor data by overall age of assessment (table 2), a series of tables (tables 3 through 6) present information on the 75 percent of the children who were assessed in the target age range (48 through 57 months) by certain child and family characteristics.

[1] Please refer to table A-1 in appendix A of this report.

All comparisons made 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. Appendix A provides technical documentation for the findings presented in this report, and general information about the study. Appendix B reports the standard errors for tables 1 through 7.

Selected Findings

Demographics. Three-quarters (76.5 percent) of the children in the study were living in two-parent households; and nearly two-thirds (64.9 percent) of the children's mothers were either working full- or part-time (59.1 percent) or looking for work (5.8 percent) (table 1). Although three-quarters (74.6 percent) of the children studied were ages 48 through 57 months at the time they were assessed, 16.4 percent were younger, and 9 percent were older (table 1).

The assessment data that follow report results only for the three quarters of the children in the study who were ages 48 through 57 months at the time they were assessed.

Language. Receptive vocabulary refers to children's ability to indicate understanding of the meaning of words. For example, children were presented with four pictures and asked to point to the one depicting "painting." On average, females scored higher (8.8) than males (8.4) (table 3). Expressive language refers to children's ability to reproduce a narrative in their own words, using pictures as a guide. For example, children were told a short story and then asked to retell it in their own words, using the story pictures as a guide. On average, females demonstrated higher expressive language knowledge and skills than males (2.6 versus 2.3).

Literacy. Letter recognition refers to children's ability to identify letters of the alphabet. Phonological awareness is the understanding of the sounds and structure of spoken language. Conventions of print refers to understanding such aspects as the reading of English text from left to right. Children with two-parent families scored higher than children with single-parent families on the overall literacy scale score (13.7 versus 11.4) (table 4). This pattern is repeated in the results from assessments of letter recognition, phonological awareness, and conventions of print.

Mathematics. Mathematics refers to such aspects as children's ability to recognize numbers, shapes, estimate quantity, understand basic graphs, and solve simple addition statements. For example, children were presented with a number and asked to name the number. Sixty-five (65.4) percent of children demonstrated proficiency in numbers and shapes; the percentage of children demonstrating proficiency in numbers and shapes ranged from 40.1 percent among lower socioeconomic status (SES) families to 87.1 percent in higher SES families (table 5).

Color knowledge. For the color knowledge assessment, children were presented with a picture of bears of different colors. Children were asked to name the colors of five teddy bears (each correct answer receiving 2 points). For all of the colors that the child could not initially name, the assessor asked, "Can you find the [blue] bear?" (each correct answer receiving 1 point). Sixty-four (63.6) percent could identify five colors without being prompted to point to a specific color. Relatively more White (71.0) and Asian (70.7) children compared to Black (55.3) or Hispanic (50.2) children demonstrated this level of color knowledge (table 6).

Fine motor skills. This assessment refers to children's ability to draw basic forms. For example, when presented with a circle or a triangle, children were scored on their ability to copy the form. On average, females scored higher than males on the measure of fine motor skills (3.7 versus 3.1) (table 6).

Early care and education. Looking at the primary setting where children received the most hours of early care and education, 20 percent were in no regular early care and education arrangement; 44.8 percent were in a center-based (non-Head Start) setting; 12.7 percent were in a Head Start setting; 13.1 percent were in a home-based relative care setting; and 7.6 percent were in a home-based nonrelative care setting (table 7).

Table 1. Percentage distribution of children born in 2001, by child and family characteristics: 2005-06

Characteristic	Number of children (thousands)	Percent of population
Total	3,940	100.0
Child's sex		
Male	2,019	51.2
Female	1,921	48.8
Child's race/ethnicity[1]		
White, non-Hispanic	2,117	53.8
Black, non-Hispanic	544	13.8
Hispanic	985	25.1
Asian, non-Hispanic	101	2.6
American Indian and Alaska Native, non-Hispanic	19	0.5
Other, non-Hispanic	165	4.2
Plurality[2]		
Singleton	3,808	96.8
Twin	119	3.0
Higher order (e.g., triplet)	7	#
Birth weight		
Normal birth weight (more than 5.5 pounds)	3,643	92.5
Moderately low birth weight (more than 3.3 to 5.5 pounds)	244	6.2
Very low birth weight (3.3 pounds or less)	50	1.3
Child's age (in months) at time of assessment		
Less than 48 months (less than 4 years old)	645	16.4
48 through 57 months (4 years old to 4 years, 9 months)	2,939	74.6
More than 57 months (older than 4 years, 9 months)	356	9.0
Family type, preschool round[3]		
Two parent	3,016	76.5
Single parent	860	21.8
Other	64	1.6
Mother's employment status, preschool round		
Full time (35 hours or more)	1,541	39.4
Part time (Less than 35 hours)	772	19.7
Looking for work	227	5.8
Not in labor force	1,344	34.3
No mother in household	30	0.8

Rounds to zero.

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in tables 3 through 7.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

NOTE: Estimates weighted by W3R0. Detail may not sum to totals because of rounding or missing data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table 2. Children's language, literacy, mathematics, color knowledge, and fine motor skills scores, by child's age (in months) at time of assessment and domain: 2005-06

Domain	Less than 48 months (less than 4 years old)	48 through 57 months (4 years old to 4 years, 9 months)	More than 57 months (older than 4 years, 9 months)
Percent of population	16.4	74.6	9.0
Language			
Average receptive vocabulary score	7.8	8.6	9.0
Average expressive language score	2.1	2.4	2.6
Literacy			
Average overall literacy score	10.7	13.2	16.0
Average letter recognition score	22.9	32.7	43.5
Average phonological awareness score	3.0	3.3	3.7
Average conventions of print score	2.0	2.5	3.1
Mathematics			
Average overall mathematics score	18.7	22.8	26.2
Percent of children demonstrating proficiency in numbers and shapes	44.8	65.4	79.0
Color knowledge			
Percent of children who scored 0 out of 10	2.2	1.3	#
Percent of children who scored 1 to 9	48.8	35.1	28.4
Percent of children who scored 10 out of 10	49.0	63.6	71.1
Fine motor skills			
Average fine motor score	2.5	3.4	4.1

Rounds to zero.

NOTE: Estimates weighted by W3R0. Detail may not sum to totals because of rounding. The receptive vocabulary score has a potential range of 0 to 15; the expressive language score has a potential range of 0 to 5; the overall literacy score has a potential range of 0 to 37; the letter recognition score has a potential range of 0 to 100; both the phonological awareness score and the conventions of print score have a potential range of 0 to 8; the overall mathematics score has a potential range of 0 to 44; the numbers and shapes score has a potential range of 0 to 100; the color knowledge score has a potential range of 0 to 10; and the fine motor skills score has a potential range of 0 to 7.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table 3. Average children's language knowledge and skills scores, by child and family characteristics for children 48 through 57 months of age at time of assessment: 2005-06

Characteristic	Language knowledge and skills	
	Average receptive vocabulary score	Average expressive language score
Total	8.6	2.4
Child's sex		
Male	8.4	2.3
Female	8.8	2.6
Child's race/ethnicity[1]		
White, non-Hispanic	9.2	2.6
Black, non-Hispanic	8.0	2.4
Hispanic	7.4	2.1
Asian, non-Hispanic	7.9	2.1
American Indian and Alaska Native, non-Hispanic	7.9	2.1
Other, non-Hispanic	9.0	2.5
Plurality[2]		
Singleton	8.6	2.5
Twin	8.6	2.4
Birth weight		
Normal birth weight (more than 5.5 pounds)	8.6	2.5
Moderately low birth weight (more than 3.3 to 5.5 pounds)	8.2	2.3
Very low birth weight (3.3 pounds or less)	7.8	2.1
Family type, preschool round[3]		
Two parent	8.7	2.5
Single parent	8.2	2.4
Other	8.5	2.3
Socioeconomic status, preschool round[4]		
Lowest 20 percent	7.3	2.0
Middle 60 percent	8.6	2.5
Highest 20 percent	9.8	2.8

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Estimates weighted by W3R0. The receptive vocabulary score has a potential range of 0 to 15. The expressive language score has a potential range of 0 to 5. For children 48 through 57 months of age at the time of assessment, the receptive vocabulary score ranges from 5 to 14 with a standard deviation of 2, and the expressive language score ranges from 0 to 5 with a standard deviation of 1.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table 4. Average children's literacy knowledge and skills scores, by child and family characteristics for children 48 through 57 months of age at time of assessment: 2005-06

Characteristic	Literacy knowledge and skills			
	Average overall literacy score	Average letter recognition score	Average phonological awareness score	Average conventions of print score
Total	13.2	32.7	3.3	2.5
Child's sex				
Male	12.7	30.8	3.3	2.4
Female	13.7	34.8	3.4	2.6
Child's race/ethnicity[1]				
White, non-Hispanic	14.2	36.8	3.5	2.7
Black, non-Hispanic	12.0	28.3	3.2	2.3
Hispanic	10.7	23.0	3.0	2.0
Asian, non-Hispanic	17.5	49.4	3.9	3.3
American Indian and Alaska Native, non-Hispanic	9.6	18.8	2.9	1.8
Other, non-Hispanic	13.8	35.1	3.5	2.7
Plurality[2]				
Singleton	13.2	32.8	3.3	2.5
Twin	13.1	32.3	3.3	2.5
Birth weight				
Normal birth weight (more than 5.5 pounds)	13.3	33.2	3.3	2.5
Moderately low birth weight (more than 3.3 to 5.5 pounds)	11.9	27.7	3.2	2.3
Very low birth weight (3.3 pounds or less)	11.4	25.6	3.1	2.1
Family type, preschool round[3]				
Two parent	13.7	34.9	3.4	2.6
Single parent	11.4	26.0	3.1	2.2
Other	10.3	21.5	2.9	1.9
Socioeconomic status, preschool round[4]				
Lowest 20 percent	9.2	17.2	2.8	1.7
Middle 60 percent	12.7	30.8	3.3	2.4
Highest 20 percent	18.0	51.2	4.0	3.4

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Estimates weighted by W3R0. The overall literacy score has a potential range of 0 to 37; the letter recognition score has a potential range of 0 to 100; and both the phonological awareness score and the conventions of print score have a potential range of 0 to 8. For children 48 through 57 months of age at the time of assessment, the overall literacy score ranges from 5 to 35 with a standard deviation of 7; the letter recognition score ranges from 2 to 99 with a standard deviation of 26; the phonological awareness score ranges from 2 to 7 with a standard deviation of 1; and the conventions of print score ranges from 1 to 7 with standard deviation 1.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table 5. Average children's mathematics knowledge and skills scores, by child and family characteristics for children 48 through 57 months of age at time of assessment: 2005-06

Characteristic	Mathematics knowledge and skills	
	Average overall mathematics score	Percent of children demonstrating proficiency in numbers and shapes
Total	22.8	65.4
Child's sex		
Male	22.3	62.3
Female	23.3	68.7
Child's race/ethnicity[1]		
White, non-Hispanic	24.2	73.1
Black, non-Hispanic	20.6	54.7
Hispanic	20.1	51.4
Asian, non-Hispanic	26.3	81.2
American Indian and Alaska Native, non-Hispanic	17.6	39.9
Other, non-Hispanic	22.9	64.9
Plurality[2]		
Singleton	22.8	65.6
Twin	21.8	61.5
Birth weight		
Normal birth weight (more than 5.5 pounds)	23.0	66.4
Moderately low birth weight (more than 3.3 to 5.5 pounds)	20.6	54.2
Very low birth weight (3.3 pounds or less)	19.1	46.6
Family type, preschool round[3]		
Two parent	23.5	69.1
Single parent	20.6	53.9
Other	19.1	45.4
Socioeconomic status, preschool round[4]		
Lowest 20 percent	18.0	40.1
Middle 60 percent	22.6	65.3
Highest 20 percent	27.5	87.1

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Estimates weighted by W3R0. The overall mathematics score has a potential range of 0 to 44, and the numbers and shape score has a potential range of 0 to 100. For children 48 through 57 months of age at the time of assessment, the overall mathematics score ranges from 6 to 42 with a standard deviation of 7, and the numbers and shapes score ranges from 0 to 100 with a standard deviation of 39.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table 6. Percentage distribution of children's knowledge of colors and children's average fine motor skills score, by child and family characteristics for children 48 through 57 months of age at time of assessment: 2005-06

Characteristic	Percentage distribution of children's knowledge of colors			Average fine motor skills scale score
	0	1 to 9	10	
Total	1.3	35.1	63.6	3.4
Child's sex				
Male	1.4	37.3	61.3	3.1
Female	1.2	32.7	66.1	3.7
Child's race/ethnicity[1]				
White, non-Hispanic	0.6 !	28.5	71.0	3.5
Black, non-Hispanic	3.2	41.5	55.3	3.2
Hispanic	1.8	48.0	50.2	3.3
Asian, non-Hispanic	2.3 !	27.0	70.7	4.5
American Indian and Alaska Native, non-Hispanic	3.7 !	52.4	43.9	3.0
Other, non-Hispanic	1.5 !	36.2	62.3	3.5
Plurality[2]				
Singleton	1.3	35.1	63.6	3.4
Twin	2.4	34.5	63.2	3.2
Birth weight				
Normal birth weight (more than 5.5 pounds)	1.2	34.3	64.5	3.4
Moderately low birth weight (more than 3.3 to 5.5 pounds)	2.7	44.0	53.3	3.0
Very low birth weight (3.3 pounds or less)	3.0	47.3	49.7	2.5
Family type, preschool round[3]				
Two parent	0.9	32.8	66.3	3.5
Single parent	2.5	42.2	55.3	3.1
Other	2.7 !	47.8	49.5	2.6
Socioeconomic status, preschool round[4]				
Lowest 20 percent	3.4	53.8	42.8	3.0
Middle 60 percent	1.0	35.5	63.5	3.4
Highest 20 percent	#	17.9	81.7	3.9

! Interpret with caution. Standard error is more than one third as large as estimate.

Rounds to zero.

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Estimates weighted by W3R0. Detail may not sum to totals because of rounding. The color knowledge score has a potential range of 0 to 10, and the fine motor skills score has a potential range of 0 to 7. For children 48 through 57 months of age at the time of assessment, the color knowledge score ranges from 0 to 10 with a standard deviation of 2, and the fine motor skills score ranges from 0 to 7 with a standard deviation of 2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table 7. Percentage distribution of children participating in regular nonparental early care and education, by primary type of arrangement and child and family characteristics: 2005-06

Characteristic	Home-based		Center-based			No regular nonparental arrangement
	Relative care	Non-relative care	Center-based, non-Head Start	Head Start	Multiple arrangements	
Total	13.1	7.6	44.8	12.7	1.9	20.0
Child's sex						
Male	13.1	7.5	45.1	12.9	2.1	19.3
Female	13.1	7.6	44.5	12.4	1.7	20.7
Child's race/ethnicity[1]						
White, non-Hispanic	11.0	9.2	53.3	6.8	1.9	17.9
Black, non-Hispanic	13.9	4.3	37.1	25.4	3.3	16.0
Hispanic	15.9	6.2	30.9	18.6	1.2	27.2
Asian, non-Hispanic	16.0	3.4	55.3	5.5	2.3 !	17.5
American Indian and Alaska Native, non-Hispanic	14.0	5.3	28.5	31.1	1.1 !	20.0
Other, non-Hispanic	18.8	9.1	40.4	11.9	1.7 !	18.0
Plurality[2]						
Singleton	13.2	7.5	44.7	12.6	1.9	20.0
Twin	9.2	9.0	48.0	13.1	2.1	18.6
Birth weight						
Normal birth weight (more than 5.5 pounds)	13.1	7.6	45.0	12.5	1.9	20.0
Moderately low birth weight (more than 3.3 to 5.5 pounds)	13.5	7.5	42.6	14.2	2.2	20.0
Very low birth weight (3.3 pounds or less)	13.6	6.6	44.4	14.3	2.4	18.6
Family type, preschool round[3]						
Two parent	11.1	7.8	47.6	10.2	1.6	21.7
Single parent	19.9	7.2	35.6	20.6	3.0	13.8
Other	16.2	3.1 !	37.9	19.5	1.8 !	21.5
Socioeconomic status, preschool round[4]						
Lowest 20 percent	15.0	5.0	22.4	24.7	2.3	30.5
Middle 60 percent	15.0	7.4	43.7	12.5	1.8	19.6
Highest 20 percent	5.5	10.7	70.6	1.0	1.9	10.3
Mother's employment status, preschool round						
Full time (35 hours or more)	18.5	13.4	46.1	11.4	2.1	8.5
Part time (Less than 35 hours)	15.9	8.5	49.2	10.1	2.9	13.4
Looking for work	12.6	2.1 !	30.4	24.3	2.0 !	28.5
Not in labor force	4.6	1.5	43.7	13.7	1.0	35.6
No mother in household	36.0	9.5 !	26.7	14.4 !	3.8 !	9.6 !

! Interpret with caution. Standard error is more than one third as large as estimate.

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Estimates weighted by W3R0. Detail may not sum to totals because of rounding. Primary care refers to the arrangement where the child spent the most hours. If a child spent equal time in each of two or more types of arrangements, primary care was coded as "multiple care arrangements." Children with no regular nonparental early care and education arrangement were coded as "no arrangement." For this presentation of primary care, Head Start refers to services received at a public or private school, religious center, or private home, as reported by the parent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

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Appendix A
Survey Methodology and Glossary

Survey Methodology

The Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), sponsored by the U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES), is a multisource, multimethod study that focuses on the early home and educational experiences of children from infancy to kindergarten entry. The central goal of the ECLS-B is to provide a comprehensive and reliable set of data that may be used to describe and to better understand children's early development; their health care, nutrition, and physical well-being; their preparation for school; key transitions during the early childhood years; their experiences in early care and education programs; and how their early experiences relate to their later development, learning, and experiences in school. To achieve this goal, the study is following a nationally representative cohort of children born in the United States in 2001 from birth into kindergarten entry. The parents of approximately 10,700 children born in 2001 participated in the first wave of the study, when the children were approximately 9 months old. Direct assessments were conducted with about 10,200 of these children. The second wave was conducted in 2003, when the children were approximately 2 years old; the parents of approximately 9,850 children participated in this wave, and direct assessments were conducted with about 8,950 of these children. The third wave, the preschool wave, was conducted in 2005-06, when the children were approximately 4 years old; the parents of approximately 8,950 children participated in this wave, and direct assessments were conducted with about 8,750 of these children. This report presents data collected in the third wave, in 2005-06.[1] The Research Triangle Institute (RTI), a social science research firm, conducted the third wave of the study.

The sample comprises children from different racial/ethnic and socioeconomic backgrounds, including oversamples of Chinese and other Asian and Pacific Islander children and American Indian/ Alaska Native children.[2] It also includes oversamples of twins and children with moderately low and very low birth weight. The sample of children born in the year 2001 was selected using a clustered, list frame sampling design. The list frame was made up of registered births in the National Center for Health Statistics (NCHS) vital statistics system. Births were sampled from 96 core primary sampling units (PSUs) representing all infants born in the United States in the year 2001.[3] The PSUs were counties and county groups. To support the American Indian/ Alaska Native oversample, 18 additional PSUs were selected from a supplemental frame consisting of areas where the population had a higher proportion of American Indian/ Alaska Native births. Sampling was based on the occurrence of the birth as listed on the birth certificate. Sampled children subsequently identified by state registrars as having died or who had been adopted after the issuance of the birth certificate were excluded from the sample before the 9-month wave was conducted. Also, infants whose birth mothers were younger than 15 years old at the time of the child's birth were excluded in response to state confidentiality and sensitivity concerns.[4]

For more on sampling, see chapter 4 of the *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Preschool Data File User's Manual (2005-06)* (Snow et al. 2007).

[1] The preschool wave of data collection began in late August 2005 and ended in mid-July 2006.
[2] Other Asian/Pacific Islander refers to children whose ethnicity is any Indo-Southeastern Asian or Far Eastern Asian except Chinese children. Chinese children are oversampled separately as the largest component of the Asian/Pacific Islander ethnic group.
[3] The sample design called for the use of the birth certificate records received through the NCHS vital statistics system as the sampling frame to be used for selecting births within selected PSUs. In a few states, state institutional review boards or registrar offices had requirements that placed restrictions on contacting parents based on birth certificate information. In some cases, these restrictions would have resulted in low response rates or even complete nonparticipation. In states that required active consent or that prohibited follow-back research studies, substitution and alternative frames were used. Please see Bethel et al. 2005 for more information.
[4] 0.2 percent of all births in 2001 were to mothers younger than 15 years old at the time of birth.

Data Collection Procedures

The ECLS-B collects information with an in-person computer assisted parent interview,[5] an in-person direct child assessment, a self-administered paper and pencil father questionnaire, a computer assisted early care and education provider telephone interview, and an observation of the early care and education setting. This First Look report presents information from the ECLS-B preschool parent interviews, direct child cognitive assessments, and direct child fine motor assessments.

Preschool Parent Interview

The preschool parent data were collected using a computer-assisted personal interview (CAPI) and a Parent Self-Administered Questionnaire.[6] Parents or guardians were asked to provide information about the sampled child, themselves, the home environment, their parenting attitudes, and family characteristics. Questions regarding family structure, child care use, household income, and community and social support were also included in the parent instrument. The interview was conducted as part of a home visit with the parent and child. The study design called for the child's biological mother to be the respondent for the parent instrument whenever possible; however, the respondent could be a father, stepparent, adoptive parent, foster parent, grandparent, another relative, or nonrelative guardian. The respondent had to be knowledgeable about the child's care and education, 15 years of age or older at the time of the child's birth, and living in the household with the child. About 95 percent of parent interviews were conducted with the child's biological mother. The parent interviews were conducted primarily in English, but provisions were made to interview parents who spoke other languages. Bilingual interviewers were trained to conduct the parent interview in either English or Spanish. A Spanish CAPI instrument was used when needed, as the instrument was programmed in both English and Spanish. An interpreter (recruited from a professional translating agency or from the community) or a household member was used for interviews with families who spoke languages other than English or Spanish.

Preschool Assessment of Children's Language, Literacy, Mathematics, and Color Knowledge

The direct child assessment provides information on children's language, literacy, mathematics, and color knowledge. The language assessment examines children's receptive and expressive language skills. The literacy assessment examines children's letter recognition, letter-sound knowledge, knowledge of the conventions of print, and word recognition. The mathematics assessment examines number sense, counting, operations, geometric shapes, pattern understanding, and estimation. The color assessment examines children's knowledge of basic colors. For more information on how these measures were scored, please see the "Glossary: Constructs and Variables Used in the Analyses" section of this appendix.

The child assessments[7] were administered during the home visit along with the parent interview. Information on children's language, literacy, mathematics, color knowledge, and children's fine motor skills is sensitive to the age at which the children were assessed. Table A-1 presents the percentage distribution of children's age at time of assessment by children's sex, race/ethnicity and socioeconomic status. A higher percentage of children who were assessed when they were older (more than 57 months) compared to children assessed when they were within the target range (48 through 57 months) were

[5] The parent interview is loaded into a computer based interviewing program, and the field interviewer reads the questions to the parent and enters the responses into the computer. The computer program routes the interview through the appropriate question sequence.
[6] The self-administered questionnaire was provided to parents as an audio computer-assisted self-interview (ACASI). Respondents were given earphones, enabling them to listen to the questions and privately enter their responses into the interviewer's laptop.
[7] The preschool round direct child assessment was comprised of four parts: (1) cognitive assessments; (2) socioemotional assessments (a caregiver-child interaction through the Two Bags Task); (3) physical measurements; and (4) fine and gross motor assessments.

Hispanic (39.8 percent versus 24.9 percent) and were from the lowest 20 percent of the SES distribution (25.5 percent versus 19.6 percent).

Table A-1. Percentage distribution of children's age at time of assessment, by child and family characteristics: 2005-06

Characteristic	Less than 48 months (less than 4 years old)	48 through 57 months (4 years old to 4 years, 9 months)	More than 57 months (older than 4 years, 9 months)
Total	100.0	100.0	100.0
Child's sex			
Male	50.3	51.6	50.3
Female	49.7	48.4	49.7
Child's race/ethnicity[1]			
White, non-Hispanic	59.1	54.7	37.2
Black, non-Hispanic	16.1	13.3	14.1
Hispanic	17.8	24.9	39.8
Asian, non-Hispanic	2.0	2.5	4.0
American Indian and Alaska Native, non-Hispanic	#	0.5	0.5
Other, non-Hispanic	4.7	4.1	4.4
Socioeconomic status, preschool round			
Lowest 20 percent	18.7	19.6	25.5
Middle 60 percent	59.1	60.1	60.7
Highest 20 percent	22.2	20.3	13.8

Rounds to zero.

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

NOTE: Standard errors estimated with replicate weights W3R1 through W3R90.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File.

To reduce respondent burden, the direct cognitive assessment was adaptive. That is, not every child received each item. During administration, if certain sets of items proved too difficult (the child did not answer or incorrectly answered a series of questions), the child was routed out of the next more difficult set of items and routed into another area or domain. Item Response Theory (IRT) modeling was employed to estimate children's performance on all of the items in each domain, regardless of whether they were administered the actual item. IRT uses patterns of correct and incorrect answers to obtain estimates on a scale that may be compared for different assessment forms. The two scores presented in this report that are not IRT based are the overall color knowledge scale score and the expressive language score. For more information on the IRT modeling please refer to *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Methodology Report for the Preschool Data Collection (2005-06), Volume I: Psychometrics* (Najarian, Lennon, and Snow 2007).

Home visits were scheduled at times convenient to parents and children (i.e., not during nap, meal, or family time). The total cognitive assessment (language, literacy, and mathematics) averaged about 45 minutes in length. To conduct the child assessments in a home setting, interviewers worked with the parent to find a well-lit, quiet setting, away from sources of noise such as a television or radio, and away from any other distractions, such as the child's toys, family pets, and so forth. The presence of other family members was discouraged whenever possible. Interviewers conducted the child assessments with the child seated at a kitchen or dining room table whenever possible. If the household did not have available table space, these assessments were conducted using a small folding table provided by RTI for this purpose. Interviewers were trained to sit at a 90-degree angle from the child so that they could see the

child's responses when the assessment item involved pointing; this also limited the opportunity for the child to be distracted from the assessment by the computer screen.

Interviewers were trained and certified on the assessments. Certification was designed to assess the interviewers' ability to adhere to the standardized protocol and to correctly score children's responses. An abbreviated assessment computer program was developed specifically for certifications. Selected items from the language, literacy, math, fine motor, and color knowledge assessments were compiled in the certification program. Trainees used a laptop with the certification program and the assessment administration booklet (easel) as they worked through the items. The trainer played the role of the child. For training purposes, trainees said aloud how they scored each item they administered. Trainers were provided with hard-copy instructions on how to conduct the certifications, which itemized different administration and scoring procedures evaluated during trainee certification. To be certified to administer the assessments, each trainee had to earn at least 75 percent of the total score. During the course of data collection, quality control procedures were implemented to verify adherence to the study protocol. Telephone verification interviews with the parent respondents were conducted to confirm the authenticity of the home visit data. In addition, periodic descriptive analyses on the assessment data were conducted to check for any unusual response distributions.

To the extent possible, all children were included in the assessments, including those with special needs. If the child's family spoke a language other than English or Spanish, interviewers used an interpreter recruited through a professional translation agency or a nearby community agency or organization to conduct the home visit. If these options were not available, a family member was asked to interpret. The cognitive portion of the assessment provided information on children's language, literacy, mathematics, and color knowledge. In part, the language assessment was designed to determine whether the child possessed sufficient English skills to understand the basic instructions and premises required to be assessed in English during the literacy, mathematics, and color knowledge components. If the child failed these language items, the child was not administered the literacy, mathematics, and color knowledge items in English. However, the motor assessments and physical measurements still were administered by the interpreter or family member. Interviewers also administered an assessability form to all sample children, with the help of the parent respondent. The assessability form gathered such information as whether or not the child had an IEP/IFSP (Individualized Education Program/Individual Family Service Plan), and if the child did have such a plan, the services being received. Also, the need for special accommodations (such as special adjustments in order to answer questions, point to pictures, follow directions, draw with a pencil, or move around) was identified. Finally, the assessability form documented if the child was wheelchair-bound or would need sign language or Braille to participate in the assessments. Interviewers were trained to make a determination of whether or not a child with special needs could be administered a given assessment item on an individual basis, with the goal of maximizing inclusion to the fullest extent possible. To make informed decisions, interviewers were guided by information obtained on the assessibility form and discussion with parents about assessment items whose administration might be problematic given the child's particular need. Interviewers followed standard administration procedures, but they were allowed to modify the administration of items if necessary to accommodate special needs. For example, parents who used sign language to communicate with a deaf child were encouraged to do so during the course of the motor assessments. If a child could not be fairly assessed for reasons such as severe disabilities, and appropriate administration accommodations were not feasible, the child was excluded from that component of the assessment.[8]

[8] Two percent of children were excluded from the cognitive assessment based on language (lack of English skills). Approximately 0.04 percent were excluded from the cognitive assessment based on a physical limitation. Estimates are weighted by the preschool parent respondent weight (W3R0).

Preschool Fine Motor Skills Assessment

Fine motor skills are intricately linked to perception, which is important to a child's development and well-being. Fine motor skills are those that use the small muscle masses of the body and can include small object manipulation and drawing. Fine motor skills are important from a very young age because children absorb much information through tactile means (Weeks and Ewer-Jones 1991). Poor fine motor skills can also lead to poor performance on commonly used intelligence tests and cause such results to be inaccurate. In the preschool data collection, children's fine motor skills were assessed, in part, by asking the child to draw forms of basic geometric shapes. Children were shown a drawing and asked to make a similar drawing in pencil on a blank page. Children were provided with seven specific forms to draw: a vertical line, a horizontal line, a circle, a square, a cross, a triangle, and an asterisk.

The copy form items were scored as pass/fail by trained coders at RTI.[9] For more information on the properties of the fine motor skills score, please see the "Glossary: Constructs and Variables Used in the Analyses" section of this appendix.

As with the direct cognitive assessment, to the extent possible, all children were included in the direct motor assessments, including those with special needs.

Response Rates

The ECLS-B is a nationally representative sample of the 3.9 million children born in the United States in 2001. For the preschool-year data collection, approximately 9,850 cases with completed 2-year parent interviews, and an additional 50 American Indian/Alaska Native cases (AIAN) with completed 9-month parent interviews, were fielded and considered eligible (approximately 100 children were removed from the sample because they had died or permanently left the country). The information in this report was largely derived from the preschool parent interview and the preschool child assessment. Preschool parent interviews were completed for 8,950 of the 10,700 children who participated in the 9-month collection. The weighted unit response rate for the preschool-year parent interview—calculated as the weighted number of children with completed preschool parent interviews divided by the weighted number of children eligible to participate in the preschool collection—is 91.3 percent. The weighted unit response rate for the preschool child assessment is 98.3 percent, meaning that about 98 percent of the children eligible for the preschool collection have at least some assessment data.

The ECLS-B also collected information from fathers, early care and education providers, and, through an observation, of early care and education settings. Although these data were not presented in this report, the weighted unit response rate for the resident father questionnaire, calculated for cases where a resident father was living in the household with the sampled child, is 87.7 percent. The weighted unit response rate for the early care and education provider (ECEP) interview, calculated for cases in which the child had a regular early care and education arrangement, is 87.4 percent. The weighted unit response rate for the child care observation (CCO), calculated for cases with a complete child care provider interview and sampled for the CCO, is 56.8 percent. All weighted response weights were calculated by using the base weight.

The unit response rate is a round-specific rate in that it indicates the proportion of the eligible sample responding to a survey at a particular time point. For a longitudinal study such as the ECLS-B, it is also useful to calculate a longitudinal response rate, also called an overall unit response rate, which takes into

[9] Reliability estimates for the items coded centrally at RTI were computed as a percentage agreement between coders and a group of standard coders, who coded approximately 5 percent of each coder's cases. Percentage agreement across the seven items ranged from 85 to 94 percent (with the agreement on "circle" being the lowest, at 85 percent).

account response for all rounds of collection. For example, for the 9-month collection, the weighted overall unit response rate was 74.1 percent (after substitution); this rate dropped to 69.0 percent when the 2-year parent data collection was taken into account. Therefore, the preschool overall unit response rate for the ECLS-B indicates the proportion of all eligible cases[10] originally sampled for the 9-month collection that participated at preschool. This rate is 63.1 percent when the preschool parent data collection is included, and drops to 62.0 percent when the preschool child assessment unit response was taken into account. The overall weighted response rate at preschool is 55.3 percent for resident fathers; 55.1 for the ECEP; and 35.8 percent for the CCO.

For more on eligibility requirements, response rates, and efforts to improve survey response, see section 5.6 of the *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Preschool Data File User's Manual (2005-06)* (Snow et al. 2007).

Data Reliability

Estimates produced using data from the ECLS-B are subject to two types of error: nonsampling and sampling 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.

Nonsampling Errors

Nonsampling error is the term used to describe variations in the estimates that may be caused by population coverage limitations, as well as data collection, processing, and reporting procedures. The sources of nonsampling errors are typically problems like unit and item nonresponse, differences in respondents' interpretations of the meaning of the questions, response differences related to the particular time the survey was conducted, and mistakes in data preparation.

In general, it is difficult to identify and estimate either the amount of nonsampling error or the bias caused by this error. In the ECLS-B, efforts were made to prevent such errors from occurring and to compensate for them where possible (e.g., field tests, cognitive laboratory sessions testing items new to the surveys, multi-day interviewer training, certification sessions, and monitoring throughout the collection period of interviewer performance and field data quality).

Another potential source of nonsampling error is respondent bias that occurs when respondents systematically misreport (intentionally or unintentionally) information in a study. One potential source of respondent bias in this survey is social desirability bias. An associated error occurs when respondents give unduly positive assessments about those close to them. For example, parents may give a higher assessment of their children's motor accomplishments (like feeding themselves) than might be obtained from a direct assessment. If there are no systematic differences among specific groups under study in their tendency to give socially desirable or unduly positive responses, then comparisons of the different groups will provide reasonable measures of relative differences among the groups.

A nonresponse bias analysis was conducted to assess the potential bias in the survey estimates due to unit nonresponse[11] for the various components of the survey. Analyses of the weighted estimates versus the sample frame data from the birth certificates indicate the degree to which the adjustments that go into

[10] All 9,850 cases with 2-year parent interview completes and an additional 70 American Indian/Alaska Native with 9-month parent interview completes were fielded and considered eligible for the preschool data collection (with the exception of 10 cases in which the child had died and 80 cases in which the child had moved permanently abroad between the 2-year interview and the preschool wave). All other cases were included in the preschool wave; there was no further sampling of cases, except for the child care observation component.

[11] The unit response rate is a round-specific rate in that it indicates the proportion of the eligible sample responding to a survey at a particular time point.

weighting account for potential nonresponse bias. At 9-months, differences between the full sample birth certificate data (frame characteristics) and weighted respondents was negligible (less than 0.7 percent) for all variables examined (for more information, see Bethel et al. 2005).[12] For the 2-year data collection, analysis of nonresponse bias showed only one difference remaining[13] after the weights were adjusted for nonresponse and undercoverage (for more information, see Nord et al. 2006). For the preschool data collection, analysis of nonresponse bias showed only one difference remaining[14] after the weights were adjusted for nonresponse and undercoverage (for more information, see Snow et al. 2007).

Information in this report uses items from the preschool parent interview and child assessment. Analysis of potential bias due to item nonresponse is typically conducted for those items with less than 85 percent response. None of the items from the preschool parent interview had item response rates less than 85 percent. The child assessment data are not reported out at the item level, so it would be inappropriate to discuss item level nonresponse rates. However, it would be appropriate to consider the unit response rate for the child assessment. The unit response rate for the child assessment was 98.3 percent.

Sampling Errors and Weighting

The sample of children born in the United States in 2001 is just one of many possible samples of births that could have been selected. Therefore, estimates produced from the ECLS-B sample may differ from estimates that would have been produced from other samples. This type of variability is called sampling error because it arises from collecting data on a sample of children, rather than all children, born in 2001.

The standard error is a measure of variability due to sampling when estimating a statistic. Standard errors for estimates presented in this report were computed using a jackknife replication method. Standard errors can be used as a measure of the precision expected from a particular sample. The probability that a sample estimate would differ from the census count by less than 1 standard error is 68 percent. The probability that the difference would be less than 1.65 standard errors is about 90 percent and that the difference would be less than 1.96 standard errors is about 95 percent.

In order to produce national estimates from the ECLS-B, the sample data were weighted. Weighting the data adjusts for unequal selection probabilities, unit nonresponse, and provides estimates that reflect the population under study through raking adjustments. Estimates presented in this report use the preschool data collection parent and/or child respondent weight (W3R0), which is the weight that accounts for the child's probability of selection in the sample, as well as nonresponse to the preschool parent interview.

Replication methods of variance estimation were used to reflect the actual sample design used in the ECLS-B. A form of the jackknife replication method (JK2) using 90 replicate weights was used to compute approximately unbiased estimates of the standard errors of the estimates in the report, using WesVar version 4.0 software. Jackknife methods were used to estimate the precision of the estimates of the reported national percentages, means, and counts.

[12] Variables examined were: age of mother; age of father; mother's education; child's race; birth order; number of prenatal visits; five-minute APGAR score; mother's alcohol use during pregnancy; presence of medical risk factors; presence of complications in labor and delivery; presence of congenital anomalies; birth weight; plurality; population of PMSA/MSA where the mother resided at the time of birth; and census region where the mother resided when interviewed.

[13] Only one variable, the percentage of households with 5 members, showed a difference that remained significant after final 2-year weight adjustments (19.6 versus 19.4 percent in columns (2) and (3), respectively, p-value = 0.044).

[14] Statistically significant differences were examined to see whether they were meaningful in a substantive sense, using the rule that relative differences less than 5 percent are small and likely not meaningful. One variable had relative bias greater than 5 percent. In the race/ethnicity distribution, the percentage of Chinese children showed a percent relative difference of greater than 5 percent. However, the actual difference was only 0.05 percent (in the weighted race/ethnicity distribution, 0.54 percent were classified as Chinese at 9-months; 0.59 percent were classified as Chinese at preschool), suggesting this difference could be considered insubstantial.

Glossary: Constructs and Variables Used in the Analyses

A list of definitions and sources for the variables used in this report is presented below (in order of appearance). Several of the variables were derived by combining information from one or more questions in the ECLS-B parent interview or from other study sources. The names of the source variables as presented on the ECLS-B longitudinal data file are shown within brackets and in all capital letters after the variable description. More information on the derivation of key variables in the ECLS-B longitudinal data file is included in chapter 7 of the *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Preschool Data File User's Manual (2005-06)* (Snow et al. 2007).

- **Child's sex [X3CHSEX].** Information for this composite is taken from the birth certificate. However, child's sex was confirmed in the parent interview. If the parent interview indicated a different sex than the birth certificate, the parent interview information was considered to be most accurate.

- **Child's race/ethnicity [X3CHRACE].** At the 9-month parent interview, respondents indicated whether the child belonged to one or more of 14 race categories: (1) White, (2) Black or African American, (3) American Indian or Alaska Native (AIAN), (4) Asian Indian, (5) Chinese, (6) Filipino, (7) Japanese, (8) Korean, (9) Vietnamese, (10) Other Asian, (11) Native Hawaiian, (12) Guamanian or Chamorro, (13) Samoan, and (14) Other Pacific Islander. Data were collected on Hispanic ethnicity as well; specifically, respondents were asked whether the child was of Hispanic or Latino origin. During the 2-year parent interview, for cases that were identified as being of AIAN descent in the 9-month collection (by either the birth certificate data or during the parent interview), parent interview respondents were asked to confirm the child was of AIAN descent. If the parent interview respondent indicated "no," the case was reclassified as the race/ethnicity specified by the parent interview respondent. Similar procedures were repeated at the preschool round. In this First Look report, the categories for race/ethnicity are as follows: White, non-Hispanic; Black or African American, non-Hispanic; Hispanic; Asian, non-Hispanic; American Indian or Alaska Native, non-Hispanic; and Other, non-Hispanic (Native Hawaiian/other Pacific Islanders and children of more than one race). A child's ethnicity was classified as Hispanic if a parent respondent indicated the child's ethnicity was Hispanic, regardless of the race identified.

- **Plurality [X1MBRTST].** Plurality was based on information on children's birth certificates. The birth certificate data indicated whether a child was a singleton, twin, or higher order (e.g., triplet, quadruplet, quintuplet, or higher).

- **Birth weight [X1BTHWGT].** Birth weight was based on children's weight at the time of their birth as collected on the birth certificate. This particular measure categorized birth weight as: normal (more than 5.5 pounds); moderately low (more than 3.3 to 5.5 pounds); and very low (3.3 pounds or less).

- **Child's age at the time of assessment [X3ASAGE].** The composite variable X3ASAGE was calculated as follows: If the respondent to the parent interview agreed with the child's date of birth as shown on the birth record, then the child's age was calculated by determining the number of days between the date when the child completed the ECLS-B direct child assessment and the date of birth indicated on the birth record. If the child's date of birth on the birth record was determined to be incorrect by the parent respondent, then the child's age was calculated by determining the number of days between the date when the child completed the direct child assessment and the date of birth reported in the parent interview. The total number of days was

then divided by 30 to calculate child's age in months. The date of the direct child assessment came from the following sources in order of priority: (1) the assessment date noted in the Child Activity Booklet; (2) the assessment date on the front cover of the Child Activity Booklet; and (3) the date of the parent interview. If the child assessment was completed during more than one home visit, the child's age was calculated as the average of the age calculated from the first home visit and the age calculated from the last home visit of the preschool data collection. The preschool data collection of the ECLS-B was intended to assess children in the fall of 2005, when the majority of the sample would be about 48 through 57 months of age. However, children were assessed when they were as young as 44 months and as old as 65 months. Tables 3 through 6 present estimates only for those children within the target range of the assessment (48 through 57 months of age).

- **Family type [X3HPARNT].** Information collected in the household roster matrix of the parent interview was used to construct the household composition variable X3HPARNT. For this First Look report, the original categories for X3HPARNT were collapsed as follows:

  - two parent (includes biological mother and biological father OR biological mother and other father [step-, adoptive, foster] OR biological father and other mother [step-, adoptive, foster] OR two adoptive parents OR adoptive parent and stepparent);

  - single parent (includes biological mother only OR biological father only OR single adoptive parent); and

  - other parent type (includes related guardian(s) OR unrelated guardian(s)).

- **Mother's employment status [X3HMEMP].** This variable is computed for the person identified as the mother or mother figure in the household (birth mother, adoptive mother, stepmother, foster mother, or mother figure as specified by the respondent to the parent interview). In the parent interview, information about mother's employment status was collected through a series of questions about whether or not the mother worked for pay, how many hours per week she worked, and, if she was not working, whether she was looking for work or not in the labor force (not working by choice). This First Look report presents information on mother's employment status, at the time of the preschool parent interview, using the following categories: full time, 35 hours or more per week; part time, less than 35 hours per week; looking for work; not in the labor force; or no mother in the household.

- **Socioeconomic status [X3SESQ5].** Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. For technical information on how SES was derived, please see chapter 7 of the *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Preschool Data File User's Manual (2005-06)* (Snow et al. 2007). In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

- **Children's language knowledge and skills [X3RECVOC; X3EXPLNG].** For language, the receptive vocabulary score was calculated using Item Response Theory (IRT) procedures. To reduce burden, children were administered an adaptive test; all children did not receive the same range of items. The IRT-based scores represent estimates of the number of items children would

have answered correctly had they been administered all items. Therefore, the IRT scale scores estimate children's performance on the whole set of items included in the score. The scores are not integers; they consist of probabilities of correct answers, summed over all items in the score. For more information on the IRT modeling, please refer to the *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Methodology Report for the Preschool Data Collection (2005-06), Volume I: Psychometrics* (Najarian, Lennon, and Snow 2007).

- *Children's receptive vocabulary knowledge and skills* [X3RECVOC]. Broadly defined, receptive vocabulary involves a child's ability to demonstrate he/she understands the meaning of words (for instance, asking a child to point to a picture that represents a word spoken by the interviewer). The receptive vocabulary score has a possible range of 0 to 15. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the receptive vocabulary score ranges from 5 to 14 with a standard deviation of 2.
- *Children's expressive language* [X3EXPLNG]. The telling stories subscale for the language domain was adapted from the *PreLAS 2000* (DeAvila 1998). For the ECLS-B preschool assessment, two short stories were read to each child. After each story, the child was asked to retell the story, making reference to a set of pictures provided as prompts. The field interviewers tape-recorded the child's response. Specially trained coders at RTI subsequently scored these responses following the holistic scoring instructions provided for the items. Using the following system, scores have a possible range of 0-5, where 0 = no response, including "I don't know"; 1 = short, isolated phrases, with at least one word in English; 2 = disconnected thoughts, with at least one sentence, many grammar errors; 3 = recognizable story line, limited detail, grammar errors; 4 = a recognizable version of a story in coherent, fluent sentences, and 5 = articulate, detailed sentence, vivid vocabulary, and complex constructions. The composite variable is a mathematical average of the individual scores on the two stories. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the expressive language score ranges from 0 to 5 with a standard deviation of 1.

- **Children's literacy knowledge and skills [X3LITSC; X3PHONO; X3PRINT; X3LTR].** For literacy, the overall scale score and the phonological awareness, conventions of print, and letter recognition scores were calculated using IRT procedures. To reduce burden, children were administered an adaptive test; all children did not receive the same range of items. The IRT-based scores represent estimates of the number of items children would have answered correctly had they been administered all items. Therefore, the IRT scale scores estimate children's performance on the whole set of items included in the score. The scores are not integers; they consist of probabilities of correct answers, summed over all items in the score. The assessments were designed to scale with the kindergarten assessment so that the ECLS-B could potentially offer a common metric for children's preschool and kindergarten literacy knowledge and skills. Therefore, the average score of preschool-aged children may seem low relative to the range of the scale (leaving room to measure developing literacy skills across the year in time for the entering kindergarten assessment). For more information on the IRT modeling please refer to the *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Methodology Report for the Preschool Data Collection (2005-06), Volume I: Psychometrics* (Najarian, Lennon, and Snow 2007).

  - *Children's overall literacy knowledge and skills* [X3LITSC]. Children's overall literacy knowledge and skills include letter recognition, in both receptive and expressive modes; letter sounds; and early reading (e.g., recognition of simple words, phonological awareness, and

knowledge of print conventions). The overall literacy knowledge and skills score has a possible range of 0 to 37. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the overall literacy score ranges from 5 to 35 with a standard deviation of 7.

- *Children's phonological awareness knowledge and skills* [X3PHONO]. Phonological awareness is the understanding of the sounds and structure of spoken language, including rhyming, blending, segmenting, deleting, and substituting words, syllables, and sounds. The phonological awareness score has a possible range of 0 to 8. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the phonological awareness score ranges from 2 to 7 with a standard deviation of 1.
- *Children's conventions of print knowledge and skills* [X3PRINT]. Conventions of print refers to the understanding of what print represents and how it works (e.g., print reads left to right, top to bottom). The conventions of print score has a possible range of 0 to 8. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the conventions of print score ranges from 1 to 7 with standard deviation 1.
- *Children's letter recognition knowledge and skills* [X3LTR]. Letter recognition refers to the ability to identify a letter either by its name or the sound it makes. Unlike the other scores (which reflect specific literacy knowledge and skills that are scaled on a metric reflecting the number of items in the specific content strand) the letter recognition score has a possible range of 0 to 1, expressed as a probability that a child would get the cluster of items correct. For the purpose of this report, these scores are expressed as a percentage (probability score multiplied by 100) and, for example, can be interpreted as the percentage of children who were proficient at recognizing the letters of the alphabet. This score has a possible range of 0 to 100. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the letter recognition score ranges from 2 to 99 with a standard deviation of 26.

- **Children's mathematics knowledge and skills [X3MTHSC; X3NMBR].** For mathematics, both the overall scale score and the number recognition score were calculated using IRT procedures. To reduce burden, children were administered an adaptive test; all children did not receive the same range of items. The IRT-based scores represent estimates of the number of items children would have answered correctly had they been administered all items. Therefore, the IRT scale scores estimate children's performance on the whole set of items included in the score. The scores are not integers; they consist of probabilities of correct answers, summed over all items in the score. For more information on the IRT modeling please refer to the *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Methodology Report for the Preschool Data Collection (2005-06), Volume I: Psychometrics* (Najarian, Lennon, and Snow 2007).

  - *Children's overall mathematics knowledge and skills* [X3MTHSC]. Children's overall mathematics knowledge and skills include number sense, geometry, counting, operations, and patterns. The overall mathematics knowledge and skills score has a possible range of 0 to 44. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the overall mathematics score ranges from 6 to 42 with a standard deviation of 7.

- *Children's number and shape recognition knowledge and skills* [X3NMBR]. Number and shape recognition refers to children's ability to recognize single-digit numbers and basic geometric shapes. Unlike some of the other scores (which reflect specific knowledge and skills that are scaled on a metric reflecting the number of items in the specific content strand), the number and shape recognition score (similar to the letter recognition score) has a possible range of 0 to 1, expressed as a probability that a child would get the cluster of items correct. For the purpose of this report, these scores are expressed as a percentage (probability score multiplied by 100) and, for example, can be interpreted as the percentage of children who were proficient at recognizing single-digit numbers and basic geometric shapes. This score has a possible range of 0 to 100. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the numbers and shapes score ranges from 0 to 100 with a standard deviation of 39.

- **Children's color knowledge [X3COLOR].** The color knowledge scale score is a number right score that ranges from 0 to 10 and reflects children's ability to recognize basic colors. The color knowledge test asked children to name the colors of 5 teddy bears (out of 10 pictured), with each correct answer receiving 2 points. For all of the colors that the child could not initially name, the assessor asked, "Can you find the [blue] bear?" Children received 1 point per correct answer in this receptive mode. For this report, the score was collapsed into three categories: none (a score of 0); some (a score of 1 to 9); and all (a score of 10, meaning the child was able to identify all 5 colors without being prompted to point to a specific color). The color knowledge and skills score has a possible range of 0 to 10. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the color knowledge score ranges from 0 to 10 with a standard deviation of 2.

- **Children's fine motor skills [X3FMFORM].** This report provides information on children's fine motor skill in drawing basic forms and shapes. The child was provided with seven forms to copy: a vertical line, a horizontal line, a circle, a square, a cross, a triangle, and an asterisk. These copy form items were scored as pass/fail. This score has a possible range of 0 to 7. This First Look report largely presents estimates for children 48 through 57 months of age at the time of assessment. For children 48 through 57 months of age at the time of assessment, the fine motor skills score ranges from 0 to 7 with a standard deviation of 2.

- **Child's primary type of nonparental early care and education [X3PRIMNW].** Parents were asked if they currently had regular early care and education arrangements for their child, and, if so, were then asked how many hours per week their child spent in that setting. This composite measure presents information on the type of nonparental care and education in which the child spent the most hours, which is identified as the primary care arrangement. The composite was created by reviewing the number of hours the child spent in each arrangement, and identifying the one where the child spent the most hours. If a child spent equal time in each of two or more types of arrangements, X3PRIMNW is coded as "multiple care arrangements." Children with no regular nonparental care arrangements are coded as "no child care" on X3PRIMNW. For this presentation of primary care, Head Start refers to services received at a public or private school, religious center, or private home, as reported by the parent. "Regular" was defined as arrangements that occurred on a routine schedule (i.e., occurring at least weekly or on some other schedule), not including occasional babysitting or "back-up" arrangements.

Appendix B
Standard Error Tables

Table B-1. Standard errors for table 1: Percentage distribution of children born in 2001, by child and family characteristics: 2005-06

Characteristic	Number of children (thousands)	Percent of population
Total	6.0	#
Child's sex		
Male	4.5	0.11
Female	5.8	0.11
Child's race/ethnicity[1]		
White, non-Hispanic	23.0	0.59
Black, non-Hispanic	10.1	0.26
Hispanic	17.1	0.42
Asian, non-Hispanic	3.7	0.09
American Indian and Alaska Native, non-Hispanic	1.8	0.05
Other, non-Hispanic	11.8	0.30
Plurality[2]		
Singleton	6.3	0.01
Twin	0.2	0.01
Higher order (e.g., triplet)	0.1	#
Birth weight		
Normal birth weight (more than 5.5 pounds)	5.8	0.02
Moderately low birth weight (more than 3.3 to 5.5 pounds)	0.7	0.02
Very low birth weight (3.3 pounds or less)	0.3	0.01
Child's age (in months) at time of assessment		
Less than 48 months (less than 4 years old)	22.3	0.57
48 through 57 months (4 years old to 4 years, 9 months)	23.2	0.57
More than 57 months (older than 4 years, 9 months)	16.4	0.41
Family type, preschool round[3]		
Two parent	21.1	0.52
Single parent	20.1	0.51
Other	5.9	0.15
Mother's employment status, preschool round		
Full time (35 hours or more)	28.2	0.72
Part time (Less than 35 hours)	21.2	0.54
Looking for work	11.8	0.30
Not in labor force	29.9	0.76
No mother in household	4.8	0.12

Rounds to zero.

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in tables 3 through 7.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

NOTE: Standard errors estimated with replicate weights W3R1 through W3R90.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table B-2. Standard errors for table 2: Children's language, literacy, mathematics, color knowledge, and fine motor skills scores, by child's age (in months) at time of assessment and domain: 2005-06

Domain	Less than 48 months (less than 4 years old)	48 through 57 months (4 years old to 4 years, 9 months)	More than 57 months (older than 4 years, 9 months)
Percent of population	0.57	0.57	0.41
Language			
Average receptive vocabulary score	0.08	0.03	0.11
Average expressive language score	0.04	0.02	0.04
Literacy			
Average overall literacy score	0.23	0.14	0.35
Average letter recognition score	0.92	0.55	1.31
Average phonological awareness score	0.03	0.02	0.05
Average conventions of print score	0.05	0.03	0.07
Mathematics			
Average overall mathematics score	0.25	0.15	0.31
Percent of children demonstrating proficiency in numbers and shapes	1.42	0.75	1.20
Color knowledge			
Percent of children who scored 0 out of 0	0.49	0.20	†
Percent of children who scored 1 to 9	1.85	0.81	2.06
Percent of children who scored 10 out of 10	1.89	0.84	2.09
Fine motor skills			
Average fine motor score	0.05	0.02	0.07

† Not applicable.

NOTE: Standard errors estimated with replicate weights W3R1 through W3R90. The receptive vocabulary score has a potential range of 0 to 15; the expressive language score has a potential range of 0 to 5; the overall literacy score has a potential range of 0 to 37; the letter recognition score has a potential range of 0 to 100; both the phonological awareness score and the conventions of print score have a potential range of 0 to 8; the overall mathematics score has a potential range of 0 to 44; the numbers and shapes score has a potential range of 0 to 100; the color knowledge score has a potential range of 0 to 10; and the fine motor skills score has a potential range of 0 to 7.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table B-3. Standard errors for table 3: Average children's language knowledge and skills scores, by child and family characteristics for children 48 through 57 months of age at time of assessment: 2005-06

Characteristic	Language knowledge and skills	
	Average receptive vocabulary score	Average expressive language score
Total	0.03	0.02
Child's sex		
Male	0.04	0.03
Female	0.05	0.02
Child's race/ethnicity[1]		
White, non-Hispanic	0.05	0.03
Black, non-Hispanic	0.08	0.04
Hispanic	0.08	0.04
Asian, non-Hispanic	0.09	0.05
American Indian and Alaska Native, non-Hispanic	0.16	0.09
Other, non-Hispanic	0.12	0.05
Plurality[2]		
Singleton	0.03	0.02
Twin	0.07	0.04
Birth weight		
Normal birth weight (more than 5.5 pounds)	0.03	0.02
Moderately low birth weight (more than 3.3 to 5.5 pounds)	0.08	0.04
Very low birth weight (3.3 pounds or less)	0.07	0.04
Family type, preschool round[3]		
Two parent	0.04	0.02
Single parent	0.06	0.04
Other	0.23	0.12
Socioeconomic status, preschool round[4]		
Lowest 20 percent	0.07	0.04
Middle 60 percent	0.04	0.03
Highest 20 percent	0.07	0.03

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Standard errors estimated with replicate weights W3R1 through W3R90. The receptive vocabulary score has a potential range of 0 to 15. The expressive language score has a potential range of 0 to 5. For children 48 through 57 months of age at the time of assessment, the receptive vocabulary score ranges from 5 to 14 with a standard deviation of 2, and the expressive language score ranges from 0 to 5 with a standard deviation of 1.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table B-4. Standard errors for table 4: Average children's literacy knowledge and skills scores, by child and family characteristics for children 48 through 57 months of age at time of assessment: 2005-06

Characteristic	Literacy knowledge and skills			
	Average overall literacy score	Average letter recognition score	Average phonological awareness score	Average conventions of print score
Total	0.14	0.55	0.02	0.03
Child's sex				
Male	0.18	0.68	0.02	0.03
Female	0.20	0.76	0.03	0.04
Child's race/ethnicity[1]				
White, non-Hispanic	0.21	0.79	0.03	0.04
Black, non-Hispanic	0.31	1.24	0.04	0.06
Hispanic	0.25	1.00	0.03	0.05
Asian, non-Hispanic	0.38	1.48	0.05	0.07
American Indian and Alaska Native, non-Hispanic	0.62	2.42	0.08	0.12
Other, non-Hispanic	0.50	1.85	0.07	0.10
Plurality[2]				
Singleton	0.15	0.57	0.02	0.03
Twin	0.37	1.44	0.05	0.07
Birth weight				
Normal birth weight (more than 5.5 pounds)	0.15	0.58	0.02	0.03
Moderately low birth weight (more than 3.3 to 5.5 pounds)	0.29	1.12	0.04	0.06
Very low birth weight (3.3 pounds or less)	0.23	0.89	0.03	0.05
Family type, preschool round[3]				
Two parent	0.16	0.61	0.02	0.03
Single parent	0.23	0.89	0.03	0.04
Other	0.61	2.41	0.08	0.11
Socioeconomic status, preschool round[4]				
Lowest 20 percent	0.20	0.78	0.03	0.04
Middle 60 percent	0.14	0.55	0.02	0.03
Highest 20 percent	0.28	1.06	0.04	0.05

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Standard errors estimated with replicate weights W3R1 through W3R90. The overall literacy score has a potential range of 0 to 37; the letter recognition score has a potential range of 0 to 100; and both the phonological awareness score and the conventions of print score have a potential range of 0 to 8. For children 48 through 57 months of age at the time of assessment, the overall literacy score ranges from 5 to 35 with a standard deviation of 7; the letter recognition score ranges from 2 to 99 with a standard deviation of 26; the phonological awareness score ranges from 2 to 7 with a standard deviation of 1; the conventions of print score ranges from 1 to 7 with standard deviation 1.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table B-5. Standard errors for table 5: Average children's mathematics knowledge and skills scores, by child and family characteristics for children 48 through 57 months of age at time of assessment: 2005-06

Characteristic	Mathematics knowledge and skills	
	Average overall mathematics score	Percent of children demonstrating proficiency in numbers and shapes
Total	0.15	0.75
Child's sex		
Male	0.19	1.00
Female	0.18	0.93
Child's race/ethnicity[1]		
White, non-Hispanic	0.21	0.99
Black, non-Hispanic	0.34	1.85
Hispanic	0.27	1.48
Asian, non-Hispanic	0.32	1.52
American Indian and Alaska Native, non-Hispanic	0.83	3.33
Other, non-Hispanic	0.55	2.65
Plurality[2]		
Singleton	0.16	0.78
Twin	0.30	1.64
Birth weight		
Normal birth weight (more than 5.5 pounds)	0.16	0.80
Moderately low birth weight (more than 3.3 to 5.5 pounds)	0.27	1.53
Very low birth weight (3.3 pounds or less)	0.24	1.40
Family type, preschool round[3]		
Two parent	0.16	0.80
Single parent	0.27	1.42
Other	0.92	5.62
Socioeconomic status, preschool round[4]		
Lowest 20 percent	0.29	1.73
Middle 60 percent	0.17	0.94
Highest 20 percent	0.22	0.95

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Standard errors estimated with replicate weights W3R1 through W3R90. The overall mathematics score has a potential range of 0 to 44, and the numbers and shapes score has a potential range of 0 to 100. For children 48 through 57 months of age at the time of assessment, the overall mathematics score ranges from 6 to 42 with a standard deviation of 7, and the numbers and shapes score ranges from 0 to 100 with a standard deviation of 39.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table B-6. Standard errors for table 6: Percentage distribution of children's knowledge of colors and children's average fine motor skills score, by child and family characteristics for children 48 through 57 months of age at time of assessment: 2005-06

Characteristic	Percentage distribution of children's knowledge of colors			Average fine motor skills scale score
	0	1 to 9	10	
Total	0.20	0.81	0.84	0.02
Child's sex				
Male	0.30	1.08	1.11	0.04
Female	0.24	1.28	1.29	0.04
Child's race/ethnicity[1]				
White, non-Hispanic	0.19	1.12	1.11	0.03
Black, non-Hispanic	0.75	2.50	2.44	0.06
Hispanic	0.43	1.78	1.79	0.06
Asian, non-Hispanic	0.85	2.12	2.36	0.09
American Indian and Alaska Native, non-Hispanic	1.72	4.36	3.83	0.18
Other, non-Hispanic	1.06	2.92	2.92	0.11
Plurality[2]				
Singleton	0.20	0.84	0.87	0.03
Twin	0.53	1.88	1.84	0.06
Birth weight				
Normal birth weight (more than 5.5 pounds)	0.21	0.87	0.89	0.03
Moderately low birth weight (more than 3.3 to 5.5 pounds)	0.61	2.09	2.07	0.06
Very low birth weight (3.3 pounds or less)	0.90	2.21	2.02	0.07
Family type, preschool round[3]				
Two parent	0.18	1.02	1.00	0.03
Single parent	0.57	1.90	1.97	0.05
Other	1.73	8.11	8.07	0.16
Socioeconomic status, preschool round[4]				
Lowest 20 percent	0.72	2.00	2.14	0.06
Middle 60 percent	0.21	1.07	1.06	0.03
Highest 20 percent	†	1.46	1.50	0.05

† Not applicable.

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Standard errors estimated with replicate weights W3R1 through W3R90. The color knowledge score has a potential range of 0 to 10, and the fine motor skills score has a potential range of 0 to 7. For children 48 through 57 months of age at the time of assessment, the color knowledge score ranges from 0 to 10 with a standard deviation of 2, and the fine motor skills score ranges from 0 to 7 with a standard deviation of 2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).

Table B-7. Standard errors for table 7: Percentage distribution of children participating in regular nonparental early care and education, by primary type of arrangement and child and family characteristics: 2005-06

Characteristic	Home-based		Center-based		Multiple arrange-ments	No regular non-parental arrange-ment
	Relative care	Non-relative care	Center-based, non-Head Start	Head Start		
Total	0.61	0.32	0.71	0.64	0.21	0.65
Child's sex						
Male	0.79	0.51	1.02	0.80	0.33	0.80
Female	0.86	0.52	0.91	0.74	0.20	0.90
Child's race/ethnicity[1]						
White, non-Hispanic	0.74	0.49	1.00	0.61	0.28	0.98
Black, non-Hispanic	1.49	0.73	1.87	1.97	0.66	1.37
Hispanic	1.14	0.78	1.65	1.22	0.29	1.37
Asian, non-Hispanic	1.41	0.67	2.16	0.90	1.05	1.75
American Indian and Alaska Native, non-Hispanic	2.07	1.46	5.63	4.72	0.95	2.41
Other, non-Hispanic	2.29	2.02	3.14	2.19	0.81	2.03
Plurality[2]						
Singleton	0.63	0.34	0.72	0.66	0.21	0.67
Twin	0.90	1.06	1.80	1.44	0.50	1.28
Birth weight						
Normal birth weight (more than 5.5 pounds)	0.63	0.35	0.76	0.68	0.22	0.69
Moderately low birth weight (more than 3.3 to 5.5 pounds)	1.06	0.78	1.51	1.16	0.44	1.50
Very low birth weight (3.3 pounds or less)	1.39	0.78	1.98	1.30	0.51	1.46
Family type, preschool round[3]						
Two parent	0.61	0.38	0.85	0.60	0.21	0.75
Single parent	1.50	0.69	1.50	1.60	0.52	0.97
Other	4.87	1.57	5.29	4.92	1.10	4.70
Socioeconomic status, preschool round[4]						
Lowest 20 percent	1.34	0.68	1.46	1.56	0.57	1.27
Middle 60 percent	0.81	0.49	0.91	0.81	0.23	0.88
Highest 20 percent	0.73	0.90	1.42	0.23	0.42	0.93
Mother's employment status, preschool round						
Full time (35 hours or more)	1.01	0.71	1.05	0.94	0.31	0.73
Part time (Less than 35 hours)	1.30	1.04	1.91	1.10	0.56	1.06
Looking for work	2.15	0.94	3.01	2.88	0.83	2.55
Not in labor force	0.52	0.26	1.27	0.97	0.30	1.31
No mother in household	7.05	4.19	6.56	5.29	2.78	4.50

[1]Black, non-Hispanic includes African American. Hispanic includes Latino. Other, non-Hispanic includes Native Hawaiian/other Pacific Islanders and children of more than one race.

[2]Plurality is divided into singletons (one baby), twins (two babies), and higher order births (three or more babies). Since higher order births comprise about 0.2 percent of the ECLS-B sample, estimates for higher order births are not presented in this table.

[3]Two parent includes biological mother and biological father; biological mother and other father; biological father and other mother; and two adoptive parents. Single parent refers to biological mother only; biological father only; and single adoptive parent. Other refers to related and/or unrelated guardians.

[4]Socioeconomic status (SES) is a measure of social standing. This SES variable reflects the socioeconomic status of the household at the time of the preschool parent interview, in 2005. The components used to create the measure of SES were as follows: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income. In this report, SES was collapsed first into quintiles, then into a 20 percent/60 percent/20 percent distribution by collapsing the middle three quintiles.

NOTE: Standard errors estimated with replicate weights W3R1 through W3R90. Primary care refers to the arrangement where the child spent the most hours. If a child spent equal time in each of two or more types of arrangements, primary care was coded as "multiple care arrangements." Children with no regular nonparental early care and education arrangement were coded as "no arrangement." For this presentation of primary care, Head Start refers to services received at a public or private school, religious center, or private home, as reported by the parent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), Longitudinal 9-Month–Preschool Restricted-Use Data File (NCES 2008-024).