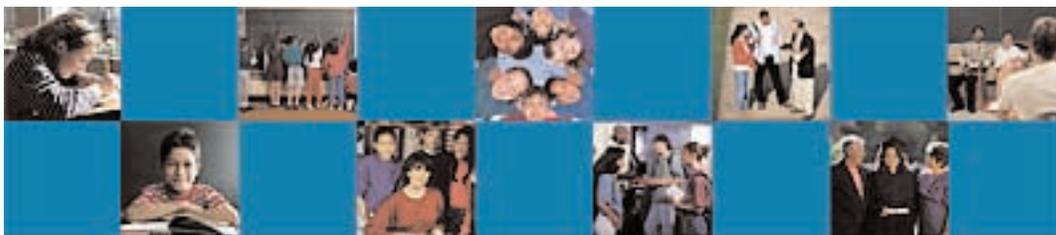


# the condition of education 2001



## INDICATOR 9

# Children's Skills and Proficiency in Reading and Mathematics Through 1st Grade

The indicator and corresponding tables are taken directly from *The Condition of Education 2001*. Therefore, the page numbers may not be sequential.

Additional information about the survey data and supplementary notes can be found in the full report. For a copy of *The Condition of Education 2001*, visit the NCES web site (<http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2001072>) or contact ED PUBs at 1-877-4ED-PUBS.

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## NATIONAL CENTER FOR EDUCATION STATISTICS

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U.S. Department of Education  
Office of Educational Research and Improvement

# Early Childhood Outcomes

## Children’s Skills and Proficiency in Reading and Mathematics Through 1<sup>st</sup> Grade

*Young children gain important reading and mathematics skills during the kindergarten and 1<sup>st</sup>-grade years.*

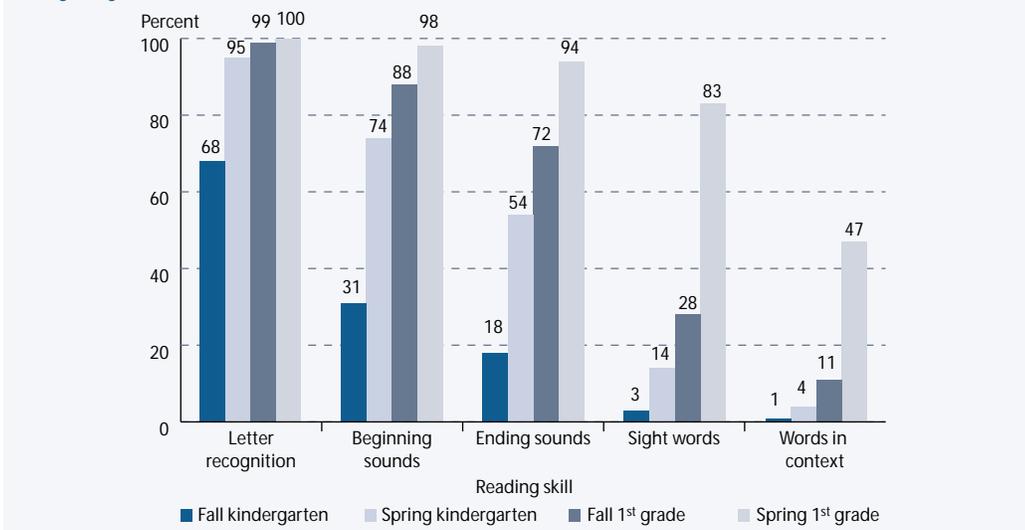
The proficiency children demonstrate in reading and mathematics is vital to their learning experiences. In kindergarten, children develop literacy skills such as recognizing letters and understanding the letter-sound relationship at the beginning and ending of words. At kindergarten entry, 31 percent understood the letter-sound relationship at the beginning of words, and 18 percent at the end of words, compared with 74 and 54, respectively, by the end of kindergarten (see supplemental table 9-1). In kindergarten, children learn to recognize numbers, compare objects (e.g., which one is longer), and understand the sequence of numbers (e.g., 2, 4, 6...). At kindergarten entry, 59 percent understood relative size, and 22 percent ordinality and sequence, compared with 88 and 59, respectively, by the end of the year (see supplemental table 9-2).

In 1<sup>st</sup>-grade reading, children typically learn to read words by sight and understand words in context. At the beginning of 1<sup>st</sup>-grade, 28 percent read words by sight, increasing to 83 percent by the end of the year. At 1<sup>st</sup>-grade entry, 11 percent understood words in context (i.e. reading and understanding sentences), and at the end of the year, 47 percent did so (see supplemental table 9-1). In 1<sup>st</sup>-grade mathematics,

children acquire addition, subtraction, multiplication and division skills. As children entered 1<sup>st</sup> grade, 37 percent were proficient in addition and subtraction, and by the end of the year, 76 percent had become proficient. Seven percent could multiply and divide upon entry, and by the end of 1<sup>st</sup> grade, 27 percent had attained these skills (see supplemental table 9-2).

Children acquire specific reading and mathematics knowledge and skills at different times in their early years of schooling. In reading, the gap in basic kindergarten-related reading skills (i.e., letter recognition) decreased for at-risk kindergartners (whose mothers have less than a high school diploma) but widened in the more complex skills (i.e., reading sight words). A similar phenomenon occurred in 1<sup>st</sup> grade (i.e., reading ending sounds versus words in context) (see supplemental table 9-1). Consequently, in both kindergarten and 1<sup>st</sup> grade, the gap in basic skills (i.e., skills associated with the grade level) between children at risk and more advantaged children narrowed, but it widened in more complex skills (i.e., skills associated with the next grade level). A similar pattern emerged in mathematics (see supplemental table 9-2).

**EARLY PROFICIENCY IN READING: Percentage of children with specific reading skills and proficiency from kindergarten through 1<sup>st</sup> grade: 1998–2000**



NOTE: Based on those assessed in English for all rounds (excludes 19 percent of Asian/Pacific Islander and 31 percent of Hispanic children). Based on children who entered kindergarten for the first time in fall 1998.

SOURCE: U.S. Department of Education, NCES. Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) Public-use file.

FOR MORE INFORMATION:

Supplemental Notes 1, 8

Supplemental Tables 9-1, 9-2

NCES 2001–023, NCES 2000–070, NCES 2000–062, Indicators 11, 12



## Children's Skills and Proficiency in Reading and Mathematics Through 1<sup>st</sup> Grade

**Table 9-1** Percentage of children demonstrating specific reading knowledge and skills from kindergarten through 1<sup>st</sup> grade, by mother's education: 1998–2000

Mother's education	Letter recognition					Beginning sounds					Ending sounds				
	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain
	Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring		Fall	Spring			
<b>Total</b>	68	95	99	100	32	31	74	88	98	67	18	54	72	94	76
Less than high school	42	87	96	99	57	11	54	76	94	83	4	33	51	87	83
High school diploma or equivalent	60	93	98	100	40	22	68	84	97	75	11	47	65	93	82
Some college, including vocational/technical	70	96	99	100	30	31	76	90	99	68	17	56	74	96	79
Bachelor's degree or higher	85	99	99	100	15	50	87	96	99	49	32	71	85	98	66
Difference <sup>1</sup>	-43	-12	-3	-1	42	-39	-33	-20	-5	34	-28	-38	-34	-11	17

Mother's education	Sight words					Words in context				
	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain
	Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring	
<b>Total</b>	3	14	28	83	80	1	4	11	47	46
Less than high school	( <sup>2</sup> )	4	9	64	64	( <sup>2</sup> )	1	2	25	25
High school diploma or equivalent	1	9	21	78	77	( <sup>2</sup> )	3	6	40	40
Some college, including vocational/technical	2	14	28	85	83	1	4	10	48	47
Bachelor's degree or higher	5	24	42	93	88	2	9	19	64	62
Difference <sup>1</sup>	-5	-20	-33	-29	-24	-2	-8	-17	-39	-37

<sup>1</sup>Difference is calculated as the difference between the scores of children whose mother has less than a high school diploma and children whose mother has a bachelor's degree or higher.

<sup>2</sup>Value less than 0.5 percent.

NOTE: Based on those assessed in English for all rounds (excludes 19 percent of Asian/Pacific Islander and 31 percent of Hispanic children). Based on children who entered kindergarten for the first time in fall 1998. The total gain is calculated as the difference from fall kindergarten to spring 1<sup>st</sup> grade. See *Supplemental Note 8* for more information on the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K).

SOURCE: U.S. Department of Education, NCES. Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) Public-use file.

## Children's Skills and Proficiency in Reading and Mathematics Through 1<sup>st</sup> Grade

**Table 9-2** Percentage of children demonstrating specific mathematics knowledge and skills from kindergarten through 1<sup>st</sup> grade, by mother's education: 1998–2000

Mother's education	Number and shape					Relative size					Ordinality and sequence				
	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain
	Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring	
Total	95	99	100	100	5	59	88	95	99	40	22	59	79	96	74
Less than high school	86	98	99	100	14	34	75	88	97	63	7	36	57	89	82
High school diploma or equivalent	93	99	100	100	7	51	85	93	99	48	15	51	72	94	79
Some college, including vocational/technical	95	99	100	100	5	61	90	96	99	38	22	61	81	97	75
Bachelor's degree or higher	99	100	100	100	1	78	96	99	100	22	39	77	91	99	60
Difference <sup>1</sup>	-13	-2	-1	0	13	-44	-21	-11	-3	41	-32	-41	-34	-10	22

Mother's education	Addition and subtraction					Multiplication and division				
	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain
	Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring	
Total	4	19	37	76	72	( <sup>2</sup> )	2	7	27	27
Less than high school	1	7	17	58	57	( <sup>2</sup> )	1	2	11	11
High school diploma or equivalent	2	13	27	70	68	( <sup>2</sup> )	1	4	20	20
Some college, including vocational/technical	4	18	37	78	74	( <sup>2</sup> )	2	6	26	26
Bachelor's degree or higher	9	32	55	88	79	1	5	16	44	43
Difference <sup>1</sup>	-8	-25	-38	-30	-22	-1	-4	-14	-33	-32

<sup>1</sup>Difference is calculated as the difference between the scores of children whose mother has less than a high school diploma and children whose mother has a bachelor's degree or higher.

<sup>2</sup>Value less than 0.5 percent.

NOTE: Based on those assessed in English for all rounds (excludes 19 percent of Asian/Pacific Islander and 31 percent of Hispanic children). Based on children who entered kindergarten for the first time in fall 1998. The total gain is calculated as the difference from fall kindergarten to spring 1<sup>st</sup> grade. See *Supplemental Note 8* for more information on the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K).

SOURCE: U.S. Department of Education, NCES. Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) Public-use file.

## Children's Skills and Proficiency in Reading and Mathematics Through 1<sup>st</sup> Grade

Table S9 Standard errors for the percentage of children with specific reading skills and proficiency from kindergarten through 1<sup>st</sup> grade: 1998–2000

Reading skill	Kindergarten		1 <sup>st</sup> grade	
	Fall	Spring	Fall	Spring
Letter recognition	0.7	0.3	0.2	0.1
Beginning sounds	0.8	0.8	0.8	0.1
Ending sounds	0.5	0.9	1.2	0.3
Sight words	0.1	0.5	1.3	0.6
Words in context	0.1	0.2	0.7	0.8

SOURCE: U.S. Department of Education, NCES. Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) Public-use file.

# Children’s Skills and Proficiency in Reading and Mathematics Through 1<sup>st</sup> Grade

**Table S9-1** Standard errors for the percentage of children demonstrating specific reading knowledge and skills from kindergarten through 1<sup>st</sup> grade, by mother’s education: 1998–2000

Mother’s education	Letter recognition					Beginning sounds					Ending sounds				
	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain
	Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring	
Total	0.7	0.3	0.2	0.1	0.7	0.8	0.8	0.8	0.1	0.8	0.5	0.9	1.2	0.3	0.6
Less than high school	1.6	1.2	0.8	0.2	1.6	0.8	1.6	2.0	0.6	1.0	0.5	1.3	2.4	0.9	1.0
High school diploma or equivalent	1.1	0.6	0.4	0.1	1.1	0.9	1.1	1.1	0.2	0.9	0.6	1.0	1.4	0.4	0.7
Some college, including vocational/technical	0.9	0.3	0.2	0.0	0.9	0.9	0.9	1.0	0.1	0.9	0.6	0.9	1.5	0.2	0.6
Bachelor’s degree or higher	0.7	0.2	0.1	0.0	0.7	1.0	0.6	0.5	0.1	1.0	0.8	0.9	1.1	0.1	0.8
Difference	1.7	1.2	0.8	0.2	1.8	1.3	1.7	2.1	0.6	1.4	0.9	1.6	2.6	0.9	1.3

Mother’s education	Sight words					Words in context				
	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain
	Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring	
Total	0.1	0.5	1.3	0.6	0.6	0.1	0.2	0.7	0.9	0.9
Less than high school	0.1	0.3	1.4	1.7	1.7	0.0	0.1	0.5	1.4	1.4
High school diploma or equivalent	0.2	0.5	1.3	0.9	0.9	0.1	0.2	0.7	1.0	1.0
Some college, including vocational/technical	0.2	0.6	1.5	0.6	0.6	0.1	0.3	0.8	0.9	0.9
Bachelor’s degree or higher	0.4	0.9	2.4	0.5	0.6	0.2	0.5	1.8	1.1	1.1
Difference	0.4	0.9	2.8	1.8	1.8	0.2	0.5	1.9	1.8	1.8

SOURCE: U.S. Department of Education, NCES. Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) Public-use file.

## Children's Skills and Proficiency in Reading and Mathematics Through 1<sup>st</sup> Grade

**Table S9-2** Standard errors for the percentage of children demonstrating specific mathematics knowledge and skills from kindergarten through 1<sup>st</sup> grade, by mother's education: 1998–2000

Mother's education	Number and shape					Relative size					Ordinality and sequence				
	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain
	Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring		Fall	Spring			
Total	0.3	0.1	0.0	0.0	0.3	0.7	0.5	0.4	0.1	0.7	0.6	0.8	1.2	0.3	0.7
Less than high school	0.9	0.3	0.3	0.1	0.9	1.3	1.3	1.5	0.3	1.3	0.6	1.5	2.8	0.8	1.0
High school diploma or equivalent	0.5	0.1	0.1	0.0	0.5	0.9	0.8	0.6	0.2	0.9	0.6	1.0	1.4	0.5	0.8
Some college, including vocational/technical	0.3	0.1	0.0	0.0	0.3	0.7	0.5	0.4	0.1	0.7	0.7	0.8	1.2	0.3	0.8
Bachelor's degree or higher	0.1	0	0	0	0.1	0.8	0.3	0.2	0	0.8	0.9	0.8	0.9	0.2	0.9
Difference	0.9	0.3	0.3	0.1	0.9	1.5	1.3	1.5	0.3	1.6	1.1	1.7	2.9	0.8	1.4

Mother's education	Addition and subtraction					Multiplication and division				
	Kindergarten		1 <sup>st</sup> grade		Total gain	Kindergarten		1 <sup>st</sup> grade		Total gain
	Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring	
Total	0.2	0.5	1.3	0.7	0.7	0.0	0.1	0.6	0.8	0.8
Less than high school	0.1	0.6	1.9	1.6	1.6	0.0	0.2	0.6	0.9	0.9
High school diploma or equivalent	0.2	0.5	1.3	0.8	0.8	0.0	0.1	0.4	0.7	0.7
Some college, including vocational/technical	0.2	0.5	1.3	0.7	0.7	0.1	0.2	0.5	0.8	0.8
Bachelor's degree or higher	0.5	0.9	1.5	0.6	0.8	0.1	0.3	1.2	1.1	1.1
Difference	0.5	1.1	2.4	1.7	1.8	0.1	0.4	1.3	1.4	1.4

SOURCE: U.S. Department of Education, NCES. Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) Public-use file.