

Kindergartners' Approaches to Learning Behaviors and Academic Outcomes

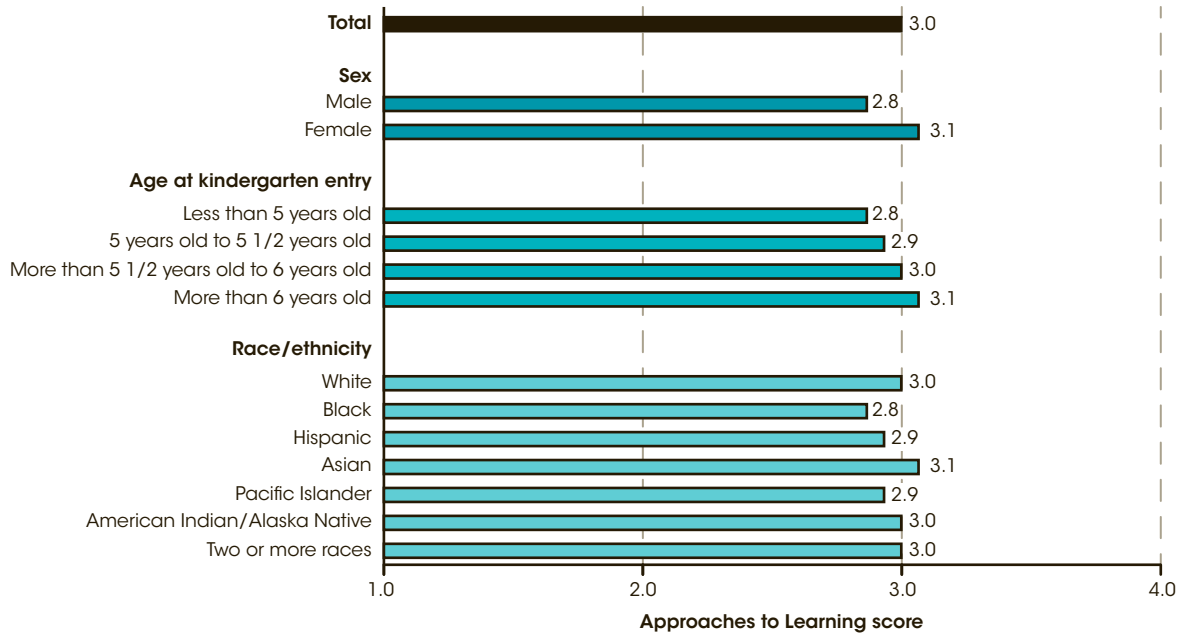
In the fall of 2010, about 26 percent of first-time kindergartners were rated by their teachers as demonstrating positive approaches to learning behaviors "very often," 47 percent were rated as demonstrating these behaviors "often," 25 percent were rated as demonstrating them "sometimes," and 1 percent were rated as "never" demonstrating them. Fall kindergarten Approaches to Learning scores were positively associated with reading, mathematics, and science scores in kindergarten and first grade.

At kindergarten entry, children differ not only in their cognitive knowledge and skills but also in their approaches to learning behaviors. In elementary school, positive approaches to learning include behaviors such as paying attention in class, completing tasks independently, organizing materials, and following classroom rules. Differences in children's approaches to learning behaviors have been observed by teachers in the beginning of kindergarten.¹ Research suggests that children who demonstrate positive approaches to learning behaviors have stronger academic skills, on average, in kindergarten and first grade.²

In the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), teachers of kindergarten students reported on how students rate in seven approaches to learning behaviors: paying attention,

persisting in completing tasks, showing eagerness to learn new things, working independently, adapting easily to changes in routine, keeping belongings organized, and following classroom rules. Teachers assigned a rating of 1 (never), 2 (sometimes), 3 (often), or 4 (very often) for each of the seven items during the fall kindergarten round of the ECLS-K:2011. Following data collection, an average of the seven ratings was calculated to represent each child's fall kindergarten Approaches to Learning rating. This Spotlight describes differences in kindergartners' Approaches to Learning ratings in the beginning of their kindergarten year (fall 2010), with respect to characteristics of the children and their families. It also explores associations between children's initial Approaches to Learning category and their reading, mathematics, and science scores in kindergarten (fall 2010 and spring 2011) and first grade (spring 2012).³

Figure 1. Average Approaches to Learning scores of first-time kindergartners, by sex, age at kindergarten entry, and race/ethnicity: Fall 2010



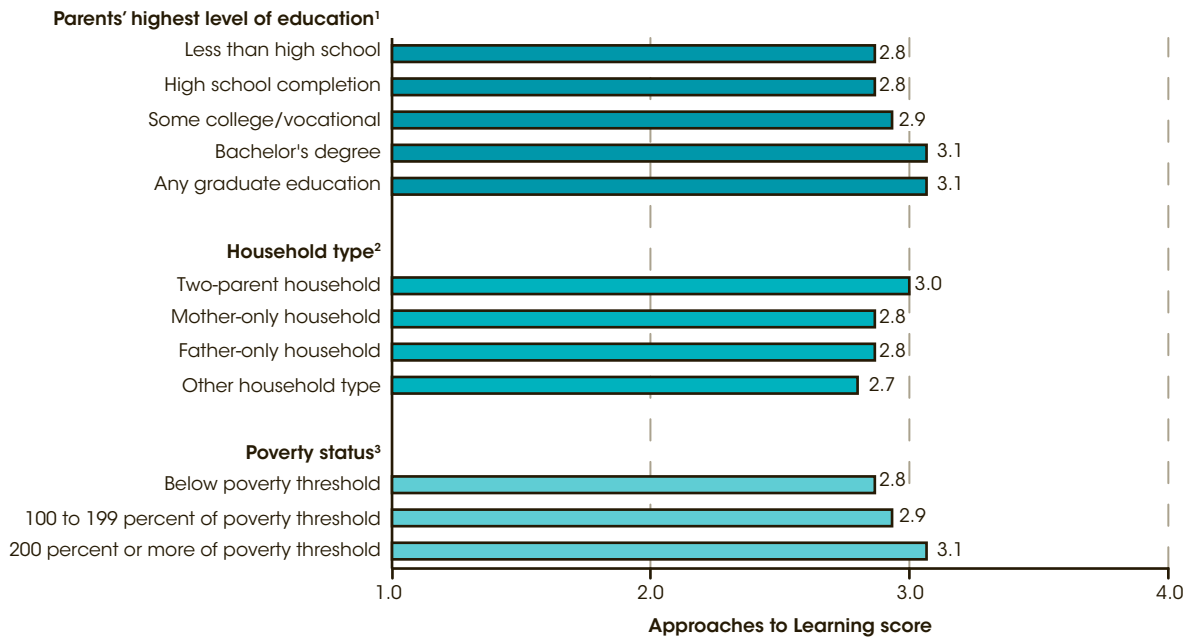
NOTE: The Approaches to Learning scale is based on teachers' reports on how students rate in seven areas: attentiveness, task persistence, eagerness to learn, learning independence, flexibility, organization, and ability to follow classroom rules. Possible scores on the scale range from 1 to 4, with higher scores indicating that a child exhibits positive learning behaviors more often. Following data collection, an average of the seven ratings was calculated to represent each child's fall kindergarten Approaches to Learning rating. Although rounded numbers are displayed, the figures are based on unrounded estimates. Race categories exclude persons of Hispanic ethnicity.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), Kindergarten-First Grade Restricted-Use Data File. See *Digest of Education Statistics 2014*, table 220.45.

In the fall 2010 kindergarten data collection, the average Approaches to Learning rating for first-time kindergartners was 3.0. Teachers gave higher ratings, on average, to female than to male kindergartners on the Approaches to Learning scale (3.1 vs. 2.8). Kindergartners who were over 5½ years old when they entered kindergarten received higher ratings than younger kindergartners. For example, the average ratings for kindergartners who were more than 6 years old at kindergarten entry (3.1) and those who were 5½ to

6 years old (3.0) were higher than the ratings for those who were less than 5 years old (2.8) and those who were 5 to 5½ years old at kindergarten entry (2.9). Average Approaches to Learning ratings were higher for Asian (3.1) and White kindergartners (3.0) than for Black (2.8) and Hispanic kindergartners (2.9). Hispanic kindergartners, American Indian/Alaska Native kindergartners (3.0), and kindergartners of Two or more races (3.0) also had higher ratings than Black kindergartners.

Figure 2. Average Approaches to Learning scores of first-time kindergartners, by parents' highest level of education, household type, and poverty status: Fall 2010



¹Parents' highest level of education is the highest level of education achieved by either of the parents or guardians in a two-parent household, by the only parent in a single-parent household, or by any guardian in a household with no parents.

²Two parents may refer to two biological parents, two adoptive parents, or one biological/adoptive parent and one other parent/partner. Single parent refers to one biological or adoptive parent only. Other household type refers to households without parents, in which the guardian or guardians may be related or unrelated to the child.

³Poverty status is based on preliminary U.S. Census income thresholds for 2010, which identify incomes determined to meet household needs, given family size and composition. For example, a family of three with one child was below the poverty threshold if its income was less than \$17,552 in 2010.

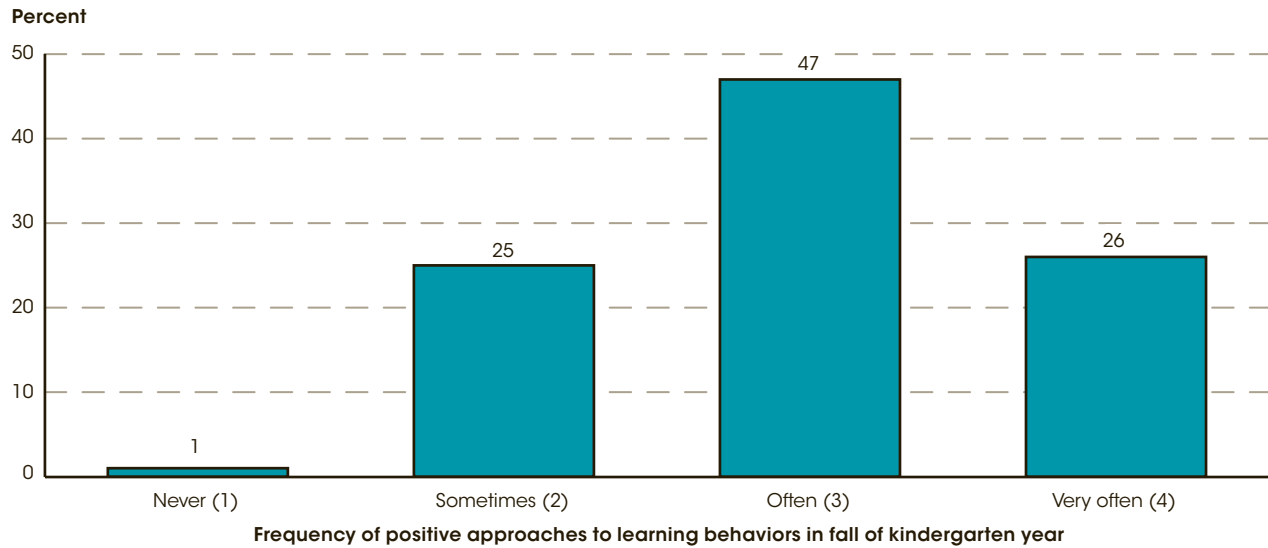
NOTE: The Approaches to Learning scale is based on teachers' reports on how students rate in seven areas: attentiveness, task persistence, eagerness to learn, learning independence, flexibility, organization, and ability to follow classroom rules. Possible scores on the scale range from 1 to 4, with higher scores indicating that a child exhibits positive learning behaviors more often. Following data collection, an average of the seven ratings was calculated to represent each child's fall kindergarten Approaches to Learning rating. Although rounded numbers are displayed, the figures are based on unrounded estimates.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), Kindergarten-First Grade Restricted-Use Data File. See *Digest of Education Statistics 2014*, table 220.45.

In the fall of kindergarten, first-time kindergartners whose parents' highest level of education was a bachelor's degree or any graduate education received higher Approaches to Learning ratings (both at 3.1), on average, than kindergartners whose parents had some college or vocational training (2.9), students whose parents completed high school (2.8), and students whose parents had completed less than high school (2.8). Kindergartners from two-parent households were rated

higher (3.0) than their peers from single-parent, mother- or father-only households (2.8) or other household types (2.7). With respect to household poverty status, the average Approaches to Learning rating was highest for kindergartners in households with incomes at or above 200 percent of the federal poverty level (3.1) and lowest for those in households with incomes below the federal poverty level (2.8).

Figure 3. Percentage distribution of first-time kindergartners, by frequency of positive approaches to learning behaviors in fall of kindergarten year: Fall 2010



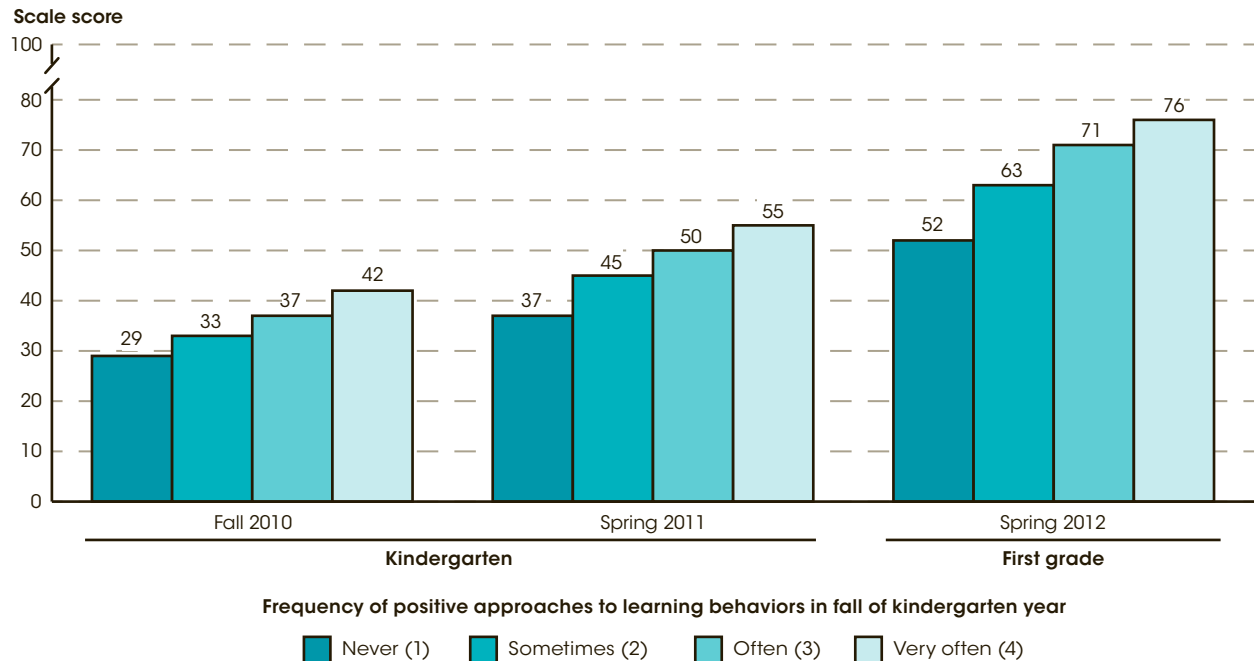
NOTE: The Approaches to Learning scale is based on teachers' reports on how students rate in seven areas: attentiveness, task persistence, eagerness to learn, learning independence, flexibility, organization, and ability to follow classroom rules. Possible scores on the scale range from 1 to 4, with higher scores indicating that a child exhibits positive learning behaviors more often. Fall Approaches to Learning scores were categorized into the anchor points on the original scale by rounding the mean score to the nearest whole number. Details may not sum to total because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), Kindergarten-First Grade Restricted-Use Data File. See *Digest of Education Statistics 2014*, table 220.40.

For the remaining sections of the Spotlight discussion, kindergartners' mean ratings on the Approaches to Learning scale in the fall of kindergarten were rounded to the nearest whole number so that students could be grouped into the original categories represented by the 4-point scale. For example, a student with an average rating of 2.4 would be categorized into the "sometimes" (value of 2) group. Overall, 26 percent of first-time

kindergartners were rated by their teachers in the fall of kindergarten as demonstrating positive approaches to learning behaviors "very often" (average rating of 4), 47 percent were rated as demonstrating them "often" (average rating of 3), 25 percent were rated as demonstrating them "sometimes" (average rating of 2), and 1 percent were rated as "never" (average rating of 1) demonstrating positive approaches to learning behaviors.

Figure 4. Average reading scale scores of fall 2010 first-time kindergartners, by frequency of positive approaches to learning behaviors in fall of kindergarten year: Fall 2010, spring 2011, and spring 2012

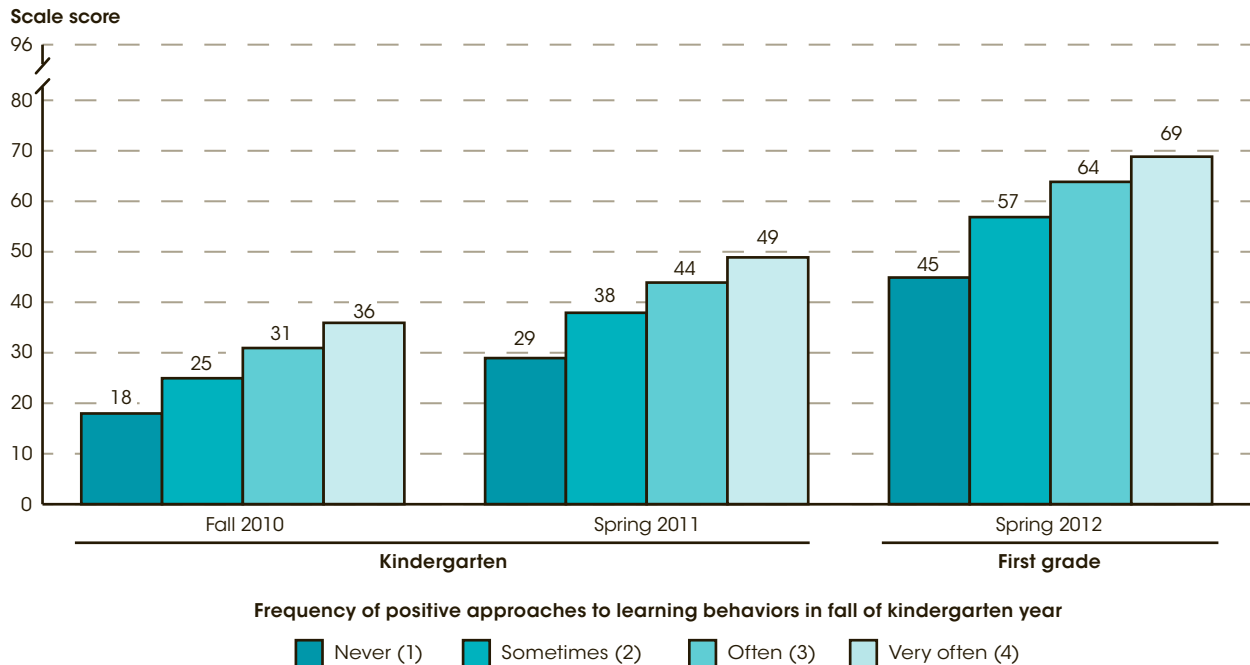


NOTE: The reading assessments reflect performance on questions measuring basic skills (print familiarity, letter recognition, beginning and ending sounds, rhyming words, and word recognition); vocabulary knowledge; and reading comprehension, including identifying information specifically stated in text (e.g., definitions, facts, and supporting details), making complex inferences from text, and considering the text objectively and judging its appropriateness and quality. Possible scores for the reading assessments range from 0 to 100. Frequency of positive approaches to learning behaviors is derived from kindergartners' fall 2010 Approaches to Learning scale scores. The Approaches to Learning scale is based on teachers' reports on how students rate in seven areas: attentiveness, task persistence, eagerness to learn, learning independence, flexibility, organization, and ability to follow classroom rules. Possible scores on the Approaches to Learning scale range from 1 to 4, with higher scores indicating that a child exhibits positive learning behaviors more often. Fall Approaches to Learning scores were categorized into the anchor points on the original scale by rounding the average score to the nearest whole number. SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), Kindergarten-First Grade Restricted-Use Data File. See *Digest of Education Statistics 2014*, table 220.40.

First-time kindergartners' average Approaches to Learning rating categories in the fall of kindergarten were positively associated with their reading and mathematics scores in kindergarten and first grade. In both subjects, students who received an average rating of "never" on the Approaches to Learning scale in the fall of kindergarten had the lowest scores at each time period, and those who had an average rating of "very often" in the fall of kindergarten had the highest reading and mathematics

scores. For example, students who were rated as "never" demonstrating positive approaches to learning behaviors by teachers in the fall of kindergarten had an average spring first-grade reading score of 52 points, compared with an average score of 63 points for those with a rating of "sometimes," 71 points for those with a rating of "often," and 76 points for those with a rating of "very often."

Figure 5. Average mathematics scale scores of fall 2010 first-time kindergartners, by frequency of positive approaches to learning behaviors in fall of kindergarten year: Fall 2010, spring 2011, and spring 2012



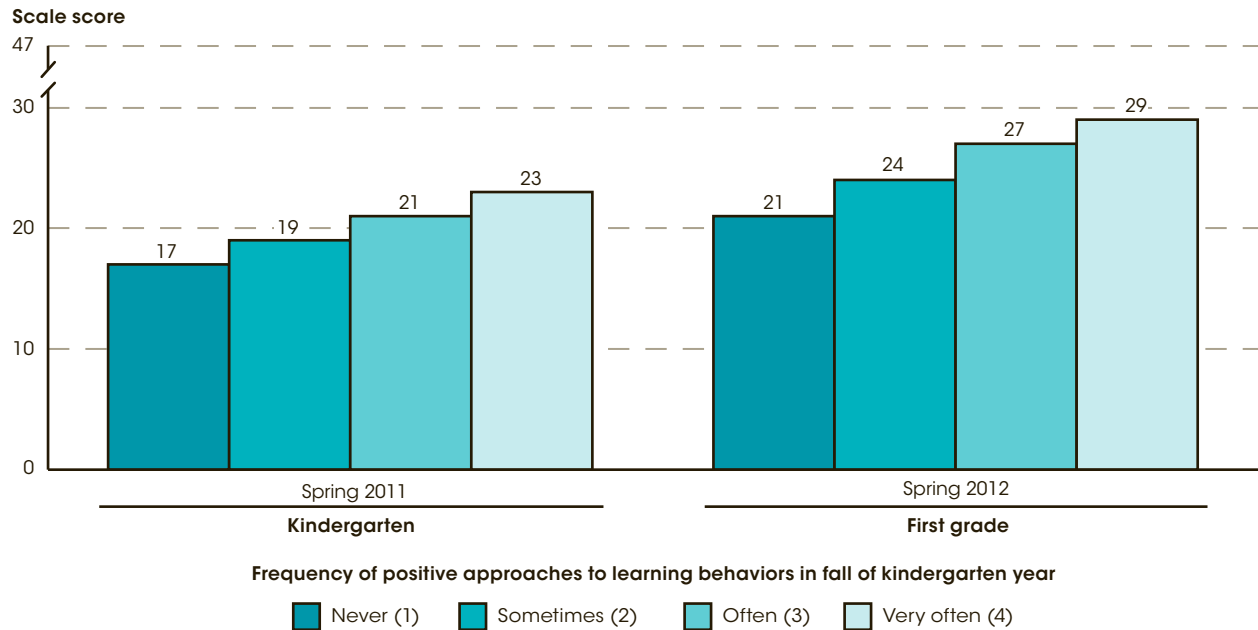
NOTE: The mathematics assessments reflect performance on questions on number sense, properties, and operations; measurement; geometry and spatial sense; data analysis, statistics, and probability (measured with a set of simple questions assessing children’s ability to read a graph); and prealgebra skills such as identification of patterns. Possible scores for the mathematics assessments range from 0 to 96. Frequency of positive approaches to learning behaviors is derived from kindergartners’ fall 2010 Approaches to Learning scale scores. The Approaches to Learning scale is based on teachers’ reports on how students rate in seven areas: attentiveness, task persistence, eagerness to learn, learning independence, flexibility, organization, and ability to follow classroom rules. Possible scores on the Approaches to Learning scale range from 1 to 4, with higher scores indicating that a child exhibits positive learning behaviors more often. Fall Approaches to Learning scores were categorized into the anchor points on the original scale by rounding the average score to the nearest whole number.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), Kindergarten-First Grade Restricted-Use Data File. See *Digest of Education Statistics 2014*, table 220.40.

First-time kindergartners who received an average Approaches to Learning rating of “never” in the fall of kindergarten not only scored the lowest on the reading and mathematics assessments at each time point, but they also had not yet caught up by the next round of data collection to the performance at the prior assessment time of their peers who had received a rating of “very often” in the fall of kindergarten. For example, the average fall

kindergarten mathematics scores for students with average Approaches to Learning ratings in the fall of kindergarten of “often” (31 points) or “very often” (36 points) were higher than the average spring kindergarten mathematics score (i.e., the score at the end of the kindergarten year) for students with an average Approaches to Learning rating of “never” in the fall of kindergarten (29 points).

Figure 6. Average science scale scores of fall 2010 first-time kindergartners, by frequency of positive approaches to learning behaviors in fall of kindergarten year: Spring 2011 and spring 2012



NOTE: Science was not assessed in the fall of kindergarten. The science assessments reflect performance on questions on physical sciences, life sciences, environmental sciences, and scientific inquiry. Possible scores for the science assessments range from 0 to 47. Frequency of positive approaches to learning behaviors is derived from kindergartners' fall 2010 Approaches to Learning scale scores. The Approaches to Learning scale is based on teachers' reports on how students rate in seven areas: attentiveness, task persistence, eagerness to learn, learning independence, flexibility, organization, and ability to follow classroom rules. Possible scores on the Approaches to Learning scale range from 1 to 4, with higher scores indicating that a child exhibits positive learning behaviors more often. Fall Approaches to Learning scores were categorized into the anchor points on the original scale by rounding the average score to the nearest whole number.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), Kindergarten-First Grade Restricted-Use Data File. See *Digest of Education Statistics 2014*, table 220.40.

Patterns of performance in science were consistent with those observed in reading and mathematics. First-time kindergartners who received an average Approaches to Learning rating of “never” in the fall of kindergarten had the lowest science scores in the spring of kindergarten (17 points) and in the spring of first grade (21 points), and those receiving a rating of “very often” in the fall of kindergarten had the highest scores in the spring of

kindergarten (23 points) and in the spring of first grade (29 points).⁴ In addition, the average spring kindergarten science score for students with a “very often” Approaches to Learning rating in the fall of kindergarten (23 points) was higher than the average spring first-grade science score (i.e., the score at the end of the following school year) for those students with an average rating of “never” in the fall of kindergarten (21 points).

Endnotes:

¹ Zill, N., and West, J. (2001). *Entering Kindergarten: A Portrait of American Children When They Begin School: Findings From the Condition of Education 2000* (NCES 2001-035). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington, DC.

² Entwisle, D.R., and Alexander, K.L. (1998). *Facilitating the Transition to First Grade: The Nature of Transition*

and Research on Factors Affecting It. *The Elementary School Journal*, 98(4): 351-364.

³ Fall 2011 first-grade scores are excluded from the Spotlight discussion because data were only collected from a subsample of ECLS-K:2011 students at that time period.

⁴ Science was not assessed in the fall of kindergarten.

Reference tables: *Digest of Education Statistics 2014*, tables 220.40 and 220.45

Related indicators: Preprimary Enrollment (indicator 7), Kindergarten Entry Status: On-Time, Delayed-Entry, and Repeating Kindergartners [*The Condition of Education 2013 Spotlight*]

Glossary: Educational attainment, Poverty, Racial/ethnic group