

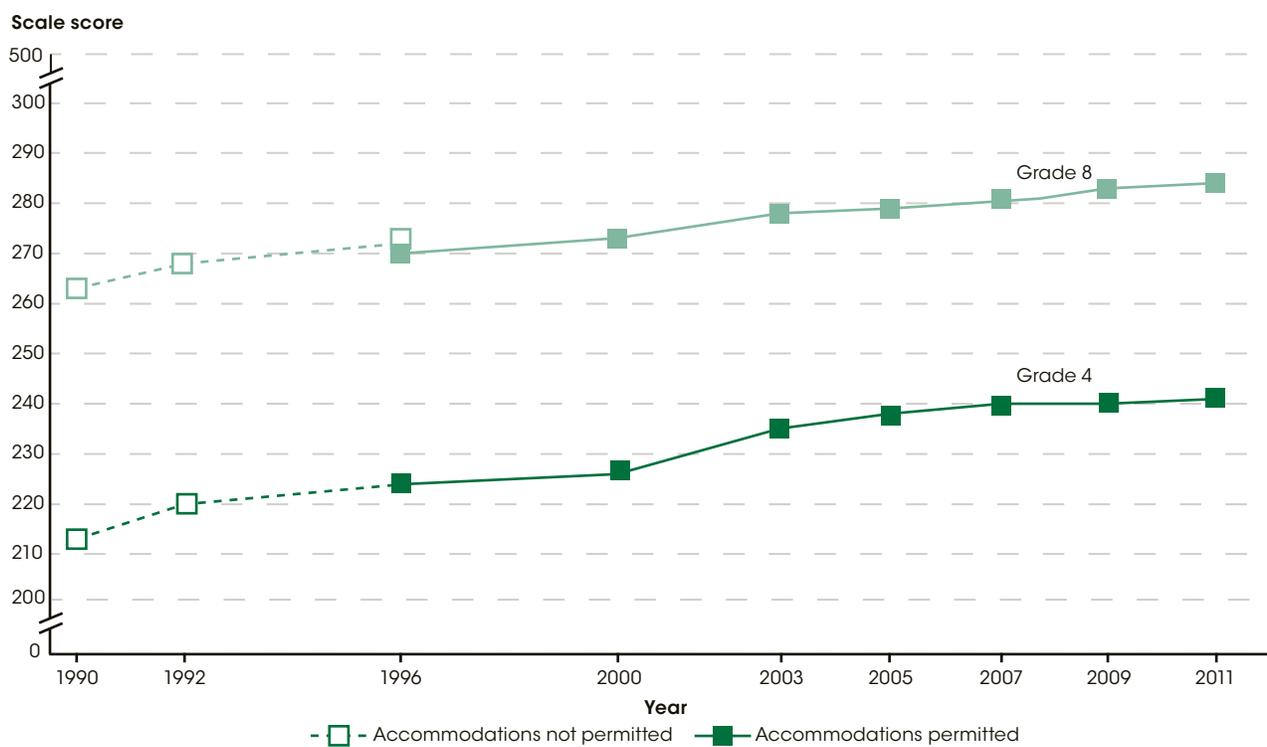
# Mathematics Performance

*At grades 4 and 8, the average mathematics scores in 2011 were higher than the average scores for those grades in all previous assessment years.*

The National Assessment of Educational Progress (NAEP) assesses student performance in mathematics at grades 4, 8, and 12. NAEP mathematics scores range from 0 to 500 for grades 4 and 8. The framework for the 12th-grade mathematics assessment was revised in 2005; as a result, the 2005 and 2009 results cannot be compared with those from previous years. At grade 12, mathematics scores on the revised assessment range from 0 to 300.

NAEP achievement levels define what students should know and be able to do: *Basic* indicates partial mastery of fundamental skills; *Proficient* indicates demonstrated competency over challenging subject matter; and *Advanced* indicates superior performance. This indicator presents data on NAEP mathematics achievement levels. The most recent mathematics assessment data were collected at grades 4 and 8 in 2011 and at grade 12 in 2009.

**Figure 1. Average mathematics scale scores of 4th- and 8th-grade students: Selected years, 1990–2011**



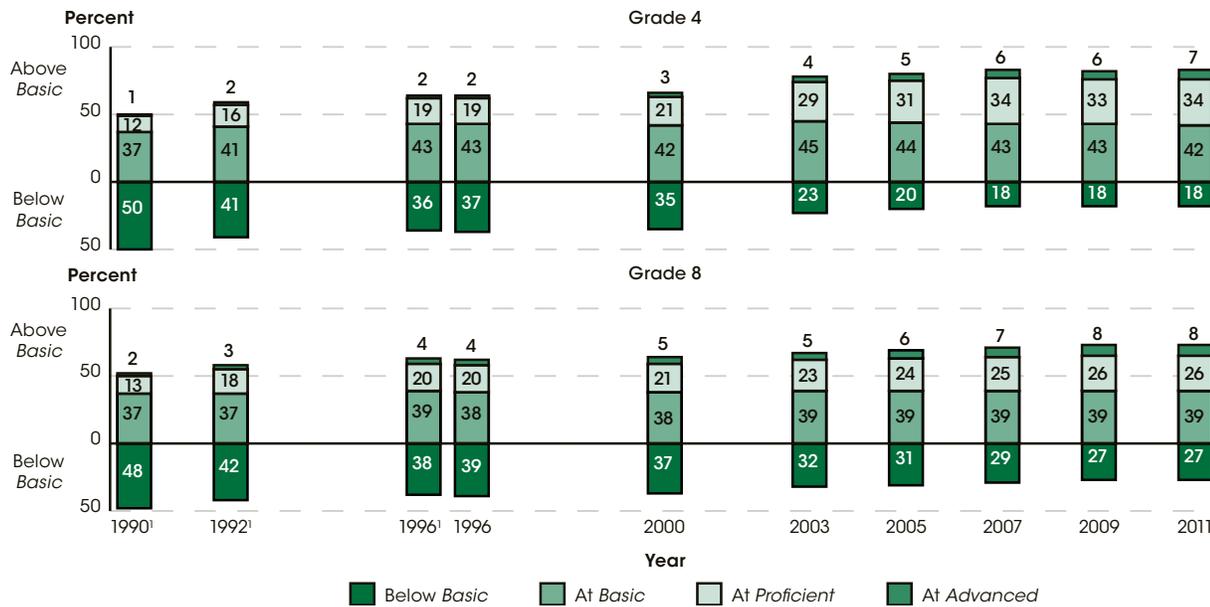
NOTE: At grades 4 and 8, the National Assessment of Educational Progress (NAEP) mathematics scale ranges from 0 to 500. Testing accommodations (e.g., extended time, small group testing) for children with disabilities and English language learners were not permitted in 1990 and 1992; students were tested with and without accommodations in 1996.  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1990–2011 Mathematics Assessments, NAEP Data Explorer. See *Digest of Education Statistics 2012*, table 160.

In 2011, the average NAEP mathematics scores for 4th-grade and 8th-grade students were higher than their average scores in all previous assessment years. From 1990 to 2011, the average 4th-grade NAEP mathematics score increased by 28 points, from 213 to 241. During that same period, the average 8th-grade score increased

by 21 points, from 263 to 284. Twelfth-graders were most recently assessed in 2009; in that year, the average 12th-grade mathematics score was 3 points higher than in 2005, the first year that the revised assessment was administered.

For more information, see the Reader’s Guide and the Guide to Sources.

**Figure 2. Percentage distribution of 4th- and 8th-grade students across National Assessment of Educational Progress (NAEP) mathematics achievement levels: Selected years, 1990–2011**



<sup>1</sup> Testing accommodations (e.g., extended time, small group testing) for children with disabilities and English language learners were not permitted during these assessments. Students were tested with and without accommodations in 1996.

NOTE: Achievement levels define what students should know and be able to do: *Basic* indicates partial mastery of fundamental skills; *Proficient* indicates demonstrated competency over challenging subject matter; and *Advanced* indicates superior performance. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1990–2011 Mathematics Assessments, NAEP Data Explorer. See *Digest of Education Statistics 2012*, table 161.

In 2011, some 82 percent of 4th-grade students performed at or above the *Basic* achievement level, 40 percent performed at or above the *Proficient* level, and 7 percent performed at the *Advanced* level. While the percentage of students at or above the *Basic* level in 2011 was not measurably different from that in 2009 or 2007 (both 82 percent), it was higher than the percentage in 1990 (50 percent). Higher percentages of 4th-grade students performed at or above *Proficient* and at *Advanced* in 2011 than in all previous assessment years. In 2011, some 73 percent of 8th-grade students performed at or above *Basic*, 35 percent performed at or above *Proficient*, and 8 percent performed at *Advanced*. The percentage of 8th-grade students performing at or above *Proficient* increased by 1 percentage point from 2009 to 2011. The percentages at or above *Basic* and at *Advanced* in 2011 showed no measurable change from 2009, but were higher than the percentages in all assessment years prior to 2009. The percentages of 12th-grade students performing at or above *Basic* (64 percent) and at or above *Proficient* (26 percent) were each 3 percentage points higher in 2009 than in 2005. The percentages performing at the *Advanced* level in 2005 and 2009 were not measurably different (2 and 3 percent, respectively).

At grade 4, the average mathematics scores in 2011 for White (249), Black (224), and Hispanic students (229) were higher than their scores in both 2009 and 1990. The 2011 score for Asian/Pacific Islander 4th-graders

(256) was not measurably different from the 2009 score (255), but was higher than the score in 1990. At grade 8, the average mathematics score for Hispanic students was 4 points higher in 2011 (270) than in 2009 (266), but the scores for White, Black, and Asian/Pacific Islander students did not measurably change. The 2011 scores for these four groups were, however, higher than their scores in 1990. The 2011 score for American Indian/Alaska Native 8th-grade students was not measurably different from their score in 2009. At grade 12, average mathematics scores were higher in 2009 than in 2005 for all racial/ethnic groups. For example, the average score for Asian/Pacific Islander 12th-grade students increased by 13 points, and the average score for American Indian/Alaska Native students increased by 10 points.

NAEP results also permit state-level comparisons of the mathematics achievement of 4th- and 8th-grade students in public schools. The average mathematics scores for 4th-grade public school students increased from 2009 to 2011 in eight states (Alabama, Arizona, Georgia, Hawaii, Maryland, New Mexico, Rhode Island, and Wyoming) and the District of Columbia and decreased in New York. At grade 8, scores were higher in 2011 than in 2009 in 12 states (Arkansas, Colorado, Hawaii, Maine, Mississippi, Nevada, New Mexico, Ohio, Oklahoma, Rhode Island, Texas, and West Virginia) and the District of Columbia. The average 8th-grade score in Missouri decreased.

**Reference tables:** *Digest of Education Statistics 2012*, tables 160, 161, 164, 165

**Glossary:** Achievement levels