

National Assessment of Educational Progress
2011 Reading and Mathematics
Report Card

Commissioner's Statement
National Center for Education Statistics

Today I am releasing the results of the 2011 reading and mathematics assessments from the National Assessment of Educational Progress—the Nation's Report Card. This assessment was given earlier this year to fourth- and eighth-grade students across the country. Today's results are for the nation and the states. We also assessed reading and mathematics in 21 large urban districts around the country and those results will be released soon. In addition, we assessed writing at grades 8 and 12 in 2011 and science at grade 8 and will have the results from those assessments in 2012.

The reading and mathematics assessments were administered in early 2011. We had very large samples for the two assessments, with a total of about 422,000 fourth-graders and 343,000 eighth-graders.

We have results for the nation for both public and private school students. At the state level, we have public school results only, for all 50 states, along with the District of Columbia and the Department of Defense school system, which are treated as states for comparison purposes.

We report student performance in two ways: scale scores and achievement levels.

NAEP scale scores indicate what students know and can do, and are reported on a scale ranging from zero to five hundred for mathematics and reading.

Achievement levels were developed by the National Assessment Governing Board. They set standards for what students should know and be able to do. For each subject and for each grade, the Governing Board has established standards for *Basic*, *Proficient*, and *Advanced* performance. Ultimately, the goal is to have all students performing at or above the *Proficient* level.

When comparing scores and other NAEP results we only discuss differences that are statistically significant. For the most part, we will compare students' performance in 2011 with scores from the last assessment in 2009, and the earliest assessment, whose date can vary by assessment according to both assessment and grade.

Demographics

In addition to scores, the reports also have information regarding how much the demographic distributions of students have changed since 1990, when the first in the current series of NAEP mathematics assessments was administered. White students constituted 75 percent of grade 4 students in 1990. Twenty-one years later, they constitute 54 percent of the whole. The percentage of Black students has declined as well, though not nearly as much, while the percentages of Hispanic and Asian students have increased dramatically. America's student population looks very different today than it did 21 years ago.

More recently, there has been another demographic change—an increase in the percentage of grade 4 students coming from lower-income families, as measured by eligibility for free or reduced-price school lunches under the National School Lunch Program. Since 2003, the eligible percentage has grown from 40 to 49 percent. For grade 8, the changes are similar.

Mathematics

Students were assessed in five mathematical content areas: number properties and operations; measurement; geometry; data analysis, statistics and probability; and algebra. These content areas were established by the NAEP Mathematics Framework developed by the National Assessment Governing Board. We have separate scores for each content area, which we combine to create an overall mathematics score.

The grade 4 assessment included a greater proportion of questions in the Number Properties and Measurement content areas, while at grade 8 there was more emphasis on other areas, Algebra in particular. This reflects the general pattern of instruction at the two grades.

Grade 4 Results

At grade 4, the average score of 241 was the highest to date. Scores have risen 28 points since 1990, and 1 point since 2009.

Student performance by percentile shows us the improvement of scores over time for lower-, middle-, and higher-performing students. Scores have increased since 1990 for students at the five percentiles that represent these levels of performance: 10th, 25th, 50th, 75th, and 90th percentiles. Since 2009, scores increased for all students except those at the 10th percentile..

In terms of the three achievement levels, percentages of students who performed at or above *Proficient* and at *Advanced* were higher in 2011 than in any previous assessment. Percentages at or above *Basic* were higher than in 1990, but not higher than in 2009.

Beginning in 2011, NAEP is using a revised list of categories for race/ethnicity, developed for the federal government by the Office of Management and Budget. The old “Asian/Pacific Islander” category is being split into two categories: “Asian” and “Native Hawaiian/Other Pacific Islander.” We will continue to use the old category when making comparisons to assessments prior to 2011. In addition, a new category, “Two or more races,” includes students who were previously described as “Unclassified.”

Asian students account for about 5 percent of the total fourth-grade student population, while Native Hawaiian/Other Pacific Islander students constitute less than a half a percent. Students of two or more races constitute about 2 percent of all fourth-graders.

The average score for Asian fourth-graders—257—was higher than the score for any other group in 2011.

--Score Gaps

In 2011, both White and Black students at grade 4 had the highest scores to date. The 25-point gap between these groups in 2011 was narrower than the 32-point gap in 1990, but not significantly different from the 26-point gap in 2009.

In 2011, the score for Hispanic fourth-graders was also higher than in any previous mathematics assessment. The 20-point gap for 2011 was not significantly different from the 20-point gap in 1990 or the 21-point gap in 2009.

The full report has complete gap information for both grades and subjects.

--State Performance, 2009-2011

Several states’ scores changed from 2009 to 2011. Fourth graders in nine states had higher mathematics scores than in 2009—Rhode Island, Maryland, the District of Columbia, Alabama, Georgia, New Mexico, Arizona, Wyoming, and Hawaii. Average scores declined in one state, New York. In the remaining 42 states, scores were not significantly different from 2009.

Grade 8 Results

At grade 8, the average score of 284 was the highest to date. Scores have risen 21 points since 1990, and 1 point since 2009.

Looking at student performance by percentile, we see that scores have increased since 1990 for students at all five percentiles. Since 2009, scores increased for students at the 25th and 50th percentiles.

Percentages of students who performed at or above *Proficient* were higher in 2011 than in any previous assessment year, rising from 15 percent in 1990 to 35 percent in 2011. Percentages at or above *Basic* and at *Advanced* were higher than in 1990, but not significantly different from 2009.

--Score Gaps

In 2011, the score for Hispanic eighth-graders was higher than in any previous mathematics assessment. The 23-point gap for 2011 was not significantly different from the 24-point gap in 1990, but it was narrower than the 26-point gap in 2009. There was no significant change in the White-Black score gap. There was a 1-point male-female gap in 2011, in favor of male students. Scores for both male and female students were higher in 2011 than in 1990, but only female students showed an increase over 2009.

--State Performance, 2009-2011

In 2011, eighth-graders in 13 states had higher mathematics scores than in 2009. In Rhode Island, the District of Columbia, New Mexico, and Hawaii, scores were also higher at grade 4. Average scores declined in Missouri. In the remaining 38 states and jurisdictions, scores were not significantly different than in 2009.

--Coursetaking

We asked eighth-grade students taking the NAEP mathematics assessment to name the mathematics course they are currently taking. In 2011, 34 percent of students reported taking an algebra 1 course, while 23 percent reported they took introduction to algebra or pre-algebra, and 25 percent said they took basic or general eighth-grade math. The average score of those who took algebra 1 was 25 points higher than the score of those who said they were taking basic or general eighth-grade math.

When comparing mathematics coursetaking according to race/ethnicity, 45 percent of Asian students said they were taking algebra 1, compared to 13 percent who said they were taking basic math. In contrast, about the same percentages of Black students said they were taking algebra 1 and basic math, and the same was true for Hispanic students.

Reading

In the 2011 reading assessment, students were asked to read both literary and informational texts. The two types were given equal weight at grade 4, while at grade 8 the balance was shifted in favor of informational texts.

Students answered questions based on these texts that reflected three distinct reading processes—the kinds of thinking that underlie reading comprehension. After reading each passage, students were asked to locate and recall, to integrate and interpret, or to critique and evaluate. At grade 4, locate and recall received more emphasis than critique and evaluate, while at grade 8 the reverse was true.

Grade 4 Results

At grade 4, the average score of 221 was no higher than in 2009 but 4 points higher than in 1992. The results for student performance by percentile show no increase since 2009 for any of the five percentiles. Scores have increased since 1992 for all five percentiles.

Achievement level results show the same pattern as scale scores—no increases since 2009 for any group, but increases since the first assessment year for all groups. The percentage at *Advanced* has risen by 2 percentage points since 1992, by 5 points for those at or above *Proficient*, and also by 5 points for those at or above *Basic*.

--Score Gaps

In 1992, White students scored 8 points higher than Asian/Pacific Islander students. In 2011, Asian/Pacific Islander students scored 4 points higher than White students, reversing the gap.

In 2011, scores for students eligible for free lunches, eligible for reduced-price lunches, and not eligible for the National School Lunch Program were all higher than in any previous year, going back to 2003. Average scores for all three groups were higher in 2011 than in 2009 as well, even though the overall grade 4 score for this period did not change. This is because a higher percentage of students were in the lower-performing eligible groups in 2011 than in 2009, and although the scores for these students increased, they were too low to allow the overall average score to increase.

--State Performance, 2009-2011

State performance results for grade 4 reading show that in 2011, fourth-graders in four states — Massachusetts, Maryland, Alabama, and Hawaii—had higher reading scores than in 2009. Average scores declined in two states, South Dakota and Missouri. In the remaining 46 states and jurisdictions, scores were not significantly different from those in 2009.

Students were asked how often they read for fun on their own time. Forty-six percent said they read for fun almost every day, and these students scored higher on average than students who read for fun less frequently.

The percentages of students reading for fun almost every day were analyzed by gender, race/ethnicity, and family income. Over half of female students—53 percent—reported that they read almost every day compared with 39 percent of male students. Asian students were more likely to say they read almost every day than students in the other racial/ethnic groups, 54 percent compared with 46 percent or less of other groups. Finally, 44 percent of students eligible for free or reduced-price lunches reported reading for fun every day compared with 47 percent of non-eligible students.

Grade 8 Results

At grade 8, the average score of 265 was higher than in both 2009 and 1992. Scores rose 5 points since 1992 and 1 point since 2009.

The results for student performance by percentile show that scores have increased since 1992 for students at all but the 90th percentile and since 2009 for students at the 90th, 75th, and 10th percentiles. Since 1992, scores increased more for students at the 10th and 25th percentiles than for those at the 75th.

Achievement level results show that the percentage of students at or above *Proficient* was higher in 2011 than in 1992 or 2009. The percentage of students at or above *Basic* was higher than in 1992 only.

Scores for both White and Black students were higher in 2011 for grade 8 reading than in any prior assessment. The 25-point score gap in 2011 was narrower than in 1992 but not significantly different from 2009.

Scores for Hispanic students were also higher in 2011 than in any prior assessment. The 22-point score gap in 2011 was narrower than in both 1992 and 2009.

Scores for both male and female students were also higher in 2011 than in 2009 or 1992. Historically, female students have had higher scores than male students in reading. The 9-point score gap in 2011 favoring females was narrower in 2011 than in 1992 but did not change from 2009.

--State Performance, 2009-2011

State performance results for grade 8 reading show that in 2011, eighth-graders in 10 states, Colorado, Connecticut, Hawaii, Idaho, Maryland, Michigan, Montana, Nevada, North Carolina, and Rhode Island had higher reading scores than in 2009. Scores did not decline in any state.

One question based on a particular passage asks students to locate and recall something they read. The question says “According to the article, what was most surprising about the

‘Womanifesto’? Fifty-nine percent of students recognized that the demand for equal voting rights was considered the most “extreme” measure approved by the Seneca Falls convention, the subject of the passage.

Analyzing these results by type of school, 59 percent of public school students chose the correct answer, compared with 66 percent of private school students.

Summary of Results in Mathematics and Reading

In summary, scores were higher for both grades 4 and 8 in mathematics; reading scores increased for eighth-grade students only. Scores for male students increased for grade 4 mathematics and grade 8 reading. Scores for female students increased in mathematics at both grades 4 and 8, and at grade 8 in reading.

White, Black, and Hispanic students all recorded increases for grade 4 mathematics and grade 8 reading, while Hispanic students also recorded an increase for grade 8 mathematics. For Asian/Pacific Islander and American Indian/Alaska Native students, scores did not change significantly for either subject or grade.

In mathematics, four states—the District of Columbia, Hawaii, New Mexico, and Rhode Island—had increases at both grades since 2009. In reading, Hawaii and Maryland had increases in both grades.

In grade 4 mathematics, scores increased in five states compared with 2009, while one state had a decrease. In grade 8 mathematics, nine states had an increase, and again one state declined.

Alabama and Massachusetts recorded increases over 2009 in grade 4 reading, while Missouri and South Dakota showed decreases. Eight states showed an increase in grade 8 reading, and there were no states with decreases.

Hawaii was the only state to have higher scores in both subjects and both grades.

There is much more information in the 2011 NAEP Reading and Mathematics Report Cards. In addition, the initial release website will give you extensive information on the performance of students in each state, access to released assessment questions through NAEP’s Questions Center, and access to data on the NAEP Data Explorer, our online data-analysis tool. In closing, I would like to thank all the students and schools who participated in these assessments.