National Assessment of Educational Progress

NAEP 2013 Mathematics and Reading

Commissioner's Statement

National Center for Education Statistics

We are very pleased to release the results of the 2013 Grades 4 and 8 mathematics and reading assessments from the National Assessment of Educational Progress (NAEP)—The Nation's Report Card. This is the first of several reports we will be releasing in the coming months. Today's results are for fourth- and eighth- graders in the nation and the states. We also assessed mathematics and reading in 21 large urban districts around the country and those results will be released later this year. In addition, we assessed mathematics and reading at grade 12 in 2013, both nationally and in a pilot program at the state level involving 13 states. Results for the Grade 12 assessments will be released next year.

In addition to releasing the results of the 2013 Grades 4 and 8 mathematics and reading assessments from NAEP, we are also introducing our new web reporting format. It includes a variety of interactive features that make NAEP data even more accessible and usable than in the past. I encourage you to explore this new innovation at http://nationsreportcard.gov/reading_math_2013/.

These assessments were administered in early 2013 to fourth- and eighth-grade students across the country. We had very large samples for the two assessments: 377,000 fourth-graders and 342,000 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.

As always, we report student performance in two ways: scale scores and achievement levels. NAEP scale scores indicate what students know and can do. For mathematics and reading, scores for students in grades 4 and 8 are reported on a 0-500 scale, although it is important to remember that the two subjects are on separate scales. The NAEP achievement levels were developed by the National Assessment Governing Board (NAGB). The Governing Board sets 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 that show student progress we only discuss here differences in performance that are statistically significant. For the most part, we will compare students' performance in 2013 with scores from the last assessment, in 2011, and from the earliest assessments in the 1990s.

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.

The scores were higher in 2013 than in any previous year, going back to 1990. At grade 4, the average score in 2013 was 28 points higher than in 1990 and 1 point higher than in 2011. At grade 8, the increases were 22 points and 1 point respectively.

We can also explore NAEP mathematics results for students performing at the 10^{th}, 25^{th}, 50^{th}, 75^{th}, and 90^{th} percentiles as a way of indicating the performance of lower, middle, and higher performing students. Since 2011, scores increased for the middle and upper part of the distribution at both grades. At grade 4, there were one-point increases at the 50^{th} and 75^{th} percentiles while the score for students at the 90^{th} percentile increased by 2 points. At grade 8, there were one-point increases at both the 75^{th} and 90^{th} percentiles.

Since 1990, scores for students at all five percentile levels have increased. These increases ranged from 25 points for students at the 90^{th} percentile to 32 points for those at the 10^{th} in grade 4. In grade 8, there was a 24-point gain for students at the 90^{th} percentile and 22 points each for the other four percentiles.

When we look at score changes by race/ethnicity and gender, we see that scores in 2013 were higher than in 2011 at both grades 4 and 8 for Hispanic and female students. In fourth grade, scores for White students increased by one point. At grade 8, scores for both Asian/Pacific Islander and American Indian/Alaska Native students increased by four points. However, there were no score changes at either grade since 2011 when looking at Asian or Native Hawaiian/Other Pacific Islander groups separately. Score gaps between male-female, White-Black White-Hispanic did not change from 2011 to 2013.

Since 1990, scores increased at least 22 points for all reportable groups at both grades. We also see that the White-Black score gap narrowed in grade 4 from 1990 to 2013. Note that scores for several groups cannot be reported back to 1990. For example, the samples for American Indian/Alaska Native students were not large enough to allow the reporting of reliable results in 1990. Prior to 2011, data for Asian and Native Hawaiian/Other Pacific Islander students were

combined into a single Asian/Pacific Islander category so separate results for those groups are not available in 1990.

NAEP also reports student performance by achievement levels. At both grades, percentages at *Advanced* were higher in 2013 than in either 2011 or 1990. At grade 4, for example, the percentage at *Advanced* rose from 1 percent in 1990 to 7 percent in 2011 and 8 percent in 2013. The grade 8 results were similar—the percentage at *Advanced* rose from 2 percent in 1990 to 8 percent in 2011 and 9 percent in 2013. At both grades, the percentage of students below *Basic* was lower in 2013 than in 1990. At grade 4, it fell from 50 to 17 percent, while at grade 8 it fell from 48 to 26 percent.

State Results for Mathematics

To explore state results, we compared the percentages of fourth- and eighth-graders at or above *Proficient* in mathematics for public school students only. Nineteen states/jurisdictions had a percentage of students at or above *Proficient* in mathematics that was higher than the percentage national percentage at both grades 4 and 8. The percentage nationally at grade 4 was 41 percent and the percentage at grade 8 was 34 percent. In addition, in four states—Nebraska, Iowa, North Carolina, and Hawaii—the percentage at or above *Proficient* was higher than the national percentage at grade 4 only. In three states—South Dakota, Texas, and Pennsylvania—the percentage was higher at grade 8 only.

In 11 states, the percentage of students at or above *Proficient* was lower than the national percentage at both grades. In one state, Alaska, the percentage was lower at grade 4 only. In six states—Arizona, Arkansas, Kentucky, Tennessee, Georgia, and Florida— the percentage was lower at grade 8 only.

When looking at score changes from 2011, scores increased in both grades for four states/jurisdictions: the Department of Defense schools, the District of Columbia, Hawaii, and Tennessee. Scores for 12 states increased at grade 4 only and three states for grade 8 only. Scores for three states decreased from 2011 to 2013 in grade 8 mathematics.

Reading

In the 2013 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.

Let's next look at the results for reading in 2013. At grade 8, scores were higher in 2013 than in any previous year, going back to 1992. At grade 4, scores were higher in 2013 than in all previous years except 2011. At grade 4, the average score in 2013 was 5 points higher than in 1992. At grade 8, the increase since 1992 was 8 points, while the increase since 2011 was 2 points.

We see a very interesting story in grade 8 reading. Scores increased for eighth-graders at all five of the percentile levels by 2 or 3 points since 2011. We also see score gains for eighth-grade male and female students and for all racial/ethnic groups except Native Hawaiian/Other Pacific Islander and American Indian/Alaska Native. At grade 4, only the average score for White students increased since 2011.

When we compare the 2013 results to the initial assessment in 1992, scores increased at fourth- and eighth-grade for both gender and all reportable racial/ethnic groups. As in mathematics, some student groups are not reportable in 1992 due to either sample size or the categories of data collected during that time. We also see that the White-Black score gap narrowed in grade 4 and the White-Hispanic gap narrowed in grade 8 since 1992.

In terms of NAEP achievement levels, we see the percentages of students at *Proficient* and at *Advanced* were higher in 2013 than in either 2011 or 1992 at both grades. In addition, the percentage below *Basic* was lower in 2013 than in 1992 at grade 4, and lower than both comparison years at grade 8.

State Results for Reading

Nationally, the percentages of public school students at or above *Proficient* was 34 percent at both grades 4 and 8. There were 15 states which had a percentage of students at or above *Proficient* in reading that was higher than the percentage nationally at both grades 4 and 8. In nine states, the percentage at or above *Proficient* was higher than the national percentage at grade 4 only. In three states—Idaho, Montana, and Kentucky—the percentage was higher at grade 8 only. In 14 states, the percentage of students at or above *Proficient* was lower than the national

percentage at both grades. There was one state, Michigan, where the percentage was lower at grade 4 only and one state, Arkansas, in which the percentage was lower at grade 8 only.

From 2011 to 2013, reading scores increased at both grades in five states / jurisdictions: the Department of Defense schools, the District of Columbia, Iowa, Tennessee, and Washington. Scores increased in four states (Colorado, Indiana, Maine, and Minnesota) in grade 4 reading only while nine states showed gains in grade 8 only. Scores in three states (Massachusetts, Montana, and North Dakota) were lower in 2013 than in 2011 for grade 4 reading.

Summary

In summary, our nation's eighth-graders are performing at the highest level ever in both mathematics and reading. It is particularly interesting to note that scores for all five percentile levels and most racial/ethnic groups increased in eighth-grade reading since 2011. Scores for fourth-graders in mathematics continue to increase as well. We also see score increases in both grades and both subjects in three states/jurisdictions—the Department of Defense schools, the District of Columbia, and Tennessee. In Hawaii, scores increased except in grade 4 reading, and in Iowa and Washington, scores increased except in grade 8 mathematics.

This is only an overview of the results for 2013. The new digital Mathematics and Reading Report Card allows you to explore NAEP data in a wide variety of innovative ways and I urge you to take advantage of this new resource.

In closing, I would like to thank all the students and schools who participated in these assessments.