

Technical Notes

Sampling and weighting

The schools and students participating in NAEP assessments are chosen to be nationally representative. The sample was chosen using a two-stage design that involved sampling students from selected schools (public and nonpublic) across the country. More information on sampling can be found at <http://nces.ed.gov/nationsreportcard/about/nathow.asp>.

Each school that participated in the assessment, and each student assessed, represents a portion of the population of interest. Results are weighted to make valid inferences between the student samples and the respective populations from which they are drawn. Sampling weights account for disproportionate representation due to the oversampling of students who attend schools with high concentrations of minority students and students who attend nonpublic schools, and also account for lower sampling rates for very small schools.

Accommodations

Prior to 1998, no testing accommodations were provided in the reading assessment to students with disabilities and English language learners. In 1998, administration procedures were introduced that allowed the use of accommodations, such as extra testing time or individual rather than group administration, for a subsample of students in the reading assessment. In 1998, two samples of students were assessed in reading: one in which accommodations were permitted and one in which they were not permitted. This made it possible to report trends in students' reading achievement across all the assessment years and, at the same time, examine how including students assessed with accommodations affected overall assessment results. Based on analysis of the results, it was decided that, beginning with the 2002 reading assessment, NAEP would permit the use of accommodations for all assessments. In this report, the 1998 reading results are presented for both samples. For subsequent years, only results from the accommodated sample are shown.

The results for the 2005 mathematics assessment are based on administration procedures that allowed accommodations. Some accommodations allowed in the mathematics assessment were not allowed for reading, including read aloud and bilingual booklets.

Introducing accommodations in the NAEP program appears to have had little impact on the percentage of students excluded in the reading assessment at grade 12. The exclusion rate for reading was 5 percent in 1992 and 4 percent in 2005. The exclusion rate for mathematics was 3 percent in 2005. The results presented in this report reflect the performance of students who could be assessed. No attempt was made to infer or include performance estimates for students who could not be assessed due to a disability or because they were still learning English. Additional information on exclusion can be found at [http://nces.ed.gov/nationsreportcard/nrc/reading_math_2005/s0093.asp?printver=.](http://nces.ed.gov/nationsreportcard/nrc/reading_math_2005/s0093.asp?printver=)



School and student participation rates

To ensure unbiased samples, school participation rates need to be at least 85 percent before substitute schools are added to meet reporting requirements established by NCES and the Governing Board. While participation standards were met for public schools at grade 12, they were not met for private schools.

At the student level, response rates at grade 12 fell below 85 percent for students in both public and private schools. A nonresponse bias analysis showed significant differences between responding and nonresponding public school students in terms of gender, race/ethnicity, age, and English language learner identification. Although the differences are quite small, it is unlikely that nonresponse weighting adjustments completely accounted for these differences.

Results by region of the country

NAEP analyses and reports use the U.S. Census Bureau’s definition of “region.” The four regions defined by the U.S. Census Bureau are West, Midwest, South, and Northeast. The table to the right shows how the 50 states and District of Columbia are subdivided into these Census regions.

The percentages of 12th-graders vary by region. For example, of the 12th-graders assessed in 2005 in reading and mathematics, 34 percent were in the South, 23 percent in the Midwest, 23 percent in the West, and 20 percent in the Northeast.

West	Midwest	South	Northeast
Alaska	Illinois	Alabama	Connecticut
Arizona	Indiana	Arkansas	Maine
California	Iowa	Delaware	Massachusetts
Colorado	Kansas	District of Columbia	New Hampshire
Hawaii	Michigan	Florida	New Jersey
Idaho	Minnesota	Georgia	New York
Montana	Missouri	Kentucky	Pennsylvania
Nevada	Nebraska	Louisiana	Rhode Island
New Mexico	North Dakota	Maryland	Vermont
Oregon	Ohio	Mississippi	
Utah	South Dakota	North Carolina	
Washington	Wisconsin	Oklahoma	
Wyoming		South Carolina	
		Tennessee	
		Texas	
		Virginia	
		West Virginia	

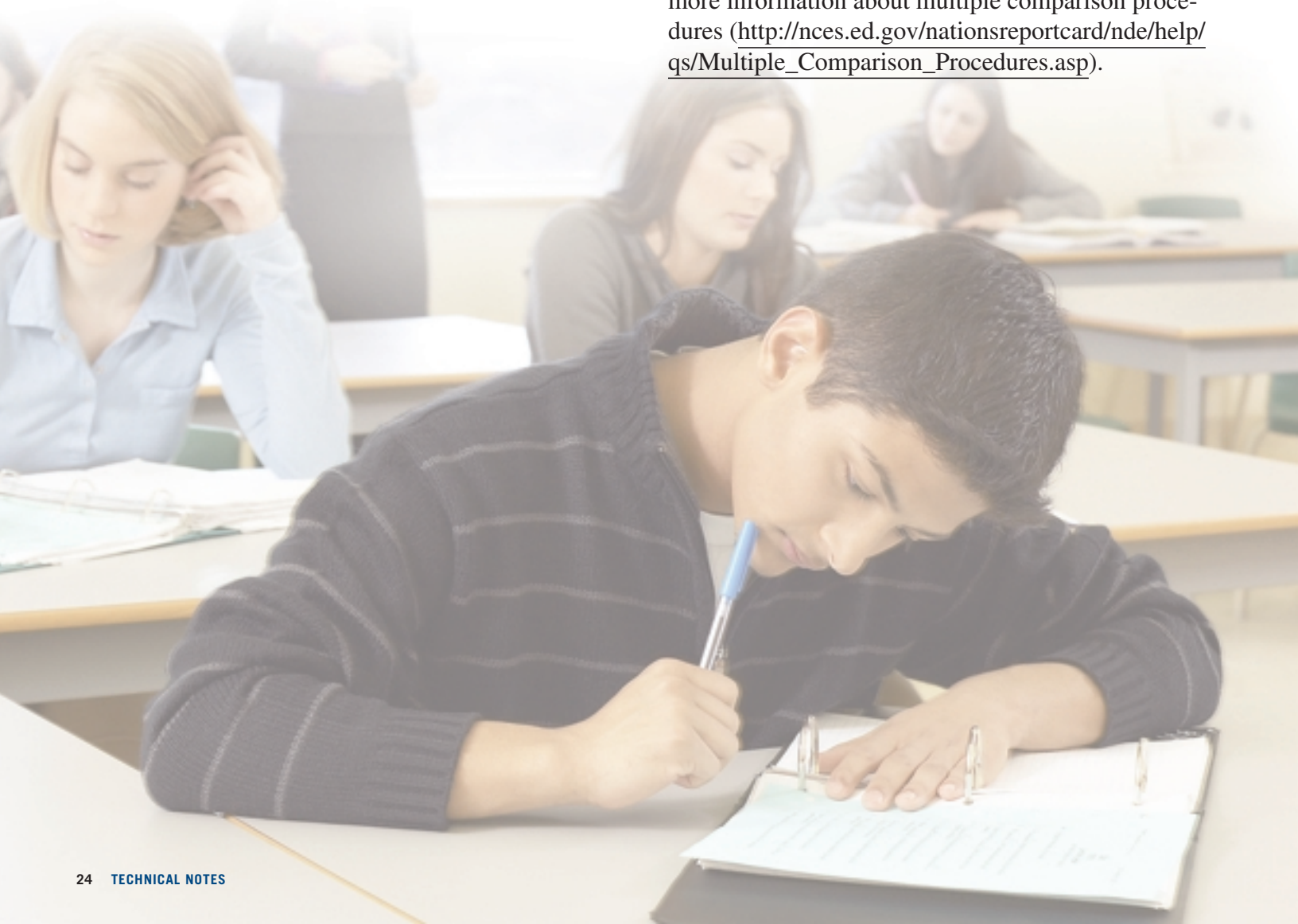
SOURCE: U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau.



Interpreting statistical significance

Comparisons over time or between groups are based on statistical tests that consider both the size of the differences and the standard errors of the two statistics being compared. Standard errors are margins of error, and estimates based on smaller groups are likely to have larger margins of error. The size of the standard errors may also be influenced by other factors such as how representative the students assessed are of the population as a whole. When an estimate—such as an average score—has a large standard error, a numerical difference that seems large may not be statistically significant. Differences of the same magnitude may or may not be statistically significant depending upon the size of the standard errors of the statistics. For example, a 3-point difference between male and female students may be statistically significant, while

a 3-point difference between White and Hispanic students may not be. Standard errors for the NAEP scores and percentages presented in this report are available on the NAEP website (<http://nces.ed.gov/nationsreportcard/nde/>). In the tables and charts of this report, the symbol (*) is used to indicate that a score or percentage in a previous assessment year is significantly different from the comparable measure in 2005. Statistically significant differences between groups of students—for example, between White students and Black students—are not identified in the tables and charts, but they were tested in the same way. Any difference between scores or percentages that is identified as higher, lower, larger, or smaller in this report has been determined to be statistically significant at the .05 level with appropriate adjustments for multiple comparisons. See the NAEP website for more information about multiple comparison procedures (http://nces.ed.gov/nationsreportcard/nde/help/qs/Multiple_Comparison_Procedures.asp).



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The National Assessment of Educational Progress (NAEP) is a congressionally mandated project sponsored by the U.S. Department of Education. The National Center for Education Statistics, a department within the Institute of Education Sciences, administers NAEP. The Commissioner of Education Statistics is responsible by law for carrying out the NAEP project.

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THE NATION'S REPORT CARD

12th GRADE READING AND MATHEMATICS 2005

February 2007

MORE INFORMATION

The report release site is
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The NCES web electronic
catalog is [http://nces.ed.gov/
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SUGGESTED CITATION

Grigg, W., Donahue, P.,
and Dion, G. (2007).
*The Nation's Report Card:
12th-Grade Reading and
Mathematics 2005*
(NCES 2007-468). U.S.
Department of Education, National
Center for Education Statistics.
Washington, D.C.:
U.S. Government Printing Office.

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