NAEP 2007 Writing Report for California

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This report provides selected results from the National Assessment of Educational Progress (NAEP) for California's public school students at grade 8. Beginning in 1998, writing has been assessed in three different years at the state level (at grade 4 in 2002, and at grade 8 in 1998, 2002, and 2007).

The 2007 state-level writing assessment was conducted only at grade 8 and 46 jurisdictions participated: 45 states and the Department of Defense Schools (domestic and overseas). California participated and met the criteria for reporting public school results. Writing results are reported by average scale scores (on a 0–300 point scale) and by achievement levels (*Basic, Proficient*, and *Advanced*).

NAEP is a project of the National Center for Education Statistics (NCES). For more information about the assessment, see *The Nation's Report Card, Writing 2007,* which is available on the NAEP website along with the full set of national and state results in an interactive database (http://nces.ed.gov/nationsreportcard/). Released test questions, scoring guides, and question-level performance data are also available on the website.

K E Y F I N D I N G S F O R 2 0 0 7

Grade 8:

- The average writing score for students in California was 148. This was higher than that in 1998 (141) and was not significantly different from that in 2002 (144).
- California's average score (148) was lower than that of the nation's public schools (154).
- The percentage of students in California who performed at or above *Proficient* was 25 percent. This was greater than that in 1998 (20 percent) and was not significantly different from that in 2002 (23 percent).
- In California, the percentage of students who performed at or above *Proficient* (25 percent) was smaller than that for the nation's public schools (31 percent).
- The percentage of students in California who performed at or above *Basic* was 83 percent. This was greater than that in 1998 (76 percent) and was greater than that in 2002 (78 percent).
- In California, the percentage of students who performed at or above *Basic* (83 percent) was smaller than that for the nation's public schools (87 percent).

The U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) has provided software that generated user-selectable data, statistical significance test result statements, and technical descriptions of the NAEP assessments for this report. Content may be added or edited by states or other jurisdictions. This document, therefore, is not an official publication of the National Center for Education Statistics.

Introduction

What Was Assessed?

The content for each NAEP assessment is determined by the National Assessment Governing Board. The objectives for each NAEP assessment are described in a framework, a document that delineates the content and skills to be measured, as well as the types of questions to be included in the assessment.

The NAEP writing framework serves as the blueprint for the writing assessment, specifying the skills that should be assessed. It represents ideas from a wide range of organizations that are part of writing education, as well as writing experts, school administrators, policymakers, teachers, parents, and others.

The current NAEP writing framework was used to guide the development of the 1998, 2002 and 2007 assessments. (A new framework will be used for the 2011 NAEP writing assessment.) Updates to the framework over the years provided more details about the kinds of writing tasks to include in the assessment but did not change the content, allowing students' performance in 2007 to be compared with previous years.

Informed by writing research and theory, the NAEP writing framework emphasizes that writing is done for a variety of specific situations and that good writers can communicate effectively in these different situations. In addition, writing is as much thought as communication, and a thoughtful writing process includes both composing and revising.

Given that writing is done for many reasons, the framework specifies that students' writing skills be measured by asking students to write for different purposes and audiences. Tasks on the assessment require students to inform, to persuade, and to tell stories, real or imagined, and to do so for a range of audiences, among them teachers, newspaper editors, potential employers, and peers. For more information on the framework, see http://www.nagb.org.

Unlike other NAEP assessments, which use a combination of multiple-choice and constructed-response questions, the writing assessment consists entirely of students' writing for the purposes described in the framework. Released test questions, along with student performance data by state, are available on the NAEP website at (http://nces.ed.gov/nationsreportcard/itmrls/).

Purposes for Writing	**Description**
Narrative	Narrative writing encourages writers to incorporate their imagination and creativity in the production of stories and personal essays. At its best, narrative writing fosters imagination, creativity, and speculation by allowing writers to express their thoughts and to analyze and understand their actions and emotions.
Informative	In informative writing, the writer provides the reader with information. This type of writing is used to share knowledge and to convey messages, instructions, and ideas. When used as a means of exploration, informative writing helps both the writer and the reader to learn new ideas and to reexamine old conclusions.
Persuasive	Persuasive writing seeks to persuade the reader to take action or bring about change. This type of writing involves a clear awareness of what arguments might most affect the audience being addressed. Writing persuasively also requires the use of such skills as analysis, inference, synthesis, and evaluation.

Who Was Assessed?

The 2007 NAEP writing assessment was conducted at the state and national level at grade 8, and at the national level only at grade 12. Therefore, grade 12 results are not presented in this state report. Forty-six jurisdictions participated in the NAEP writing assessment at grade 8 in 2007: forty-five states and the Department of Defense Education Activity Schools (domestic and overseas). The District of Columbia, which participated in the reading and mathematics assessments in 2007, did not have a sufficient number of students to participate in all three simultaneous assessments. Therefore, the District of Columbia did not participate in the 2007 writing assessment. The target sample for each state or other jurisdiction was approximately 100 schools at each grade tested and approximately 3,000 students for each subject at each grade. States containing trial urban districts had larger samples.

The sample of schools and students was chosen in a two-stage sampling process. First, the sample of schools was selected by probability sampling methods. Then, within the participating schools, random samples of students were chosen.

The nationally representative sample of eighth-graders assessed in 2007 consisted of the combined sample of public school students assessed in each participating state, plus an additional sample of students from states for which results are not reported separately and students in nonpublic schools (i.e., private, Bureau of Indian Education, and the Department of Defense schools). The national sample for grade 12 was chosen using a multistage design that involved drawing students from the sampled public and nonpublic schools across the country. Grade 8 state-level results in this report reflect the performance of public school students only. At grade 8, approximately 6,810 schools and 139,900 students participated in 2007. At grade 12, the national-only sample included approximately 660 schools and 27,900 students in 2007.

The overall participation rates for schools and students must meet guidelines established by the National Center for Education Statistics (NCES) and the National Assessment Governing Board for assessment results to be reported publicly. A participation rate of at least 85 percent for schools in each subject and grade was required, and these standards were met for each of the 46 jurisdictions. Participation rates for the 2007 writing assessment are available at the NAEP website (http://nces.ed.gov/nationsreportcard/writing/sampledesign.asp).

How Is Student Writing Performance Reported?

The results of student performance on the NAEP assessments in 2007 are reported for various groups of students (e.g., eighth-grade female students or students who took the assessment in a particular year). NAEP does not produce scores for individual students, nor does it report scores for schools or for school districts. Some large urban districts, however, have voluntarily participated in the assessment on a trial basis and were sampled as states were sampled. Writing performance for groups of students is reported in two ways: as average scale scores and as percentages of students performing at various achievement levels.

Scale Scores

NAEP writing results are reported on a 0–300 scale. Because NAEP scales are developed independently for each subject, average scores cannot be compared across subjects even when the scale has the same range. Although the writing scale score ranges are identical for both grades 8 and 12, they were derived independently and, therefore, scores cannot be compared across grades.

In addition to reporting an overall writing score for each grade, scores are reported at five percentiles (10th, 25th, 50th, 75th, and 90th) to show trends in performance for lower-, middle-, and higher-performing students.

NAEP Achievement Levels

Based on recommendations from policymakers, educators, and members of the general public, the Governing Board sets specific achievement levels for each subject area and grade. Achievement levels are performance standards defining what students should know and be able to do. They provide another perspective with which to interpret student performance. NAEP results are reported as percentages of students performing at or above the *Basic* and *Proficient* levels and at the *Advanced* level.

As provided by law, NCES, upon review of congressionally mandated evaluations of NAEP, has determined that achievement levels are to be used on a trial basis and should be interpreted with caution. The NAEP achievement levels have been widely used by national and state officials.

- *Basic* denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at a given grade.
- *Proficient* represents solid academic performance. Students reaching this level have demonstrated competency over challenging subject matter.
- *Advanced* represents superior performance.

The achievement levels are cumulative. Therefore, students performing at the *Proficient* level also display the competencies associated with the *Basic* level, and students at the *Advanced* level demonstrate the competencies associated with both the *Basic* and the *Proficient* levels. The writing achievement-level descriptions for grade 8 are summarized in figure 1. These achievement levels are applied to first drafts (not final or polished student writing) that are generated within limited time constraints in a large-scale assessment environment.

Figure 1	The Nation's Report Card 2007 State Assessment
	Descriptions of eighth-grade achievement levels for 2007 NAEP writing assessment

Basic Level (114)	*Basic* denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at a given grade.

Eighth-grade students performing at the *Basic* level should be able to produce an effective response within the time allowed that shows a general understanding of the writing task they have been assigned. Their writing should show that these students are aware of the audience they are expected to address, and it should include supporting details in an organized way. The grammar, spelling, punctuation, and capitalization in the work should be accurate enough to communicate to a reader, although there may be mistakes that get in the way of meaning.

Proficient Level (173)	*Proficient* represents solid academic performance. Students reaching this level have demonstrated competency over challenging subject matter.

Eighth-grade students performing at the *Proficient* level should be able to produce an effective response within the time allowed that shows an understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should be organized, making use of techniques such as sequencing or a clearly marked beginning and ending, and it should make use of details and some elaboration to support and develop the main idea of the piece. Their writing should include precise language and some variety in sentence structure, and it may show analytical, evaluative, or creative thinking. The grammar, spelling, punctuation, and capitalization in the work should be accurate enough to communicate to a reader; there may be some errors, but these should not get in the way of meaning.

Advanced Level (224)	*Advanced* represents superior performance.

Eighth-grade students performing at the *Advanced* level should be able to produce an effective and fully developed response within the time allowed that shows a clear understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should show some analytical, evaluative, or creative thinking, and should demonstrate precise word choice and varied sentence structure. Their work should include details and elaboration that support and develop the main idea of the piece, and it may make use of strategies such as analogies, illustrations, examples, anecdotes, or figurative language to clarify a point. At the same time, the writing should show that these students can keep their work clearly and consistently organized. Writing by eighth-grade students performing at the *Advanced* level should contain few errors in grammar, spelling, punctuation, capitalization, and sentence structure. These writers should demonstrate good control of these elements and may use them for stylistic effect in their work.

NOTE: The scores in parentheses indicate the cut point on the scale at which the achievement-level range begins.
SOURCE: National Assessment Governing Board. (2007). *Writing Framework for the 2007 National Assessment of Educational Progress.* Washington, DC: Author.

Assessing Students With Disabilities (SD) and/or English Language Learners (ELL)

The results displayed in this report and official publications of NAEP 2007 results are based on representative samples that include students with disabilities (SD) and students who are English language learners (ELL). Some of these students were assessed using accommodations (such as extra time and testing in small groups). The identified SD and ELL students who typically received accommodations in their classroom testing and required these accommodations to participate, also received them in the NAEP assessment, provided the accommodations did not change the nature of what was tested.

School staff make the decisions about whether to include an SD or ELL student in a NAEP assessment and which testing accommodations, if any, the student should receive. All ELL students are assessed in NAEP the same way they are in their state assessments. If an ELL student takes a simplified English or native language academic assessment, NAEP staff work with the school to determine if the student could take NAEP assessments with any of the allowable accommodations. The NAEP program furnishes tools to assist school personnel in making those decisions.

A sampling procedure is used to select students at each grade being tested. Students are selected on a random basis, without regard to SD or ELL status. Once the students are selected, the schools identify those who have SD or ELL status. School staff familiar with these students are asked a series of questions to help them decide whether each student should participate in the assessment and whether the student needs accommodations.

Inclusion in NAEP of an SD or ELL student is encouraged (a) if that student participated in the regular state academic assessment in the subject being tested, and (b) if that student can participate in NAEP with the accommodations NAEP allows. Even if the student did not participate in the regular state assessment, or if the student needs accommodations NAEP does not allow, school staff are asked whether that student could participate in NAEP with the allowable accommodations. (For example, extending testing over several days is not allowed for NAEP because NAEP administrators are in each school for only one day.)

Many of the same testing accommodations (e.g., extra testing time or individual rather than group administration) are provided for SD or ELL students who participated in NAEP. Even with the availability of accommodations, some students are excluded from the NAEP assessments by their schools. States vary in their proportions of special-needs students (especially English language learners). These variations, as well as differences in policies and practices regarding the identification and inclusion of special-needs students, lead to differences in exclusion and accommodation rates. These differences should be considered when comparing student performance over time and across states. More information about NAEP's policy on inclusion of special-needs students is available at http://nces.ed.gov/nationsreportcard/about/inclusion.asp.

Cautions in Interpreting Results

The averages and percentages in this report are estimates based on samples of students rather than on entire populations. Moreover, the collection of questions used at each grade level is only a sample of the many questions that could have been asked to assess the skills and abilities described in the NAEP framework. Therefore, the results are subject to a measure of uncertainty, reflected in the standard error of the estimates—a range of up to a few points above or below the score or percentage—which takes into account potential score fluctuation due to sampling error and measurement error. Statistical tests that factor in these standard errors are used to determine whether the differences between average scores or percentages are significant. All differences were tested for statistical significance at the .05 level. Significance tests for most NAEP variables are available in the NAEP Data Explorer at http://nces.ed.gov/nationsreportcard/naepdata/.

Results from the 2007 writing assessment are compared to results from two previous assessment years. Changes in performance results over time may reflect not only changes in students' knowledge and skills but also other factors, such as changes in student demographics, education programs and policies (including policies on accommodations and exclusions), and teacher qualifications.

NAEP sample sizes have increased since 2002 compared to previous years, resulting in smaller standard errors. As a consequence, smaller differences are detected as statistically significant than were detected in previous assessments. In addition, estimates based on smaller groups are likely to have relatively large standard errors. Thus, some seemingly large differences may not be statistically significant. That is, it cannot be determined whether these differences are due to sampling error or to true differences in the population of interest.

Differences between scores or between percentages are discussed in this report only when they are significant from a statistical perspective. Statistically significant differences are referred to as "significant differences" or "significantly different." Significant differences between 2007 and prior assessments are marked with a notation (*) in the tables. Any differences in scores within a year or across years that are mentioned in the text as "higher," "lower," "greater," or "smaller" are statistically significant.

Score differences or gaps cited in this report are calculated based on differences between unrounded numbers. Therefore, the reader may find that the score difference cited in the text may not be identical to the difference obtained from subtracting the rounded values shown in the accompanying tables or figures.

It is important to note that simple cross-tabulations of a variable with measures of educational achievement, like the ones presented in this report, cannot constitute proof that a difference in the variable causes differences in educational achievement. There might be several reasons why the performance of one group of students might differ from another. Only through controlled experiments with random assignment of students to groups can hypotheses about the causes of performance differences be tested.

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NAEP 2007 Writing Overall Scale Score and Achievement-Level Results for Public School Students

Overall Scale Score Results

In this section student performance is reported as an average score based on the NAEP writing scale, which ranges from 0 to 300 for each grade. Scores on this scale are comparable from 1998 through 2007.

Table 1 shows the overall performance results of grade 8 public school students in California, the nation (public), and the region. The list of states making up a given region for NAEP prior to 2003 differed from the list used by the U.S. Census Bureau, which has been used in NAEP from 2003 onward. Therefore, the data for the state's region are given only for 2007. The first column of results presents the average score on the NAEP writing scale. The remaining columns show the scores at selected percentiles. The percentile indicates the percentage of students whose score fell at or below a particular point on the NAEP writing scale. For example, the 25th percentile score was 132 for public school eighth-graders in the nation in 2007, indicating that 25 percent of grade 8 public school students scored at or below 132.

Grade 8 Scale Score Results

- In 2007, the average scale score for students in California was 148. This was lower than that for students across the nation (154).
- In California, the average scale score for students in 2007 was not significantly different from that in 2002 (144). However, the average scale score for students in public schools across the nation in 2007 was higher than that in 2002 (152).
- In California, the average scale score for students in 2007 was higher than the score in 1998, but was not significantly different from the score in 2002.

Table 1

The Nation's Report Card 2007 State Assessment

Average scale scores and selected percentile scores in NAEP writing for eighth-grade public school students, by assessment year and jurisdiction: 1998, 2002, and 2007

Year and jurisdiction		Average scale score	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
1998	Nation (public)	148*	102*	124*	149*	172*	192*
	California	141*	91*	115*	141*	166	190
2002	Nation (public)	152*	102*	127*	153*	178	199
	California	144	93*	119*	145*	171	192
2007	Nation (public)	154	108	132	156	178	198
	West[1]	150	103	127	152	175	195
	California	148	101	125	149	173	193

* Value is significantly different from the value for the same jurisdiction in 2007.

[1] Region in which state is located. Regional data are not provided for years prior to 2003 because the region definitions were changed. In 2003, NAEP adopted the U.S. Census Bureau defined regions: Northeast, South, Midwest, and West.

NOTE: The NAEP grade 8 writing scale ranges from 0 to 300. All differences were tested for statistical significance at the .05 level using unrounded numbers.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Overall Achievement-Level Results

In this section, student performance is reported as the percentage of students performing relative to performance standards set by the National Assessment Governing Board. These performance standards for what students should know and be able to do are based on the recommendations of broadly representative panels of educators and members of the public.

Table 2 presents the percentage of students at grade 8 who performed below *Basic*, at or above *Basic*, at or above *Proficient,* and at the *Advanced* level. Because the percentages are cumulative from *Basic* to *Proficient* to *Advanced*, they sum to more than 100 percent. Only the percentage of students performing at or above *Basic* (which includes the students at *Proficient* and *Advanced)* plus the students below *Basic* will sum to 100 percent.

Grade 8 Achievement-Level Results

- In 2007, the percentage of California's students who performed at or above *Proficient* was 25 percent. This was smaller than the percentage of the nation's public school students who performed at or above *Proficient* (31 percent).
- In California, the percentage of students who performed at or above *Proficient* in 2007 was greater than the percentage in 1998, but was not significantly different from the percentage in 2002.
- In California, the percentage of students who performed at or above *Basic* in 2007 was greater than the percentages in 1998 and 2002.

Table 2

The Nation's Report Card 2007 State Assessment

Percentage of eighth-grade public school students at or above NAEP writing achievement levels, by assessment year and jurisdiction: 1998, 2002, and 2007

Year and jurisdiction		Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
1998	Nation (public)	17*	83*	24*	1*
	California	24*	76*	20*	1
2002	Nation (public)	16*	84*	30	2
	California	22*	78*	23	1
2007	Nation (public)	13	87	31	2
	West[1]	15	85	27	1
	California	17	83	25	1

* Value is significantly different from the value for the same jurisdiction in 2007.

[1] Region in which state is located. Regional data are not provided for years prior to 2003 because the region definitions were changed. In 2003, NAEP adopted the U.S. Census Bureau defined regions: Northeast, South, Midwest, and West.

NOTE: Achievement levels correspond to the following points on the NAEP writing scale: below *Basic*, 113 or lower; *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

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Comparisons Between California, the Nation, and Other Participating States and Jurisdictions

Forty-six jurisdictions participated in the writing assessment in 2007. These include 45 states and the Department of Defense Education Activity (DoDEA) schools (domestic and overseas). Prior to 2005, NAEP reports presented results for the Department of Defense Dependents Schools (DoDDS) overseas and the Department of Defense Domestic Dependent Elementary and Secondary Schools (DDESS) in the United States separately. Data for the two jurisdictions in prior years have been retroactively combined to provide comparable data for the single DoDEA jurisdiction.

Comparisons by Average Scale Scores

Figure 2 compares California's 2007 overall writing scale scores at grade 8 with those of public schools in the nation and all other participating states and jurisdictions. The different shadings indicate whether the average score of the nation (public), a state, or a jurisdiction was found to be higher than, lower than, or not significantly different from that of California in the NAEP 2007 writing assessment.

Grade 8 Scale Score Comparison Results

- Students' average score in California was higher than the scores in 4 jurisdictions, not significantly different from those in 6 jurisdictions, and lower than those in 35 jurisdictions.

Figure 2

California's average scale score in NAEP writing for eighth-grade public school students compared with scores for the nation and other participating jurisdictions: 2007

Writing Grade 8
Comparisons Between California and the Nation and Other Participating States and Jurisdictions

Comparisons by Achievement Levels

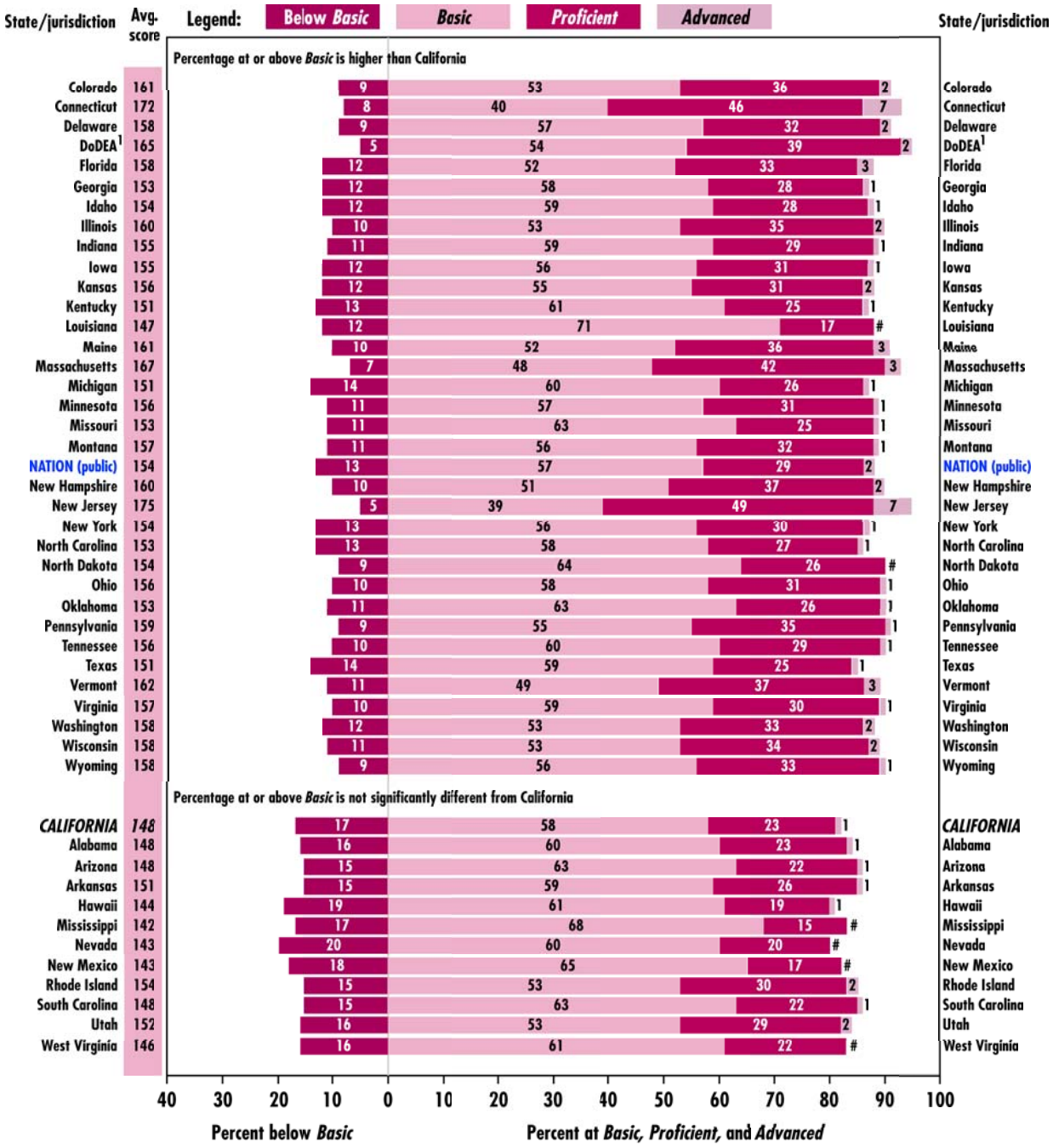
Figure 3 permits comparisons of all jurisdictions (and the nation) participating in the NAEP 2007 writing assessment in terms of percentages of grade 8 students performing at or above *Basic.* The participating states and jurisdictions are grouped into categories reflecting whether the percentage of their students performing at or above *Basic* (including *Proficient* and *Advanced*) was found to be higher than, not significantly different from, or lower than the percentage in California. Note that the selected state is listed first in its category, and the other states and jurisdictions within each category are listed alphabetically; statistical comparisons among jurisdictions in each of the three categories are not included in this report. However, comparisons among states on many NAEP variables can be made with the NAEP Data Explorer at http://nces.ed.gov/nationsreportcard/naepdata/. The comparisons of all jurisdictions (and the nation) in terms of the percentage at or above *Proficient* are available on the NAEP website at http://nationsreportcard.gov/writing_2007/w0006.asp.

Grade 8 Achievement-Level Comparison Results

- The percentage of students performing at or above *Basic* level in California was not significantly different from the percentages in 11 jurisdictions, and lower than those in 34 jurisdictions.

Figure 3

Average scale scores in NAEP writing for eighth-grade public school students, percentage within each achievement level, and California's percentage at or above *Basic* compared with the nation and other participating jurisdictions, by state: 2007



Rounds to zero.
[1] Department of Defense Education Activity schools (domestic and overseas).
NOTE: The bars above contain percentages of students in each NAEP writing achievement level. Achievement levels corresponding to each population of students are aligned at the point where the *Basic* category begins, so that they may be compared at *Basic* and above. Detail may not sum to totals because of rounding. The shaded bars are graphed using unrounded numbers. Significance tests used a multiple-comparison procedure based on all jurisdictions that participated.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Writing Assessment.

Writing Performance of Selected Student Groups

This section of the report presents results for students in California and the nation by demographic characteristics. Student performance data are reported for

- gender;
- race/ethnicity;
- student eligibility for the National School Lunch Program;
- type of location (for 2007 only); and
- parents' highest level of education.

Definitions of NAEP reporting groups are available on the NAEP website (http://nces.ed.gov/nationsreportcard/writing/results2007/interpret-results.asp#RepGroups).

Each of the variables is reported in tables that present the percentage of students belonging to each group in the first column and the average scale score in the second column. The columns to the right show the percentage of students below *Basic* and at or above each achievement level.

Differences between scores or percentages mentioned in the text are calculated using unrounded values. The results of subtracting the rounded values displayed in the tables may differ (usually by no more than one point) from the results that would be obtained by subtracting the unrounded values.

The reader is cautioned against making causal inferences about the performance of groups of students relative to demographic variables. Many factors other than those discussed here, including home and school factors, may affect student performance.

NAEP collects information on many additional variables, including school and home factors related to achievement. All of this information is in an interactive database available on the NAEP website (http://nces.ed.gov/nationsreportcard/naepdata/).

Gender

Information on student gender was reported by the student's school when rosters of the students eligible to be assessed were submitted to NAEP.

Table 3 shows average scale scores and achievement-level data for public school students at grade 8 in California and the nation, by gender.

Score "gaps". In the bulleted text that follows, statements that compare the score gap between male and female students first make the comparison for the current year, and then for the initial year of the assessment if the state participated. Intervening years are not compared. If the size of the score gap has changed significantly from the initial assessment year to the current year, the bullet will indicate a narrowing or widening of the score gap.

Grade 8 Scale Score Results by Gender

- In 2007, male students in California had an average score that was lower than that of female students by 18 points. In 1998, the average score for male students was lower than that of female students by 15 points.
- In 2007, male students in California had an average scale score in writing (139) that was lower than that of male students in public schools across the nation (144). Similarly, female students in California had an average scale score (157) that was lower than that of female students across the nation (164).
- In California, the average scale score of male students in 2007 was higher than the score of these students in 1998, but not found to be significantly different from the score of these students in 2002.
- In California, the average scale score of female students in 2007 was higher than the scores of these students in 1998 and 2002.

Grade 8 Achievement-Level Results by Gender

- In the 2007 assessment, 17 percent of male students and 33 percent of female students performed at or above *Proficient* in California. The difference between these percentages was statistically significant.
- The percentage of male students in California's public schools who were at or above *Proficient* in 2007 (17 percent) was smaller than that of males in the nation (20 percent).
- The percentage of female students in California's public schools who were at or above *Proficient* in 2007 (33 percent) was smaller than that of females in the nation (41 percent).
- In California, the percentage of male students performing at or above *Proficient* in 2007 was not significantly different from the corresponding percentages of students in 1998 and 2002.
- In California, the percentage of female students performing at or above *Proficient* in 2007 was greater than the percentage of students in 1998, but not significantly different from the percentage of students in 2002.

Table 3

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP writing, by gender, assessment year, and jurisdiction: 1998, 2002, and 2007

Gender, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Male							
1998	Nation (public)	51	138*	24*	76*	15*	#*
	California	48*	133*	30*	70*	15	1
2002	Nation (public)	50	141*	23*	77*	20	1
	California	52	137	27	73	17	#
2007	Nation (public)	51	144	18	82	20	1
	California	52	139	23	77	17	1
Female							
1998	Nation (public)	49	158*	10*	90*	34*	2*
	California	52*	148*	18*	82*	25*	2
2002	Nation (public)	50	162*	9*	91*	40	3
	California	48	152*	16*	84*	30	2
2007	Nation (public)	49	164	7	93	41	3
	California	48	157	11	89	33	2

Rounds to zero.
* Value is significantly different from the value for the same jurisdiction and student group in 2007.
NOTE: The NAEP grade 8 writing scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP writing scale: below *Basic*, 113 or lower; *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Race/Ethnicity

Schools reported the racial/ethnic subgroup that best described the students eligible to be assessed. The six mutually exclusive categories are White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Table 4 shows average scale scores and achievement-level data for public school students at grade 8 in California and the nation, by race/ethnicity.

Score "gaps". In the bulleted text that follows, statements that compare the score gap between White and Black or White and Hispanic students first make the comparison for the current year, and then for the initial year of the assessment if the state participated. Intervening years are not compared. If the size of the score gap has changed significantly from the initial assessment year to the current year, the bullet will indicate a narrowing or widening of the score gap.

Grade 8 Scale Score Results by Race/Ethnicity

- In 2007, White students in California had an average scale score that was higher than the scores of Black, Hispanic, and American Indian/Alaska Native students, but was not found to be significantly different from the score of Asian/Pacific Islander students.
- In 2007, the average scale scores of White and Hispanic students in California were higher than scores in 1998, but not found to be significantly different from scores in 2002.
- In 2007, the average scale score of Black students in California was not found to be significantly different from the scores of these students in 1998 and 2002.
- In 2007, the average scale score of Asian/Pacific Islander students in California was not found to be significantly different from the scores of these students in 1998 and 2002.
- In 2007, Black students in California had an average score that was lower than that of White students by 23 points. In 1998, the average score for Black students was lower than that of White students by 20 points.
- In 2007, Hispanic students in California had an average score that was lower than that of White students by 24 points. This performance gap was narrower than that of 1998 (30 points).

Grade 8 Achievement-Level Results by Race/Ethnicity

- In California in 2007, the percentage of White students performing at or above *Proficient* was greater than the percentages of Black, Hispanic, and American Indian/Alaska Native students, but was not found to be significantly different from the percentage of Asian/Pacific Islander students.
- In 2007, the percentages of White and Hispanic students in California performing at or above *Proficient* were greater than the corresponding percentage in 1998, but not found to be significantly different from the corresponding percentage in 2002.
- In 2007, the percentage of Black students in California performing at or above *Proficient* was not found to be significantly different from the corresponding percentage in 1998 and 2002.
- In 2007, the percentage of Asian/Pacific Islander students in California performing at or above *Proficient* was not found to be significantly different from the corresponding percentage in 1998 and 2002.

Table 4

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP writing, by race/ethnicity, assessment year, and jurisdiction: 1998, 2002, and 2007

Race/ethnicity, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
White							
1998	Nation (public)	69*	155*	12*	88*	31*	1*
	California	42*	154*	13	87	30*	2
2002	Nation (public)	64*	159*	11*	89*	37*	3
	California	37	156	12	88	34	2
2007	Nation (public)	58	162	8	92	39	2
	California	31	161	9	91	38	2
Black							
1998	Nation (public)	16*	130*	30*	70*	7*	#
	California	8	134	26	74	11	#
2002	Nation (public)	15*	134*	27*	73*	13*	#
	California	7	128	34	66	10	#
2007	Nation (public)	17	140	20	80	15	#
	California	7	138	23	77	13	#
Hispanic							
1998	Nation (public)	11*	130*	31*	69*	9*	#*
	California	39*	123*	38*	62*	7*	#
2002	Nation (public)	14*	135*	28*	72*	15	1
	California	42	132	30	70	13	#
2007	Nation (public)	19	141	21	79	17	#
	California	48	137	23	77	13	#
Asian/Pacific Islander							
1998	Nation (public)	3*	152	16	84	30	2
	California	10	157	12	88	35	3
2002	Nation (public)	4	159*	13*	87*	39	3
	California	13	155	15	85	36	3
2007	Nation (public)	5	166	8	92	45	5
	California	12	164	10	90	44	4

See notes at end of table.

Table 4

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP writing, by race/ethnicity, assessment year, and jurisdiction: 1998, 2002, and 2007—Continued

Race/ethnicity, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
American Indian/Alaska Native							
1998	Nation (public)	1	130	33	67	11	#
	California	1	‡	‡	‡	‡	‡
2002	Nation (public)	1	138	25	75	17	1
	California	1	‡	‡	‡	‡	‡
2007	Nation (public)	1	143	21	79	21	1
	California	1	136	29	71	17	1
Unclassified[1]							
1998	Nation (public)	#*	143*	18	82	20	#
	California	1	‡	‡	‡	‡	‡
2002	Nation (public)	1*	150	17	83	28	1
	California	1	‡	‡	‡	‡	‡
2007	Nation (public)	1	158	11	89	34	2
	California	1	‡	‡	‡	‡	‡

Rounds to zero.
‡ Reporting standards not met.
* Value is significantly different from the value for the same jurisdiction and student group in 2007.
[1] The Unclassified category includes students whose school-reported race/ethnicity was "other" or unavailable, or was missing, and whose race/ethnicity category could not be determined from self-reported information.
NOTE: The NAEP grade 8 writing scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP writing scale: below *Basic*, 113 or lower; *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Student Eligibility for the National School Lunch Program

NAEP collects data on eligibility for the federal program providing free or reduced-price school lunches. The free/reduced-price lunch component of the National School Lunch Program (NSLP) offered through the U.S. Department of Agriculture (USDA) is designed to ensure that children near or below the poverty line receive nourishing meals. Eligibility is determined through the USDA's Income Eligibility Guidelines, and results for this category of students are included as an indicator of lower family income.

Table 5 shows average scale scores and achievement-level data for public school students at grade 8 in California and the nation, by student eligibility for the National School Lunch Program.

Score "gaps". In the bulleted text that follows, statements that compare the score gap between eligible and not eligible students first make the comparison for the current year, and then for the initial year of the assessment if the state participated. Intervening years are not compared. If the size of the score gap has changed significantly from the initial assessment year to the current year, the bullet will indicate a narrowing or widening of the score gap.

Grade 8 Scale Score Results by Free/Reduced-Price School Lunch Eligibility

- In 2007, eligible students in California had an average writing scale score of 136. This was lower than that of students in California who were not eligible (159).
- In 2007, eligible students in California had an average score that was lower than that of students who were not eligible by 23 points. This performance gap was narrower than that of 1998 (33 points).
- Eligible students in California had an average scale score (136) in 2007 that was lower than that of eligible students in the nation (141).
- In California, eligible students had an average writing scale score in 2007 that was higher than that of eligible students in 1998, but not found to be significantly different from that of eligible students in 2002.

Grade 8 Achievement-Level Results by Free/Reduced-Price School Lunch Eligibility

- In California in 2007, 13 percent of eligible students and 36 percent of those who were not eligible performed at or above *Proficient*. These percentages were found to be significantly different from one another.
- For eligible students in California in 2007, the percentage at or above *Proficient* (13 percent) was smaller than the corresponding percentage for their counterparts around the nation (17 percent).
- In California, the percentage of eligible students performing at or above *Proficient* for 2007 was higher than the percentage for 1998, but not found to be significantly different from the percentage for 2002.

Table 5

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP writing, by eligibility for National School Lunch Program, assessment year, and jurisdiction: 1998, 2002, and 2007

Eligibility status, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Eligible							
1998	Nation (public)	30*	131*	29*	71*	10*	#*
	California	39*	121*	40*	60*	6*	#
2002	Nation (public)	34*	136*	27*	73*	15	#
	California	36*	132	31	69	14	#
2007	Nation (public)	41	141	20	80	17	#
	California	47	136	24	76	13	#
Not eligible							
1998	Nation (public)	58	156*	11*	89*	32*	1*
	California	45	155	12	88	30	2
2002	Nation (public)	56	161*	10*	90*	38	3
	California	46	158	11	89	35	2
2007	Nation (public)	58	164	7	93	40	3
	California	49	159	10	90	36	2
Information not available							
1998	Nation (public)	12*	150	17	83	27	1
	California	17*	148	17	83	24	2
2002	Nation (public)	10*	154	15	85	32	3
	California	18*	145	21	79	22	1
2007	Nation (public)	1	149	15	85	25	2
	California	4	146	15	85	20	1

Rounds to zero.
* Value is significantly different from the value for the same jurisdiction and student group in 2007.
NOTE: The NAEP grade 8 writing scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP writing scale: below *Basic*, 113 or lower; *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Type of Location

Schools that participated in the assessment were classified as being located in four mutually exclusive types of community: city, suburb, town, and rural. These categories indicate the geographic locations of schools. "City" is a geographical term meaning the principal city of a U.S. Census Bureau-defined Core-Based Statistical Area and is not synonymous with "inner city." The criteria for classifying schools with respect to type of location changed for 2007; therefore, comparisons with prior years are not provided. More detail on the changes for the classification of type of location is available at http://nces.ed.gov/ccd/Rural_Locales.asp.

Table 6 shows average scale scores and achievement-level data for public school students at grade 8 in California and the nation, by type of location (for 2007 only).

Grade 8 Scale Score Results by Type of Location

- In 2007 in California, the average score of students attending schools in city locations was not found to be significantly different from the scores of these students in suburban, town, and rural schools.
- In 2007, students attending public schools in suburban and town locations in California had average scores that were lower than the average scores of these students in suburban and town locations in the nation.
- In 2007, students attending public schools in city and rural locations in California had average scores that were not significantly different from the average scores of these students in city and rural locations in the nation.

Grade 8 Achievement-Level Results by Type of Location

- In 2007, the percentage of students in California's public schools in city locations who performed at or above *Proficient* was not found to be significantly different from the corresponding percentages of students in suburban, town, and rural schools.
- The percentage of students in California's public schools in suburban locations who performed at or above *Proficient* in 2007 was lower than that of students in suburban locations in the nation.
- The percentages of students in California's public schools in city, town, and rural locations who performed at or above *Proficient* in 2007 were not found to be significantly different from those of students in city, town, and rural locations in the nation.

Table 6

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP writing, by type of location, assessment year, and jurisdiction: 2007

Type of location, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
City							
2007	Nation (public)	28*	148	17	83	25	1
	California	41	146	19	81	23	1
Suburb							
2007	Nation (public)	36*	159*	10*	90*	36*	2*
	California	43	150	15	85	26	1
Town							
2007	Nation (public)	13*	152*	13*	87*	28	1
	California	8	142	22	78	20	1
Rural							
2007	Nation (public)	23*	155	11	89	30	1
	California	8	153	12	88	26	1

* Value is significantly different from the value for the same group in California.
NOTE: The NAEP grade 8 writing scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP writing scale: below *Basic*, 113 or lower; *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Writing Assessment.

Parents' Highest Level of Education

Eighth-grade students who participated in the NAEP 2007 assessment were asked to indicate the highest level of education they thought their father and their mother had completed. Five response options—did not finish high school, graduated from high school, some education after high school, graduated from college, and "I don't know"—were offered. The highest level of education reported for either parent was used in the analysis.

The results by highest level of parental education are shown in table 7.

Grade 8 Scale Score Results by Parents' Highest Level of Education

- In 2007, students in California who reported that a parent had graduated from college had an average scale score that was higher than the average scores of students with a parent in any of the following education categories: did not finish high school, graduated from high school, and some education after high school.
- In 2007, the average scale score for students in California who reported that a parent had graduated from college, or had not finished high school, or had some education after high school was not found to be significantly different from the score of their peers in 2002.
- In 2007, the average scale score for students in California who reported that a parent had graduated from high school was higher than the score of their peers in 2002.

Grade 8 Achievement-Level Results by Parents' Highest Level of Education

- In 2007, the percentage of students performing at or above *Proficient* in California who reported that a parent had graduated from college was higher than the percentage for students whose parents' highest level of education was in any of the following education categories: did not finish high school, graduated from high school, and some education after high school.
- In 2007, the respective percentages of students reporting that a parent had graduated from college, or had not finished high school, or had graduated from high school, or had some education after high school who performed at or above *Proficient* were not found to be significantly different from the percentage of their peers in 2002.

Table 7

Percentage of eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP writing, by student-reported highest level of parental education, assessment year, and jurisdiction: 2002 and 2007

Parental education level, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Did not finish high school							
2002	Nation (public)	7*	135*	27*	73*	14	#
	California	11	133	29	71	13	#
2007	Nation (public)	8	139	21	79	13	#
	California	12	138	20	80	11	#
Graduated from high school							
2002	Nation (public)	18*	144*	19*	81*	20	1
	California	14	136*	27	73	14	1
2007	Nation (public)	18	146	16	84	21	#
	California	15	144	18	82	20	#
Some education after high school							
2002	Nation (public)	20*	155*	12*	88*	31	1
	California	21*	149	16	84	26	1
2007	Nation (public)	17	158	9	91	32	1
	California	17	152	13	87	27	1
Graduated from college							
2002	Nation (public)	46	163	10*	90*	41	4
	California	37	160	11	89	37	2
2007	Nation (public)	46	164	8	92	42	3
	California	38	160	10	90	37	3
Unknown							
2002	Nation (public)	10*	131*	31*	69*	12	#
	California	16	128	33	67	10	#
2007	Nation (public)	11	135	26	74	12	#
	California	18	130	29	71	9	#

Rounds to zero.
* Value is significantly different from the value for the same jurisdiction and student group in 2007.
NOTE: The NAEP grade 8 writing scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP writing scale: below *Basic*, 113 or lower; *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2002 and 2007 Writing Assessments.

Toward a More Inclusive NAEP: Students With Disabilities and English Language Learners

It is important to assess all students chosen through the sampling process, including students with disabilities (SD) and students who are classified by their schools as English language learners (ELL). Some students sampled for participation in NAEP can be excluded from the sample according to carefully defined criteria.

School staff make the decisions about whether to include an SD or ELL student in a NAEP assessment, and which testing accommodations, if any, they should receive. The NAEP program furnishes tools to assist school personnel in making those decisions.

A sampling procedure is used to select students at each grade being tested. Students are selected on a random basis, without regard to SD or ELL status. Once the students are selected, the schools identify those who have SD or ELL status. School staff who are familiar with these students are asked a series of questions to help them decide whether each student should participate in the assessment and whether the student needs accommodations.

Inclusion in NAEP of an SD or ELL student is encouraged (a) if that student participated in the regular state academic assessment in the subject being tested, and (b) if that student can participate in NAEP with the accommodations NAEP allows. Even if the student did not participate in the regular state assessment, or took the state's alternate assessment, or needs accommodations NAEP does not allow, school staff are asked whether that student could participate in NAEP with the allowable accommodations. (One of the examples of testing accommodations not allowed for NAEP is extending testing over several days because NAEP administrators are in each school for only one day.)

The results displayed in this report and in other publications of the NAEP 2007 writing results are based on representative samples that include SD and ELL students who were assessed either with or without accommodations, based on NAEP's guidelines.

Percentages of students excluded from NAEP may vary considerably across states and within a state across years. Comparisons of results across states and within a state across years should be interpreted with caution if the exclusion rates vary widely. The percentages of assessed students classified as SD or ELL, as well as their NAEP performance in each participating state and jurisdiction, are available in an interactive database at the NAEP website at http://nces.ed.gov/nationsreportcard/naepdata/.

Prior to 1998, no testing accommodations were made available to the samples of students with disabilities and the English language learners in state NAEP writing assessments that served as the basis for reported results. In the 1996 national and 2000 national and state mathematics and reading assessments, NAEP researchers drew a second representative sample of schools. Accommodations were made available for students in this sample who required them, provided the accommodation did not change the nature of what was tested. For example, students could be assessed one-on-one or in small groups, receive extended time, or use a large-print test booklet. In mathematics, students had the option of having the test questions read aloud in English or using a bilingual English-Spanish test booklet. However, in the mathematics assessment, students were not allowed to use calculators for any questions on which calculators were not permitted. NAEP has used these comparable samples to study the effects of allowing accommodations for students categorized as SD or ELL in the assessments. A series of technical research papers covering various NAEP subject areas has been published with the results of these comparisons (see http://nces.ed.gov/nationsreportcard/about/inclusion.asp #research). In writing, when a new framework was introduced in 1998, accommodations were permitted and have continued to be permitted in the subsequent assessments.

Table 8 displays the percentages of students with disabilities and English language learners in California identified, excluded, and assessed under standard and accommodated conditions at grade 8.

Table 9 shows the percentages of students assessed in California by disability status and their performance on the NAEP assessment in terms of average scale scores and percentages performing below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced* for grade 8.

Table 10 presents the percentages of students assessed in California by ELL status, their average scale scores, and their performance in terms of the percentages below *Basic*, the percentages at or above *Basic*, at or above *Proficient*, and at *Advanced*.

Table 11 presents the percentages of students with disabilities and English language learners in each participating state identified, excluded, and assessed with and without accommodations at grade 8.

Table 8

Eighth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL) in NAEP writing, as a percentage of all students, by assessment year and testing status: 1998, 2002, and 2007

Year and testing status		SD and/or ELL		SD		ELL	
		California	Nation	California	Nation	California	Nation
1998	**Identified**	23	14	7	11	17	3
	Excluded	6	4	3	4	4	1
	Assessed under standard conditions	15	7	3	5	13	2
	Assessed with accommodations	2	3	2	3	#	#
2002	**Identified**	27	18	10	13	21	6
	Excluded	3	4	2	3	2	1
	Assessed under standard conditions	20	8	5	5	17	4
	Assessed with accommodations	3	5	3	5	1	1
2007	**Identified**	27	18	9	13	21	7
	Excluded	2	3	1	3	1	1
	Assessed under standard conditions	20	6	4	3	17	4
	Assessed with accommodations	5	9	4	8	2	2

Rounds to zero.
NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Table 9

Percentage of assessed eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP writing, by students with disabilities (SD) status, assessment year, and jurisdiction: 1998, 2002, and 2007

SD status, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
SD							
1998	Nation (public)	8*	109*	58*	42*	2*	#
	California	5*	97*	67	33	#	#
2002	Nation (public)	11	112*	54*	46*	4	#
	California	9	101*	67	33	2	#
2007	Nation (public)	11	118	46	54	6	#
	California	8	111	56	44	6	#
Not SD							
1998	Nation (public)	92*	151*	13*	87*	26*	1*
	California	95*	143*	22*	78*	21*	1
2002	Nation (public)	89	156*	12*	88*	33	2
	California	91	148	17	83	25	1
2007	Nation (public)	89	159	9	91	33	2
	California	92	151	14	86	26	1

Rounds to zero.
* Value is significantly different from the value for the same jurisdiction and student group in 2007.
NOTE: The NAEP grade 8 writing scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP writing scale: below *Basic*, 113 or lower; *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for students with disabilities in the NAEP samples and by differences in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Table 10

Percentage of assessed eighth-grade public school students, average scale scores, and percentage at or above achievement levels in NAEP writing, by English language learners (ELL) status, assessment year, and jurisdiction: 1998, 2002, and 2007

ELL status, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
ELL							
1998	Nation (public)	2*	107*	59*	41*	2*	#
	California	14*	108*	58*	42*	3	#
2002	Nation (public)	5*	115*	49*	51*	6	#
	California	19	117	46	54	6	#
2007	Nation (public)	6	120	42	58	5	#
	California	20	120	41	59	5	#
Not ELL							
1998	Nation (public)	98*	149*	16*	84*	25*	1*
	California	86*	146*	18*	82*	23*	1
2002	Nation (public)	95*	153*	14*	86*	31	2
	California	81	150	16*	84*	27	1
2007	Nation (public)	94	156	11	89	32	2
	California	80	155	11	89	30	2

Rounds to zero.
* Value is significantly different from the value for the same jurisdiction and student group in 2007.
NOTE: The NAEP grade 8 writing scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP writing scale: below *Basic*, 113 or lower; *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. All differences were tested for statistical significance at the .05 level using unrounded numbers. Detail may not sum to totals because of rounding. Performance comparisons may be affected by differences in exclusion rates for English language learners in the NAEP samples and by differences in sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Table 11

Eighth-grade public school students with disabilities and/or English language learners identified, excluded, and assessed in NAEP writing, as a percentage of all students, by jurisdiction: 2007

State/jurisdiction	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**18**	**3**	**15**	**6**	**9**
Alabama	14	2	12	8	3
Arizona	19	3	16	10	6
Arkansas	16	2	14	4	10
California	27	2	25	20	5
Colorado	15	3	12	4	8
Connecticut	14	2	13	3	9
Delaware	16	5	11	3	8
Florida	19	3	17	2	15
Georgia	13	2	11	3	8
Hawaii	19	1	18	8	11
Idaho	14	2	12	6	6
Illinois	17	3	14	3	11
Indiana	16	3	13	3	10
Iowa	16	2	15	3	12
Kansas	17	4	13	4	9
Kentucky	15	6	9	2	6
Louisiana	14	2	12	1	10
Maine	20	4	16	4	12
Massachusetts	22	6	16	3	13
Michigan	16	4	12	3	9
Minnesota	17	2	15	6	9
Mississippi	10	2	9	1	7
Missouri	15	2	12	3	9
Montana	16	2	14	4	10
Nevada	21	3	18	11	7
New Hampshire	20	3	17	5	12
New Jersey	18	3	15	2	13
New Mexico	27	5	23	13	9
New York	19	3	17	1	16
North Carolina	18	2	16	3	13
North Dakota	16	5	10	3	7
Ohio	15	4	11	2	9
Oklahoma	19	4	15	6	9
Pennsylvania	18	3	15	4	11
Rhode Island	21	3	19	5	13
South Carolina	15	3	12	5	8
Tennessee	13	3	10	5	5
Texas	18	7	12	8	4
Utah	19	3	16	9	7
Vermont	22	4	18	5	13
Virginia	18	6	12	4	8
Washington	16	4	12	5	7
West Virginia	16	1	15	5	9
Wisconsin	18	4	14	3	11
Wyoming	16	3	13	5	8
Other jurisdictions					
DoDEA[1]	11	2	9	3	6

[1] Department of Defense Education Activity (overseas and domestic schools).
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Writing Assessment.

Appendix

Overview

This appendix provides an overview of the NAEP 2007 writing assessment's primary components—framework, development, administration, scoring, and analysis. The information provided about the state and national assessments covers grades 8 and 12 (grade 4 was not assessed in 2007, and grade 12 was assessed only with a national, not a state sample), as well as NAEP's Trial Urban District Assessment (TUDA). References marked within the text appear as end notes on the last page of this appendix.

The NAEP Writing Assessment

The National Assessment Governing Board, created by Congress in 1988, is responsible for formulating policy for NAEP. The Governing Board is specifically charged with developing assessment objectives and test specifications. The NAEP 2007 writing assessment is based on the 1998 writing assessment framework that also guided the 2002 assessment. The framework describes the basis for the Writing Assessment, the types of writing assessed, and the methods for scoring student responses. This framework was developed during 1989–90 in preparation for the 1992 NAEP Writing Assessment. For the 1998, 2002, and 2007 assessments, the framework was augmented by a set of Writing Assessment and Exercise Specifications developed during 1995–96. A new framework is under development for the 2011 writing assessment.

Based on the expert opinions of writing educators and researchers, the framework's purpose is to provide a definition of writing upon which the NAEP writing assessment can be based. The framework development process involved the critical input of hundreds of individuals across the country, including representatives of national education organizations, teachers, parents, policymakers, business leaders, and the interested general public. The process was managed by the Center for Research on Evaluation, Standards, and Student Testing (CRESST) for the National Assessment Governing Board, and the test question specifications were developed under contract by American College Testing (ACT) for the Governing Board.

The assessment is designed around the following six overarching objectives:

• Students should write for a variety of purposes (narrative, informative, and persuasive).

• Students should write on a variety of tasks (letters, essays, stories, reports) and for many different audiences (peers, school or government officials, business representatives).

• Students should write from a variety of stimulus materials and within various time constraints.

• Students should generate, draft, revise, and edit ideas and forms of expression in their writing.

• Students should display effective choices in the organization of their writing. They should include detail to illustrate and elaborate their ideas and use appropriate conventions of written English.

• Students should value writing as a communicative activity.

Figure A-1 gives examples of various writing tasks similar to those included in the assessment at grades 8 and 12. Included in the figure are descriptions of sample tasks that illustrate how each purpose for writing is assessed.

Figure A-1

Illustrative examples of NAEP writing tasks at grades 8 and 12, by purpose for writing

Purposes for writing	Grade 8	Grade 12
Narrative	Provide visual stimuli. Ask students to write an article for a sports magazine telling the story of a time when they participated in a hobby or skill they enjoyed.	Provide an appropriate quotation. Ask students to write a letter to a friend telling the story of a time in their lives when they had to make an important decision.
Informative	Provide a series of brief journal entries from another historical time. Ask students to explain what is revealed about the person who wrote the entries.	Provide quotations from a political campaign. Ask students to choose one and in an essay inform their social studies teacher what it means in the context of the campaign.
Persuasive	Provide brief reviews, as models, of a film, TV program, or book. Ask students to write a review for the school newspaper that will convince other students to watch a favorite film or TV program or read a favorite book.	Provide a quotation on education in the United States. Ask students to write a letter to the editor of their local newspaper taking a position on some aspect of education and support it from their own experiences.

SOURCE: National Assessment Governing Board. *Writing Framework and Specifications for the 1998 National Assessment of Education Progress*. Washington, DC: Author.

The framework specifies the percentage of the writing tasks in the assessment that should be devoted to each of the three writing purposes—narrative, informative, and persuasive. The actual distributions of writing tasks in the 2007 assessment are listed in table A-1.

Table A-1

Target percentage of assessment time in NAEP writing and actual number of NAEP writing tasks, by grade and purpose of writing: 2007

	Grade 8		Grade 12	
Purposes of writing	Target percentage of assessment time	Number of tasks	Target percentage of assessment time	Number of tasks
Narrative	33	6	25	4
Informative	33	6	35	6
Persuasive	33	5	40	7

NOTE: NAEP writing was not assessed at grade 4 in 2007. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Writing Assessment.

The Assessment Design

Each student who participated in the writing assessment received a booklet containing two 25-minute writing tasks. All student responses to the writing tasks were rated according to a six-level scoring guide. In addition, the test booklets contained general background questions and writing-specific background questions.

The assessment design allowed for maximum coverage of the writing domain at each grade, while minimizing the time burden for any one student. This was accomplished through the use of matrix sampling of tasks, in which each student was given only 2 of the 17 tasks at each grade level. Representative samples of students responded to each task, so that the aggregate results across the entire assessment allow broad reporting of writing abilities for the targeted population.

In addition to matrix sampling, the assessment design utilized a procedure for distributing blocks across booklets that controlled for position and context effects. Students received different blocks of tasks in their booklets according to a procedure called "partially balanced incomplete block (PBIB) spiraling." The procedure assigned blocks of questions in a manner that balanced the positioning of blocks across booklets and balanced the pairing of blocks within booklets according to purposes for writing. Blocks were balanced within each purpose for writing and were partially balanced across purposes for writing. (The spiraling aspect of this procedure cycles the booklets for administration so that, typically, only a few students in any assessment session receive the same booklets.)

In addition to the student assessment booklets, three other instruments provided data relating to the assessment: a teacher questionnaire, a school questionnaire, and questionnaires about students with disabilities (SD) and/or English language learners (ELL). The teacher questionnaire was administered to teachers of eighth-grade students participating in the assessment. The questionnaire focused on the teacher's general background and experience, the teacher's background related to writing, and the type of classroom organization. The school questionnaire was given to the principal or other administrator in each participating school. The questions asked about school policies, programs, facilities, and the demographic composition and background of the students and teachers at the school.

The SD and ELL questionnaires were completed by a school staff member knowledgeable about those students selected to participate in the assessment who were identified as having an Individualized Education Program (IEP) or equivalent plan (for reasons other than being gifted or talented) or as being an English language learner. An SD or ELL questionnaire was completed for each identified student in the NAEP sample. Each SD or ELL questionnaire asked about the student (for example, type of disability or language spoken other than English) and the special instructional programs (i.e., proportion of time spent in mainstream/general education classes or specially designed instruction) in which the student participated.

NAEP Samples

National Sample

The national results presented in this report are based on nationally representative probability samples of eighth- and twelfth-grade students. The samples were chosen using a stratified two-stage design that involved sampling students from selected schools.

At grade 8 the national sample consisted of the combined sample of public school students assessed in each state that participated in the NAEP state assessment program in writing (including Department of Defense schools in the U.S. and overseas), a representative sample of public schools from the remaining states (including the District of Columbia), and additional nonpublic school samples, covering private schools and Bureau of Indian Affairs schools. The approach of integrating the national and state samples has been used in NAEP since 2002. Prior to 2002, separate samples were drawn for the NAEP national and state assessments. For grade 12, national samples of public and nonpublic schools were selected from across the country, by including a sample of schools and students from each state and the District of Columbia.

For 2007, the sampling frame for public schools was the Common Core of Data (CCD) file corresponding to the 2004–05 school year. The CCD file provided the frame for all regular public, state-operated public, Bureau of Indian Education, and Department of Defense schools that were open during the 2004–05 school year. The sampling frame for private schools was developed from the 2003–04 Private School Survey (PSS), which was carried out by the U.S. Census Bureau for the National Center for Education Statistics (NCES). The PSS is a biennial mail survey of all private schools in the 50 states and the District of Columbia. Supplemental samples of newly-opened public and Catholic schools, drawn from lists other than those of the CCD and PSS, were also selected so as to ensure maximum coverage of the target population.

Each selected school that participated in the assessment and each student assessed represents a portion of the population of interest. Sampling weights are needed to make valid inferences from the student samples to the respective populations from which they were drawn. While each state's NAEP sample provides a representative sample for that state, no state's sample is exactly proportionate to its share of the nation's student population as a whole. Sampling weights compensate for the disproportionate state samples and do the same for the sample of students attending nonpublic schools. Sampling weights also account for lower sampling rates for very small schools and are used to adjust for school and student nonresponse.

For the 2007 national writing assessment, as for the 1998 and 2002 assessments, accommodations for students with disabilities (SD) and English language learners (ELL) were permitted for the entire sample of students. In 2007, accommodations were offered when a student had an Individualized Education Program (IEP) indicating the need for accommodations because of a disability, or was protected under Section 504 of the Rehabilitation Act of 1973 because of a disability, or was identified as being an English language learner, or was normally offered accommodations in other assessment situations.[1] All other students were asked to participate in the assessment under standard conditions.

Table A-2

Sample sizes and target populations in NAEP writing, by grade and type of school: 2007

	Grade 8		Grade 12	
Type of school	Sample size	Target population	Sample size	Target population
Nation	**145,200**	**3,903,000**	**28,900**	**3,093,000**
Public	140,300	3,554,000	23,000	2,806,000
Nonpublic	4,800	349,000	5,900	287,000

NOTE: The sample size is rounded to the nearest hundred. The target population is rounded to the nearest thousand. Nonpublic school includes private, Bureau of Indian Education, and Department of Defense schools. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Writing Assessment.

Table A-2 shows the sample sizes and target populations for the nation, including both public and nonpublic students. All state reports are based on public school students only. The sample sizes and target populations for the 2007 writing assessment are listed for the nation (public) and states in table A-3. In 2005 and 2007, Department of Defense Education Activity (DoDEA) schools are reported as a single jurisdiction; in past years, domestic (Department of Defense Domestic Dependent Elementary and Secondary Schools or DDESS) and overseas (Department of Defense Dependents Schools or DoDDS) schools were considered separate jurisdictions.

Table A-3

Sample sizes and target populations of eighth-grade public school students in NAEP writing, by state: 2007

State/jurisdiction	Sample size	Target population
Nation (public)	**140,300**	**3,554,000**
Alabama	2,800	57,000
Arizona	2,700	72,000
Arkansas	2,400	34,000
California	8,300	471,000
Colorado	2,700	57,000
Connecticut	2,500	41,000
Delaware	2,800	10,000
Florida	4,000	192,000
Georgia	3,600	120,000
Hawaii	2,700	13,000
Idaho	2,900	21,000
Illinois	4,000	152,000
Indiana	2,700	80,000
Iowa	2,800	37,000
Kansas	2,800	33,000
Kentucky	2,700	46,000
Louisiana	2,400	48,000
Maine	2,600	15,000
Massachusetts	3,700	69,000
Michigan	2,600	121,000
Minnesota	2,900	61,000
Mississippi	2,600	36,000
Missouri	2,800	71,000
Montana	2,600	11,000
Nevada	2,600	28,000
New Hampshire	2,800	16,000
New Jersey	2,800	104,000
New Mexico	2,800	26,000
New York	3,800	206,000
North Carolina	4,200	104,000
North Dakota	2,300	8,000
Ohio	3,700	136,000
Oklahoma	2,600	43,000
Pennsylvania	2,800	139,000
Rhode Island	2,600	12,000
South Carolina	2,700	50,000
Tennessee	2,800	74,000
Texas	7,300	299,000
Utah	2,700	35,000
Vermont	2,000	7,000
Virginia	2,800	90,000
Washington	3,000	77,000
West Virginia	2,900	22,000
Wisconsin	2,700	62,000
Wyoming	1,900	7,000
Other jurisdictions		
BIE[1]	100	3,000
DoDEA[2]	1,600	5,000

[1] Bureau of Indian Education.

[2] Department of Defense Education Activity (overseas and domestic schools).

NOTE: The sample size is rounded to the nearest hundred. The target population is rounded to the nearest thousand. Alaska, the District of Columbia, Maryland, Nebraska, Oregon, and South Dakota did not participate in the 2007 NAEP writing assessment, but they were included in the nationally representative sample. Data for BIE and DoDEA schools are not counted in the national (public) totals. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Writing Assessment.

In the 2007 assessment, as in the 2002, 2003, and 2005 NAEP assessments, a number of large urban school districts participated on a voluntary basis in a Trial Urban District Assessment (TUDA), and larger than normal NAEP samples were drawn in these districts to permit reliable reporting of student group performance. Reports from these Trial Urban District Assessments for 2002 in reading and writing, and 2003, 2005, and 2007 in reading and mathematics, are available on the NAEP website at http://nces.ed.gov/nationsreportcard/; a report for writing in 2007 is forthcoming. The sample sizes and target populations for the districts participating in TUDA are given in table A-4.

Table A-4

Student sample sizes and target populations of eighth-grade public school students for Trial Urban District Assessment in writing, by urban district: 2007

District	Sample size	Target population
Atlanta	900	3,000
Austin	1,500	5,000
Boston	1,200	4,000
Charlotte	1,400	9,000
Chicago	1,800	26,000
Cleveland	1,200	4,000
Houston	2,100	13,000
Los Angeles	2,000	52,000
New York City	2,000	69,000
San Diego	1,400	10,000

NOTE: The sample size is rounded to the nearest hundred. The target population is rounded to the nearest thousand.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Trial Urban District Writing Assessment.

State Samples

The results of the 2007 state assessment in writing provided in this report are based on state-level samples of eighth-grade public school students. The samples were selected using a two-stage sample design that first selected schools within each state or other jurisdiction and then selected students within schools. The samples were weighted to allow valid inferences about the populations of interest. Participation rates for the states and other jurisdictions were calculated the same way that rates were computed for the nation. Table A-5 displays weighted school and student participation rates for the state samples at grade 8. The student-weighted school participation rates are calculated based on the estimated number of students represented by either the initially selected schools that participated in the assessment (before substitution) or the participating schools, whether originally selected or selected as a substitute for a school that chose not to participate (after substitution). The school-weighted school participation rates are calculated based on the estimated number of schools either before or after substitutions.

Table A-5

Public school and student participation rates in NAEP writing at grade 8, by state: 2007

State/jurisdiction	School participation			Student participation	
	Student-weighted percent	School-weighted percent	Number of schools participating	Student-weighted percent	Number of students assessed
Nation (public)	**100**	**100**	**6,310**	**92**	**135,100**
Alabama	100	100	120	93	2,700
Arizona	100	100	130	91	2,600
Arkansas	100	100	120	92	2,400
California	100	100	310	92	8,100
Colorado	96	98	120	92	2,600
Connecticut	97	97	100	91	2,500
Delaware	100	100	50	92	2,600
Florida	100	100	160	91	3,900
Georgia	100	100	120	93	3,500
Hawaii	100	100	70	92	2,700
Idaho	99	99	110	94	2,800
Illinois	100	100	200	93	3,900
Indiana	100	100	110	92	2,600
Iowa	100	100	140	93	2,800
Kansas	100	100	150	93	2,700
Kentucky	100	100	110	93	2,500
Louisiana	100	100	110	92	2,300
Maine	96	98	130	92	2,500
Massachusetts	100	100	140	91	3,400
Michigan	100	100	120	92	2,500
Minnesota	98	99	140	91	2,800
Mississippi	100	100	110	93	2,600
Missouri	100	100	130	94	2,800
Montana	100	98	170	92	2,500
Nevada	100	100	80	87	2,500
New Hampshire	98	98	90	91	2,700
New Jersey	98	97	110	92	2,700
New Mexico	100	100	110	90	2,600
New York	100	100	160	90	3,600
North Carolina	100	100	150	92	4,000
North Dakota	99	98	180	94	2,100
Ohio	100	100	190	92	3,500
Oklahoma	100	100	150	92	2,500
Pennsylvania	100	100	110	92	2,700
Rhode Island	100	100	60	91	2,600
South Carolina	100	100	110	93	2,600
Tennessee	100	100	120	93	2,700
Texas	100	100	220	93	6,800
Utah	100	100	110	91	2,600
Vermont	100	100	120	94	2,000
Virginia	100	100	110	93	2,600
Washington	100	100	130	91	2,800
West Virginia	100	100	120	93	2,800
Wisconsin	98	98	130	92	2,600
Wyoming	100	100	80	92	1,800
Other jurisdiction					
DoDEA[1]	100	98	70	92	1,600

[1] Department of Defense Education Activity (overseas and domestic schools).

NOTE: The numbers of schools are rounded to the nearest ten, and the numbers of students are rounded to the nearest hundred. The percentages for student-weighted school participation and school-weighted school participation have different denominators; see accompanying text for definitions. Substitutions of reserve schools for initially sampled schools were not needed in 2007 because school participation rates were high. Alaska, the District of Columbia, Maryland, Nebraska, Oregon, and South Dakota did not participate in the 2007 NAEP writing assessment, but they were included in the nationally representative sample. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Writing Assessment.

District Samples

Results from the 2007 writing assessment are also reported for district-level samples of eighth-grade students in the large urban school districts that participated in the TUDA—Atlanta City, Austin, Boston School District, Charlotte-Mecklenburg Schools, City of Chicago School District 299, Cleveland Municipal School District, Houston Independent School District, Los Angeles Unified, New York City Public Schools, and San Diego City Unified. The District of Columbia, which is regularly included in NAEP assessments as a jurisdiction, could not participate in the writing assessment because it did not have enough students to participate simultaneously in the reading, mathematics, and writing assessments in 2007. The sample of students in the urban school districts represents an augmentation of the sample of students who would usually be selected as part of the state samples. These samples allow reliable reporting of student groups within these districts. Furthermore, all students at more local geographic sampling levels are assumed to be part of broader samples. For example, Houston is one of the urban districts included in the TUDA. Data from students tested in the Houston sample were used to report results for Houston, but also contributed to the Texas and national estimates. Participation rates for the urban district samples are presented in table A-6.

Table A-6

Public school and student participation rates for Trial Urban District Assessment in writing at grade 8, by urban district: 2007

	School participation		Student participation	
District	Student-weighted percent	Number of schools participating	Student-weighted percent	Number of students assessed
Atlanta	100	20	91	900
Austin	100	20	92	1,400
Boston	100	30	91	1,100
Charlotte	100	30	90	1,300
Chicago	100	100	95	1,700
Cleveland	100	80	87	1,100
Houston	100	50	92	1,900
Los Angeles	100	70	91	2,000
New York City	100	80	88	1,900
San Diego	100	30	93	1,400

NOTE: The numbers of schools are rounded to the nearest ten, and the numbers of students are rounded to the nearest hundred. Substitutions of reserve schools for initially sampled schools were not needed in 2007 because school participation rates were high. The percentages for school-weighted and student-weighted school participation are both at 100 percent for the participating districts in 2007.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Trial Urban District Writing Assessment.

Standards for State Sample Participation and Reporting of Results

In carrying out the 2007 state assessment program, the National Center for Education Statistics (NCES) established participation rate standards that states and other jurisdictions were required to meet for their results to be reported. NAEP state assessment results are based only on public schools. Participation rates before substitution needed to be at least 85 percent for schools and at least 85 percent for students. In the 2007 writing assessment at grade 8, all participating jurisdictions met NCES participation rate standards. Further information on the NCES guidelines used to report results in the state assessments, and the guidelines for notations when there was some risk of nonresponse bias in the reported results prior to the 2003 assessments, can be found in the NAEP 2002 writing report card (NCES 2003–529; see appendix A, "Standards for Sample Participation and Reporting of Results").

Students With Disabilities (SD) and/or English Language Learners (ELL)

It is important to assess all selected students from the target population. Therefore, every effort is made to ensure that all selected students who are capable of participating in the assessment are assessed. Some students sampled for participation in NAEP can be excluded from the sample according to carefully defined criteria. These criteria were revised in 1996 to communicate more clearly a presumption of inclusion except under special circumstances. According to these criteria, students who had an Individualized Education Program (IEP) or were protected under Section 504 of the Rehabilitation Act of 1973 were to be included in the NAEP assessment.

In the 2007 assessment, procedures for including SD and ELL students were further refined. School staff made the decisions about whether to include an SD or ELL student in a NAEP assessment and which testing accommodations, if any, they should receive. All ELL students are assessed in NAEP the same way they are in their state assessments. If an ELL student takes a simplified English or native language academic assessment, NAEP staff work with the school to determine if the student could take NAEP assessments with any of the allowable accommodations. The NAEP program furnishes tools to assist school personnel in making those decisions.

A sampling procedure was used to select students at each grade being tested. Students were selected on a random basis, without regard to SD or ELL status. Once the students were selected, the schools identified those who had SD or ELL status. School staff who were familiar with these students were asked a series of questions to help them decide whether each student should participate in the assessment and whether the student needs accommodations.

Inclusion in NAEP of an SD or ELL student is encouraged (a) if that student participated in the regular state academic assessment in the subject being tested, and (b) if that student can participate in NAEP with the accommodations NAEP allows. Even if the student did not participate in the regular state assessment, or if he/she needs accommodations NAEP does not allow, school staff are asked whether that student could participate in NAEP with the allowable accommodations. (For example, extending testing over several days is not allowed for NAEP because NAEP administrators are in each school for only one day.)

Participation of SD/ELL Students in the NAEP Samples

Testing all sampled students is the best way for NAEP to ensure that the statistics generated by the assessment are as representative as possible of the performance of the entire national population and the populations of participating jurisdictions. However, all groups of students include certain proportions that cannot be tested in large-scale assessments (such as students who have profound mental disabilities) or who can only be tested through the use of testing accommodations such as extra time, one-on-one administration, or use of magnifying equipment. Some students with disabilities and some English language learners cannot show on a test what they know and can do unless they are provided with accommodations. When such accommodations are not allowed, students requiring such adjustments are often excluded from large-scale assessments such as NAEP. This phenomenon has become more common since the 1990s, particularly with the passage of the 1997 Individuals with Disabilities Education Act (IDEA), which led schools and states to identify increasing proportions of students as needing accommodations on assessments to best show what they know and can do.[2] Furthermore, section 504 of the Rehabilitation Act of 1973 requires that, when students with disabilities are tested, schools must provide them with appropriate accommodations so that the test results accurately reflect students' achievement. In addition, as the proportion of ELL students in the population has increased, some states have started offering accommodations such as translations of assessments or the use of bilingual dictionaries as part of the assessments.

Before 1996, no testing under nonstandard conditions was allowed in NAEP, and accommodations were not permitted. At that time, NAEP samples were able to include almost all sampled students in standard assessment sessions. However, as the influence of IDEA became more widespread, the failure to provide accommodations led to increasing levels of exclusion in the assessment. Such increases posed two threats to the program: they threatened the stability of trend lines (because excluding more students in one assessment year than in another might lead to apparent rather than real differences), and they made NAEP samples less than optimally representative of target populations.

A multipart strategy was adopted as a response to this challenge. The program had to move toward allowing the same assessment accommodations that were afforded students in state and district testing programs for NAEP samples to be as inclusive as possible. However, to allow accommodations represents a change in testing conditions that might affect measurement of changes over time. Therefore, beginning with the 1996 national assessments (in mathematics and science) and the 1998 state assessments in reading, and up to 2000, NAEP assessed a series of parallel samples of students. In one set of samples, testing accommodations were not permitted; this allowed NAEP to maintain the measurement of achievement trends. Parallel samples in which accommodations were permitted were also assessed. By having two overlapping samples[3] and two sets of related data points, NAEP could meet two core program goals. First, data trends could be maintained. Second, parallel trend lines could be reported during the interim until the program transitioned to a sample with accommodations permitted as its only reporting format. Starting in 2002, NAEP has used only the more inclusive samples, in which assessment accommodations are permitted. In writing, all national and state data from 1998 onward have been conducted with accommodations permitted.

To make it possible to evaluate both the impact of increasing exclusion rates in some jurisdictions and differences between jurisdictions, complete data on exclusion in all years are included in this appendix. Because the exclusion rates may affect trend measurement within a jurisdiction, readers should consider the magnitude of exclusion rate changes when interpreting score changes in jurisdictions. In addition, different rates of exclusion may influence the meaning of state comparisons. Thus, exclusion data should be reviewed in this context as well.

Table A-7 presents the percentages of all public and nonpublic school students who were identified as students with disabilities (SD) or as English language learners (ELL), or both. The table also includes the percentages of all students who were excluded SD and/or ELL and the percentages of all students who were assessed SD and/or ELL for those assessments. The denominator for these percentages includes assessed students plus excluded students; it does not include sampled students who were absent or refused to participate. Tables A-8, A-9, and A-10 show similar information by state for SD/ELL, SD, and ELL, respectively.

Table A-11 presents the identification, exclusion, and accommodation information for the districts that participated in the Trial Urban District Assessment.

In the 2007 national sample, 3 percent of students at grade 8 were excluded from the assessment (see table A-7). Across the various jurisdictions that participated in the 2007 state assessment, the percentage of students excluded ranged from 1 to 7 percent at grade 8 (see table A-8). At the district level, between 2 and 11 percent of students were excluded at grade 8 (see table A-11).

Table A-7

Public and nonpublic school students with disabilities (SD) and English language learners (ELL) identified, excluded, and assessed in NAEP writing, as a percentage of all students, by grade and SD/ELL category: 1998, 2002, and 2007

Grade and SD/ELL category	1998	2002	2007
Grade 8			
SD and/or ELL			
Identified	13	17	17
Excluded	4	4	3
Assessed	9	13	14
Without accommodations	6	8	6
With accommodations	3	5	8
SD			
Identified	10	12	12
Excluded	3	3	3
Assessed	7	9	10
Without accommodations	5	5	2
With accommodations	3	5	7
ELL			
Identified	3	6	6
Excluded	1	1	1
Assessed	2	4	5
Without accommodations	2	4	4
With accommodations	#	1	2
Grade 12			
SD and/or ELL			
Identified	8	11	13
Excluded	2	3	3
Assessed	6	8	10
Without accommodations	5	6	4
With accommodations	1	3	6
SD			
Identified	6	9	10
Excluded	2	3	3
Assessed	4	6	7
Without accommodations	3	4	2
With accommodations	1	3	5
ELL			
Identified	2	3	4
Excluded	#	1	1
Assessed	2	2	3
Without accommodations	2	2	2
With accommodations	#	#	1

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Table A-8

Eighth-grade public school students with disabilities and/or English language learners identified, excluded, and assessed in NAEP writing, as a percentage of all students, by state: 1998, 2002, and 2007

State/jurisdiction	1998 Identified	1998 Excluded	1998 Assessed	1998 Assessed without accom-modations	1998 Assessed with accom-modations	2002 Identified	2002 Excluded	2002 Assessed	2002 Assessed without accom-modations	2002 Assessed with accom-modations
Nation (public)	**14**	**4**	**10**	**7**	**3**	**18**	**4**	**14**	**8**	**5**
Alabama	12	6	6	5	1	15	3	12	11	1
Alaska	—	—	—	—	—	—	—	—	—	—
Arizona	17	5	12	10	2	22	5	17	14	3
Arkansas	13	6	7	5	1	17	3	14	9	5
California	23	6	17	15	2	27	3	24	20	3
Colorado	13	4	9	6	3	—	—	—	—	—
Connecticut	15	7	8	5	3	17	4	13	7	6
Delaware	14	3	11	8	3	15	5	11	2	8
Florida	16	5	11	9	2	20	4	16	7	10
Georgia	11	5	7	4	2	13	3	10	5	5
Hawaii	15	4	11	8	3	21	3	18	11	7
Idaho	—	—	—	—	—	14	2	13	8	4
Illinois	12	4	8	6	2	18	3	14	8	7
Indiana	—	—	—	—	—	13	3	10	7	3
Iowa	—	—	—	—	—	—	—	—	—	—
Kansas	—	—	—	—	—	16	3	13	6	7
Kentucky	10	2	7	3	4	11	4	8	4	3
Louisiana	13	5	8	3	5	16	4	12	4	8
Maine	14	5	8	5	3	18	2	16	8	8
Maryland	13	2	11	4	7	16	4	12	9	3
Massachusetts	17	5	12	7	5	20	3	16	7	10
Michigan	—	—	—	—	—	14	5	9	4	4
Minnesota	14	3	11	8	3	17	3	14	9	5
Mississippi	9	5	5	4	1	10	5	5	3	2
Missouri	13	3	10	6	4	16	3	13	4	9
Montana	11	2	9	6	2	13	2	12	7	4
Nebraska	—	—	—	—	—	17	4	12	7	5
Nevada	16	6	10	8	3	21	4	16	12	5
New Hampshire	—	—	—	—	—	—	—	—	—	—
New Jersey	—	—	—	—	—	—	—	—	—	—
New Mexico	23	6	17	14	3	32	5	27	17	10
New York	15	5	9	3	6	20	6	14	5	9
North Carolina	14	4	10	4	6	17	5	12	4	9
North Dakota	—	—	—	—	—	15	1	14	8	6
Ohio	—	—	—	—	—	12	6	7	4	2
Oklahoma	13	9	5	4	1	16	2	14	9	4
Oregon	15	3	12	9	3	18	4	14	11	3
Pennsylvania	—	—	—	—	—	14	2	12	4	8
Rhode Island	17	4	13	10	3	22	3	18	9	10
South Carolina	12	5	7	5	2	15	5	10	6	4
South Dakota	—	—	—	—	—	—	—	—	—	—
Tennessee	13	4	9	8	1	14	3	12	10	2
Texas	19	6	13	10	2	19	7	13	11	2
Utah	10	4	6	5	1	17	3	14	9	4
Vermont	—	—	—	—	—	17	4	14	6	7
Virginia	14	4	9	6	3	18	6	12	5	7
Washington	13	4	9	7	3	15	3	11	6	5
West Virginia	14	5	9	5	3	18	4	14	5	9
Wisconsin	11	4	7	4	3	17	4	13	4	9
Wyoming	9	2	7	5	2	15	2	13	6	7
Other jurisdictions										
District of Columbia	13	6	7	6	1	21	6	15	5	10
DoDEA[1]	8	2	6	4	2	11	2	9	6	4

See notes at end of table.

Table A-8

Eighth-grade public school students with disabilities and/or English language learners identified, excluded, and assessed in NAEP writing, as a percentage of all students, by state: 1998, 2002, and 2007—Continued

	2007				
State/jurisdiction	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**18**	**3**	**15**	**6**	**9**
Alabama	14	2	12	8	3
Alaska	—	—	—	—	—
Arizona	19	3	16	10	6
Arkansas	16	2	14	4	10
California	27	2	25	20	5
Colorado	15	3	12	4	8
Connecticut	14	2	13	3	9
Delaware	16	5	11	3	8
Florida	19	3	17	2	15
Georgia	13	2	11	3	8
Hawaii	19	1	18	8	11
Idaho	14	2	12	6	6
Illinois	17	3	14	3	11
Indiana	16	3	13	3	10
Iowa	16	2	15	3	12
Kansas	17	4	13	4	9
Kentucky	15	6	9	2	6
Louisiana	14	2	12	1	10
Maine	20	4	16	4	12
Maryland	—	—	—	—	—
Massachusetts	22	6	16	3	13
Michigan	16	4	12	3	9
Minnesota	17	2	15	6	9
Mississippi	10	2	9	1	7
Missouri	15	2	12	3	9
Montana	16	2	14	4	10
Nebraska	—	—	—	—	—
Nevada	21	3	18	11	7
New Hampshire	20	3	17	5	12
New Jersey	18	3	15	2	13
New Mexico	27	5	23	13	9
New York	19	3	17	1	16
North Carolina	18	2	16	3	13
North Dakota	16	5	10	3	7
Ohio	15	4	11	2	9
Oklahoma	19	4	15	6	9
Oregon	—	—	—	—	—
Pennsylvania	18	3	15	4	11
Rhode Island	21	3	19	5	13
South Carolina	15	3	12	5	8
South Dakota	—	—	—	—	—
Tennessee	13	3	10	5	5
Texas	18	7	12	8	4
Utah	19	3	16	9	7
Vermont	22	4	18	5	13
Virginia	18	6	12	4	8
Washington	16	4	12	5	7
West Virginia	16	1	15	5	9
Wisconsin	18	4	14	3	11
Wyoming	16	3	13	5	8
Other jurisdictions					
District of Columbia	—	—	—	—	—
DoDEA[1]	11	2	9	3	6

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Table A-9

Eighth-grade public school students with disabilities identified, excluded, and assessed in NAEP writing, as a percentage of all students, by state: 1998, 2002, and 2007

State/jurisdiction	1998 Identified	1998 Excluded	1998 Assessed	1998 Assessed without accom-modations	1998 Assessed with accom-modations	2002 Identified	2002 Excluded	2002 Assessed	2002 Assessed without accom-modations	2002 Assessed with accom-modations
Nation (public)	**11**	**4**	**8**	**5**	**3**	**13**	**3**	**10**	**5**	**5**
Alabama	12	6	6	5	1	14	2	12	11	1
Alaska	—	—	—	—	—	—	—	—	—	—
Arizona	9	3	6	4	2	12	3	9	6	3
Arkansas	12	5	7	5	1	15	2	13	8	5
California	7	3	5	3	2	10	2	8	5	3
Colorado	9	3	6	4	2	—	—	—	—	—
Connecticut	14	6	8	5	3	15	3	11	5	6
Delaware	13	3	10	7	3	14	4	10	2	8
Florida	12	4	9	7	2	15	3	12	5	8
Georgia	10	4	6	4	2	11	3	8	4	4
Hawaii	10	3	7	5	2	15	2	13	7	6
Idaho	—	—	—	—	—	12	1	10	6	4
Illinois	10	3	6	4	2	13	2	11	5	7
Indiana	—	—	—	—	—	12	2	10	7	3
Iowa	—	—	—	—	—	—	—	—	—	—
Kansas	—	—	—	—	—	13	2	10	4	6
Kentucky	9	2	7	2	4	11	4	7	4	3
Louisiana	13	5	8	3	5	16	4	11	4	8
Maine	13	5	8	5	3	17	2	15	7	8
Maryland	12	2	10	4	7	14	3	11	8	3
Massachusetts	15	3	12	6	5	17	2	15	6	9
Michigan	—	—	—	—	—	13	5	8	3	4
Minnesota	11	2	8	6	2	13	2	11	7	4
Mississippi	9	5	5	4	1	10	5	5	3	2
Missouri	12	2	10	6	4	15	3	12	4	8
Montana	11	2	8	6	2	11	2	10	6	4
Nebraska	—	—	—	—	—	14	3	11	6	5
Nevada	11	4	7	4	2	13	3	11	6	5
New Hampshire	—	—	—	—	—	—	—	—	—	—
New Jersey	—	—	—	—	—	—	—	—	—	—
New Mexico	15	4	11	7	3	19	3	16	7	9
New York	9	2	8	2	6	15	4	11	3	8
North Carolina	12	3	9	3	6	16	4	11	3	8
North Dakota	—	—	—	—	—	13	1	13	7	5
Ohio	—	—	—	—	—	12	5	6	4	2
Oklahoma	12	8	4	3	1	14	2	12	8	4
Oregon	12	2	10	7	3	13	3	10	7	3
Pennsylvania	—	—	—	—	—	13	2	12	4	8
Rhode Island	14	3	10	8	2	17	2	15	6	9
South Carolina	12	5	7	5	2	14	5	9	5	4
South Dakota	—	—	—	—	—	—	—	—	—	—
Tennessee	12	4	8	7	1	14	3	11	9	2
Texas	14	5	9	7	2	13	5	8	7	1
Utah	8	3	5	4	1	11	2	9	6	4
Vermont	—	—	—	—	—	17	4	13	6	7
Virginia	12	4	9	5	3	15	5	10	4	6
Washington	10	2	7	5	2	11	2	9	4	5
West Virginia	14	5	9	5	3	18	4	14	5	9
Wisconsin	10	4	6	4	3	14	3	11	3	9
Wyoming	9	2	7	5	2	13	2	11	5	6
Other jurisdictions										
District of Columbia	10	5	5	4	1	17	5	12	4	8
DoDEA[1]	6	1	5	3	2	7	1	6	3	3

See notes at end of table.

Table A-9

Eighth-grade public school students with disabilities identified, excluded, and assessed in NAEP writing, as a percentage of all students, by state: 1998, 2002, and 2007—Continued

	2007				
State/jurisdiction	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**13**	**3**	**10**	**3**	**8**
Alabama	12	2	10	7	3
Alaska	—	—	—	—	—
Arizona	10	2	8	3	4
Arkansas	13	2	11	3	8
California	9	1	8	4	4
Colorado	9	2	7	1	6
Connecticut	11	1	10	2	8
Delaware	14	5	10	2	7
Florida	14	2	12	1	11
Georgia	12	2	9	2	7
Hawaii	13	1	13	4	8
Idaho	9	1	8	3	5
Illinois	14	2	12	2	10
Indiana	14	3	11	2	9
Iowa	15	2	13	2	11
Kansas	13	3	10	2	8
Kentucky	13	6	8	2	6
Louisiana	13	2	11	1	10
Maine	19	4	14	3	11
Maryland	—	—	—	—	—
Massachusetts	19	6	13	2	11
Michigan	14	4	11	2	9
Minnesota	11	2	10	3	7
Mississippi	10	2	8	1	7
Missouri	13	2	11	2	8
Montana	13	2	11	2	9
Nebraska	—	—	—	—	—
Nevada	12	2	10	5	6
New Hampshire	19	3	16	5	11
New Jersey	15	2	13	1	12
New Mexico	14	3	11	4	8
New York	16	2	13	1	13
North Carolina	15	2	13	2	11
North Dakota	15	5	9	3	7
Ohio	14	4	10	2	9
Oklahoma	16	4	12	4	9
Oregon	—	—	—	—	—
Pennsylvania	16	3	13	3	10
Rhode Island	18	1	17	4	13
South Carolina	13	3	10	4	7
South Dakota	—	—	—	—	—
Tennessee	12	3	8	3	5
Texas	12	6	7	3	3
Utah	9	2	7	2	6
Vermont	20	4	16	4	12
Virginia	14	5	9	3	7
Washington	12	3	8	2	6
West Virginia	15	1	14	5	9
Wisconsin	14	3	11	1	10
Wyoming	13	3	11	3	8
Other jurisdictions					
District of Columbia	—	—	—	—	—
DoDEA[1]	7	1	6	1	5

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Table A-10

Eighth-grade public school English language learners identified, excluded, and assessed in NAEP writing, as a percentage of all students, by state: 1998, 2002, and 2007

State/jurisdiction	1998 Identified	1998 Excluded	1998 Assessed	1998 Assessed without accom-modations	1998 Assessed with accom-modations	2002 Identified	2002 Excluded	2002 Assessed	2002 Assessed without accom-modations	2002 Assessed with accom-modations
Nation (public)	**3**	**1**	**2**	**2**	**#**	**6**	**1**	**5**	**4**	**1**
Alabama	#	#	#	#	#	1	#	1	#	#
Alaska	—	—	—	—	—	—	—	—	—	—
Arizona	10	3	7	6	1	13	3	10	9	1
Arkansas	1	1	#	#	#	3	1	2	1	#
California	17	4	13	13	#	21	2	19	17	1
Colorado	4	1	3	2	1	—	—	—	—	—
Connecticut	2	2	#	#	#	4	1	2	2	1
Delaware	1	#	1	1	#	2	1	1	#	#
Florida	4	1	3	2	#	7	2	6	3	3
Georgia	2	1	1	1	#	3	1	2	1	1
Hawaii	5	2	4	3	1	8	2	6	4	1
Idaho	—	—	—	—	—	4	1	3	2	#
Illinois	3	1	2	2	#	5	2	4	3	1
Indiana	—	—	—	—	—	1	1	1	#	#
Iowa	—	—	—	—	—	—	—	—	—	—
Kansas	—	—	—	—	—	4	1	3	2	1
Kentucky	1	#	#	#	#	#	#	#	#	#
Louisiana	1	#	#	#	#	1	#	1	1	#
Maine	1	#	#	#	#	2	#	2	1	#
Maryland	1	#	1	#	#	2	1	2	1	#
Massachusetts	2	2	1	#	#	4	2	3	2	1
Michigan	—	—	—	—	—	2	1	1	1	#
Minnesota	4	1	3	2	1	5	2	4	3	1
Mississippi	#	#	#	#	#	#	#	#	#	#
Missouri	1	#	#	#	#	1	#	1	1	#
Montana	#	#	#	#	#	3	#	2	2	#
Nebraska	—	—	—	—	—	3	1	2	1	1
Nevada	7	3	4	3	1	9	2	6	6	#
New Hampshire	—	—	—	—	—	—	—	—	—	—
New Jersey	—	—	—	—	—	—	—	—	—	—
New Mexico	10	3	7	7	1	20	3	17	13	3
New York	5	3	2	1	#	6	2	4	2	2
North Carolina	2	1	1	1	#	3	1	1	1	1
North Dakota	—	—	—	—	—	2	#	2	1	1
Ohio	—	—	—	—	—	1	#	1	1	#
Oklahoma	1	1	1	1	#	3	#	2	2	#
Oregon	2	1	2	1	#	7	1	5	5	1
Pennsylvania	—	—	—	—	—	1	#	1	#	#
Rhode Island	4	1	2	2	1	6	2	4	3	1
South Carolina	#	#	#	#	#	1	#	1	1	#
South Dakota	—	—	—	—	—	—	—	—	—	—
Tennessee	1	#	1	1	#	1	#	1	1	#
Texas	6	2	4	4	#	8	3	6	5	#
Utah	2	1	1	1	#	7	1	5	5	1
Vermont	—	—	—	—	—	1	#	1	1	#
Virginia	2	1	1	1	#	4	1	2	1	1
Washington	4	1	2	2	1	4	1	3	2	1
West Virginia	#	#	#	#	#	#	#	#	#	#
Wisconsin	2	1	1	1	#	4	2	2	1	1
Wyoming	#	#	#	#	#	2	#	2	2	#
Other jurisdictions										
District of Columbia	4	2	2	2	#	5	1	4	1	3
DoDEA[1]	2	1	1	1	#	5	2	3	3	1

See notes at end of table.

Table A-10

Eighth-grade public school English language learners identified, excluded, and assessed in NAEP writing, as a percentage of all students, by state: 1998, 2002, and 2007—Continued

	2007				
State/jurisdiction	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation (public)	**7**	**1**	**6**	**4**	**2**
Alabama	2	#	1	1	#
Alaska	—	—	—	—	—
Arizona	10	1	9	7	2
Arkansas	4	#	4	1	2
California	21	1	20	17	2
Colorado	6	1	6	3	3
Connecticut	4	1	3	1	2
Delaware	2	1	1	#	1
Florida	6	1	5	1	4
Georgia	2	#	2	1	1
Hawaii	6	#	6	3	3
Idaho	6	1	5	4	1
Illinois	3	1	3	2	1
Indiana	3	1	2	1	1
Iowa	2	#	2	1	1
Kansas	4	1	4	2	1
Kentucky	1	#	1	1	#
Louisiana	1	#	1	#	1
Maine	2	1	2	1	1
Maryland	—	—	—	—	—
Massachusetts	4	1	3	1	2
Michigan	2	#	2	1	1
Minnesota	6	1	5	4	2
Mississippi	1	#	1	#	#
Missouri	2	#	2	1	1
Montana	4	#	4	2	2
Nebraska	—	—	—	—	—
Nevada	11	2	9	7	2
New Hampshire	2	#	1	1	1
New Jersey	3	1	2	1	1
New Mexico	17	3	14	11	3
New York	5	1	4	#	4
North Carolina	4	#	4	1	2
North Dakota	2	#	2	1	1
Ohio	1	#	1	#	1
Oklahoma	3	#	3	2	1
Oregon	—	—	—	—	—
Pennsylvania	2	1	2	1	1
Rhode Island	4	1	3	2	1
South Carolina	2	#	2	1	1
South Dakota	—	—	—	—	—
Tennessee	2	#	2	1	1
Texas	8	2	6	4	2
Utah	10	1	9	7	2
Vermont	2	#	2	1	1
Virginia	4	1	3	2	1
Washington	6	1	4	3	2
West Virginia	1	#	1	1	#
Wisconsin	5	1	3	1	2
Wyoming	3	#	3	2	1
Other jurisdictions					
District of Columbia	—	—	—	—	—
DoDEA[1]	4	1	3	2	1

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

[1] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Table A-11

Eighth-grade public school students with disabilities (SD) and/or English language learners (ELL) identified, excluded, and assessed in NAEP writing, as a percentage of all students, by SD/ELL category and urban district: 2002 and 2007

	2002					2007				
SD/ELL category and district	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations	Identified	Excluded	Assessed	Assessed without accom-modations	Assessed with accom-modations
SD and/or ELL										
Nation (public)	18	4	14	8	5	18	3	15	6	9
Large central city (public)	23	5	19	14	5	24	4	20	10	10
Atlanta	8	3	5	4	1	11	2	10	2	7
Austin	—	—	—	—	—	27	6	22	16	6
Boston	—	—	—	—	—	28	6	22	6	16
Charlotte	—	—	—	—	—	19	3	16	6	10
Chicago	24	7	17	10	7	23	5	17	4	13
Cleveland	—	—	—	—	—	24	11	13	2	11
District of Columbia	21	6	15	5	10	—	—	—	—	—
Houston	27	8	20	20	#	22	8	14	11	4
Los Angeles	35	5	31	27	4	34	2	31	24	7
New York City	27	7	20	9	11	23	2	21	2	19
San Diego	—	—	—	—	—	28	3	24	18	6
SD										
Nation (public)	13	3	10	5	5	13	3	10	3	8
Large central city (public)	13	3	11	6	4	13	3	10	3	7
Atlanta	7	3	4	4	1	10	2	8	2	6
Austin	—	—	—	—	—	16	4	12	7	5
Boston	—	—	—	—	—	19	5	14	2	12
Charlotte	—	—	—	—	—	12	2	10	2	8
Chicago	18	3	14	8	7	18	3	14	2	12
Cleveland	—	—	—	—	—	20	10	10	1	9
District of Columbia	17	5	12	4	8	—	—	—	—	—
Houston	15	5	10	10	#	12	5	7	3	3
Los Angeles	13	2	11	8	3	10	2	9	3	5
New York City	17	3	14	6	9	14	1	13	1	12
San Diego	—	—	—	—	—	11	3	8	3	5
ELL										
Nation (public)	6	1	5	4	1	7	1	6	4	2
Large central city (public)	13	3	10	9	1	12	2	11	7	3
Atlanta	1	1	1	1	#	2	#	2	1	1
Austin	—	—	—	—	—	14	3	11	10	1
Boston	—	—	—	—	—	12	3	9	4	4
Charlotte	—	—	—	—	—	8	1	7	4	3
Chicago	8	4	4	3	1	7	3	4	2	2
Cleveland	—	—	—	—	—	5	2	3	1	2
District of Columbia	5	1	4	1	3	—	—	—	—	—
Houston	18	5	14	14	#	13	4	9	8	1
Los Angeles	30	4	26	24	2	28	2	27	22	4
New York City	14	6	8	5	3	12	2	10	1	9
San Diego	—	—	—	—	—	20	1	19	16	3

— Not available. The district did not participate.

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. As of 2005, "large central city" includes nationally representative public schools located in large central cities (population of 250,000 or more) within a Metropolitan Statistical Area (MSA). Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2002 and 2007 Trial Urban District Writing Assessments.

Investigating the Potential Effects of Exclusion Rates on Assessment Results

Variation in the rates of exclusion of students with disabilities (SD) and English language learners (ELL) introduces validity concerns for comparisons over time or between jurisdictions. The essential problem is the differential representativeness of samples, which could impact the comparability of cross-state comparisons within a given year and state trends across years. Because students with disabilities and English language learners tend to score below average on assessments, excluding such students may increase a jurisdiction's scores. Conversely, including more of these students might depress score gains. In 2007, exclusion rates varied among jurisdictions. In addition, cases of both increases and decreases in exclusion rates occurred between 1998 and 2007, making comparisons over time within jurisdictions complex to interpret. Tables A-8 and A-11 on the preceding pages display the rates of exclusion in each jurisdiction for grade 8.

One factor that contributed to the variability in exclusion rates across states is that the percentage of students who are *identified* as having disabilities or as English language learners varies across jurisdictions. Some reasons for the variation include lack of standardized criteria for defining students as having specific disabilities or as ELL, the wide differences in percentages of immigrant children across states, and changes or differences in policy and practices regarding implementation of the Individuals with Disabilities Education Act (IDEA).

Types of Accommodations Permitted

Table A-12 displays the percentages of SD and ELL students assessed with the available accommodations. It should be noted that students assessed with accommodations typically received some combination of accommodations. The numbers and percentages presented in the table reflect only the primary accommodation provided. For example, students assessed in small groups (as compared with standard NAEP sessions of about 30 students) usually received extended time. Here, the primary accommodation coded would be small groups. In one-on-one administrations, students often received assistance in recording answers (e.g., use of a scribe or computer) and were afforded extra time. Extended time was considered the primary accommodation only when it was the sole accommodation provided. The assessment did not allow some accommodations that were permitted in certain states in past assessments. Some states have allowed questions and, in some cases, reading passages to be read aloud to the students. In designing the reading assessment, reading aloud as an accommodation was viewed as changing the nature of the construct being measured and, hence, was not permitted. Because NAEP considers the domain of its reading assessment to be reading in English, no attempt was made to provide an alternate language version of the assessment, and the use of bilingual dictionaries was not permitted. In the writing assessment, however, reading the essay prompts aloud was permitted because it did not change the construct being measured.

Table A-12

Percentage of eighth- and twelfth-grade public and nonpublic school students identified as students with disabilities (SD) and/or English language learners (ELL) assessed in NAEP writing with accommodations, by SD/ELL category and type of primary accommodation: 1998, 2002, and 2007

	Grade 8			Grade 12		
SD/ELL category and type of accommodation	1998	2002	2007	1998	2002	2007
SD and/or ELL						
Bilingual dictionary	#	0.1	0.4	#	0.1	0.3
Large-print book	#	#	#	#	#	#
Extended time	0.9	1.9	3.8	0.5	1.4	2.9
Read aloud	0.1	0.3	2.6	#	0.2	1.8
Small group	1.7	2.7	0.9	0.7	1.1	0.5
One-on-one	0.1	0.1	#	0.1	0.1	#
Scribe/computer	0.1	#	0.2	#	#	0.3
Breaks	—	—	#	—	—	#
Magnifying device	—	—	#	—	—	#
School staff administers	—	—	#	—	—	#
Other	#	0.1	0.5	#	#	0.2
SD						
Bilingual dictionary	#	#	#	#	#	#
Large-print book	#	#	#	#	#	#
Extended time	0.7	1.7	3.4	0.4	1.3	2.7
Read aloud	0.1	0.3	2.4	#	0.2	1.7
Small group	1.6	2.6	0.8	0.7	1.1	0.4
One-on-one	0.1	0.1	#	0.1	0.1	#
Scribe/computer	0.1	#	0.2	#	#	0.3
Breaks	—	—	#	—	—	#
Magnifying device	—	—	#	—	—	#
School staff administers	—	—	#	—	—	#
Other	#	0.1	0.5	#	#	0.2
ELL						
Bilingual dictionary	#	0.1	0.4	#	0.1	0.3
Large-print book	#	#	#	#	#	#
Extended time	0.1	0.4	0.7	0.1	0.1	0.4
Read aloud	#	#	0.3	#	#	0.2
Small group	0.1	0.3	0.1	#	#	0.1
One-on-one	#	#	#	#	#	#
Scribe/computer	#	#	#	#	#	#
Breaks	—	—	#	—	—	#
Magnifying device	—	—	#	—	—	#
School staff administers	—	—	#	—	—	#
Other	#	#	0.1	#	#	#

— Not available.

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Data Collection and Scoring

The 2007 NAEP writing assessment was conducted from January to March 2007 by contractors to the U.S. Department of Education. Trained field staff from Westat conducted the data collection. Materials from the 2007 assessment were shipped to Pearson, Inc., where the test booklets and surveys were scanned.

Trained staff evaluated the responses to the essay questions using scoring rubrics or guides prepared by Educational Testing Service (ETS). Each essay prompt had a unique scoring guide that defined the criteria used to evaluate students' responses. All the writing tasks were evaluated according to a six-level scoring guide. At each grade, scoring guides were developed for each of the three types of writing tasks: narrative, informative, and persuasive.

Specialists in writing who are highly experienced in teaching and/or assessing writing trained the professional raters who evaluated the student responses. The trainers received extensive training together that included reading a manual that explained how to use the scoring guides and the processes for training and checking raters. For each task, the trainer, in consultation with other trainers or assessment specialists, chose numerous sample responses to present to raters and prepared notes on how the scoring guide applied to the particular task. The sample responses helped raters become accustomed to the variety of responses the task elicited before they began rating the student responses. Raters had to pass a qualifying test before they could evaluate student responses: they had to agree with at least 70 percent of the ratings (to a set of 10 student responses) that were given beforehand by their trainer.

In order to determine interrater reliability of scoring, a specified percentage of responses was read twice: two raters read 6 percent of the responses at grade 8 (where there was the large state-level sample) and 25 percent of responses at grade 12 (national sample only).

For the national and state writing assessments, approximately 356,132 responses to writing tasks were scored in 2007. This number includes rescoring to monitor interrater reliability. Like other NAEP subjects, the percentage of exact agreement of ratings was used as an interrater reliability measure in the writing assessment. The within-year percentage of exact agreement of ratings on the six-level scoring guides for the 2007 reliability samples was 72 percent at grade 8 and 65 percent at grade 12. The acceptable level of the percentage of exact agreement of ratings for a 6-category item in NAEP writing is 60 percent.

Data Analysis and IRT Scaling

After the professional scoring, all information was transcribed into the NAEP database at ETS. Each processing activity was conducted with rigorous quality control. After the assessment information was compiled in the database, the data were weighted according to the population structure. The weighting for the national and state samples reflected the probability of selection for each student as a result of the sampling design, adjusted for nonresponse.[4]

Analyses were then conducted to determine the percentages of students who wrote responses to each writing task at each level on the scoring guide and who provided various responses to each background question. In calculating response percentages for each task, only students classified as having been presented the question were included in the denominator of the statistic. Students whose papers were blank or whose responses were judged to be off topic were similarly excluded from the calculation of the scale.

Item Response Theory (IRT) was used to estimate average writing scale scores for the nation, for various student groups of interest within the nation, and for the states, other jurisdictions, and trial urban districts. IRT models the probability of answering a question in a certain way as a mathematical function of proficiency or skill. The main purpose of IRT analysis in NAEP is to provide a common scale on which performance can be compared among groups, such as those defined by characteristics including gender and race/ethnicity, even when students receive different writing tasks. One desirable feature of IRT is that it locates items and students on this common scale. In contrast to classical test theory, IRT does not rely solely on the total number of correct item responses, but uses the particular patterns of student responses to items in determining the student location on the scale. As a result, adding items that function at a particular point on the scale to the assessment does not change the location of the students on the scale, even though students may respond correctly to more items. It does increase the relative precision with which students are measured, particularly those students whose scale locations are close to the additional items.

The results for 1998, 2002, and 2007 are presented on the NAEP writing scale (ranging from 0 to 300). Developed for the 1998 assessment, the scale was computed to report performance at each grade level. The scale summarizes student performance across all three purposes for writing (narrative, informative and persuasive) in the assessment. There were not enough writing tasks to create a separate subscale for each writing purpose.

In producing the writing scale, an IRT model was used. The writing tasks (all rated according to six-level scoring guides) were scaled by use of a Generalized Partial-Credit (GPC) model.[5] First used in 1992, the GPC model permits the scaling of questions scored according to multipoint rating schemes. The model takes full advantage of the information available from each of the student response categories used for more complex constructed-response questions such as writing tasks.[6]

Because the NAEP design gives each student a small proportion of the pool of assessment items, the assessment cannot provide reliable information about individual performance. Traditional test scores for individual students, even those based on IRT, would result in misleading estimates of population characteristics, such as group means and percentages of students at or above a certain scale-score level. However, it is NAEP's goal to estimate these population characteristics. NAEP's objectives can be achieved with methodologies that produce estimates of the population-level parameters directly, without the intermediary computation of estimates of individuals. This is accomplished using marginal estimation scaling model techniques for latent variables.[7] Under the assumptions of the scaling models, these population estimates will be consistent in the sense that the estimates approach the model-based population values as the sample size increases. This would not be the case for population estimates obtained by aggregating optimal estimates of individual performance.[8]

Weighting and Variance Estimation

A complex sampling design was used to select the students who were assessed. The properties of a sample selected through such a design could be very different from those of a simple random sample in which every student in the target population has an equal chance of selection and in which the observations from different sampled students can be considered to be statistically independent of one another. Therefore, the properties of the sample for the data collection design were taken into account during the analysis of the assessment data.

One way that the properties of the sample design were addressed was by using sampling weights to account for the fact that the probabilities of selection were not identical for all students. All population and subpopulation characteristics based on the assessment data were estimated using sampling weights. These weights included adjustments for school and student nonresponse.

Not only must appropriate estimates of population characteristics be derived, but appropriate measures of the degree of uncertainty must be obtained for those statistics. Two components of uncertainty are accounted for in the variability of statistics based on student ability: the uncertainty due to sampling only a relatively small number of students and the uncertainty due to sampling only a portion of the cognitive domain of interest (in this case, writing). The first component accounts for the variability associated with the estimated percentages of students who had certain background characteristics or who had a certain rating for their responses to a task.

Because NAEP uses complex sampling procedures, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate. NAEP uses a jackknife replication procedure to estimate standard errors. The jackknife standard error provides a reasonable measure of uncertainty for any student information that can be observed without error. However, because each student typically responds to only two writing tasks, the scale score for any single student would be imprecise. In this case, NAEP's marginal estimation methodology can be used to describe the performance of different groups of students. The estimate of the variance of the students' posterior scale score distributions (which reflect the imprecision due to lack of measurement accuracy) is computed. This component of variability is then included in the standard errors of NAEP scale scores.[9]

In some circumstances, it is not possible to obtain appropriate estimates of standard errors, and the accuracy of the statistic being estimated may then be called into question. In the case of extreme percentages, close to 100 or 0 for student group percentages and percentages at or above achievement levels, the standard error may have unknown accuracy or be undefined. In such cases, tables of NAEP results in the NAEP Data Explorer software tool display the symbol *** in place of the standard error and provide the notation: Standard error cannot be determined.

When a standard error is based on a small number of students, or the group of students is enrolled in a small number of schools, the amount of uncertainty associated with the estimation of the standard error may be quite large, and the accuracy of both the standard error and the estimate of the statistic are compromised. An indicator that is used in NAEP for these situations is the "rule of five." The rule of five requires that estimates of statistics be based on at least five sampling units (e.g., schools). If the requirement is not met, tables of NAEP results insert the symbol ‡ in place of both the statistic and its standard error, and provide the notation: Reporting standards not met.

The symbol ‡ and its accompanying notation are also used in other instances. For example, it is used when the sample size falls below the minimum of 62 students needed to ensure enough power to detect certain effects, and when response rates fall below certain levels. However, these instances are largely unrelated to concerns about weighting or variance estimation.

The reader is reminded that, as with findings from all surveys, NAEP results are subject to other kinds of error, including the effects of imperfect adjustment for student and school nonresponse and unknowable effects associated with the particular instrumentation and data collection methods. Nonsampling errors can be attributed to a number of sources—inability to obtain complete information about all selected schools in the sample (some students or schools refused to participate, or students participated but answered only certain questions); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct background information; mistakes in recording, coding, or scoring data; and other errors in collecting, processing, sampling, and estimating missing data. The extent of nonsampling errors is assumed to be small but is difficult to estimate, and, because of their nature, the impact of such errors cannot be reflected in the data-based estimates of uncertainty provided in NAEP reports.

Drawing Inferences From the Results

The reported statistics are estimates and are therefore subject to a measure of uncertainty. There are two sources of such uncertainty. First, NAEP uses a sample of students rather than testing all students. Second, all assessments have some amount of uncertainty because they cannot ask all the questions that might be asked in a content area. The magnitude of this uncertainty is reflected in the standard error of each of the estimates. When the percentages or average scale scores of certain groups are compared, the estimated standard error should be taken into account. Therefore, the comparisons are based on statistical tests that consider the estimated standard errors of those statistics and the magnitude of the difference among the averages or percentages.

For the data in this report, all the estimates have corresponding estimated standard errors of the estimates. For example, tables A-13 and A-14 show the average national scale score for the NAEP 1998, 2002, and 2007 national assessments and the percentage of students within each achievement-level range and at or above achievement levels. In both tables, estimated standard errors appear in parentheses next to each estimated scale score or percentage. For the estimated standard errors corresponding to other data in this report, the reader can go to the NAEP Data Explorer tool on the NCES website at http://nces.ed.gov/nationsreportcard/naepdata.

Using confidence intervals based on the standard errors provides a way to take into account the uncertainty associated with sample estimates and to make inferences about the population averages and percentages in a manner that reflects that uncertainty. An estimated sample average scale score plus or minus 1.96 standard errors approximates a 95 percent confidence interval for the corresponding population quantity. This statement means that one can conclude with an approximately 95 percent level of confidence that the average performance of the entire population of interest (e.g., all fourth-grade students in public and nonpublic schools) is within plus or minus 1.96 standard errors of the sample average.

For example, suppose that the average writing scale score of the students in a particular group was 256 with an estimated standard error of 1.2. An approximately 95 percent confidence interval for the population quantity would be as follows:

$$\text{Average} \pm 1.96 \text{ standard errors}$$

$$= 256 \pm 1.96 \times 1.2$$

$$= 256 \pm 2.4$$

Therefore, the 95% confidence interval is bounded by: (253.6, 258.4).

Thus, one can conclude with a 95 percent level of confidence that the average scale score for the entire population of students in that group is between 253.6 and 258.4. It should be noted that this example and the examples in the following sections are illustrative. More precise estimates carried out to one or more decimal places are used in the actual analyses.

Similar symmetric confidence intervals can be constructed for percentages, if the percentages are not extremely large or small. For extreme percentages, a symmetric interval based on a normal distribution is not appropriate, and the common standard error calculation is possibly problematic. Standard errors of extreme percentages should be interpreted with caution.

Table A-13

Average scale scores and standard errors for public and nonpublic school students in NAEP writing, by grade: 1998, 2002, and 2007

Grade	1998	2002	2007
Grade 8	150 (0.6) *	153 (0.5) *	156 (0.2)
Grade 12	150 (0.7) *	148 (0.8) *	153 (0.6)

* Significantly different from the score in 2007.

NOTE: Standard errors of the estimated scale scores appear in parentheses. Beginning in 2002, NAEP sample sizes at grade 8 have increased compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Table A-14

Percentage of public and nonpublic school students and standard errors in NAEP writing, by achievement-level performance, grade, and assessment year: 1998, 2002, and 2007

Grade and year	Below *Basic*	At *Basic*	At *Proficient*	At *Advanced*	At or above *Basic*	At or above *Proficient*
Grade 8						
1998	16 (0.5) *	58 (0.5) *	25 (0.7) *	1 (0.1) *	84 (0.5) *	27 (0.7) *
2002	15 (0.4) *	54 (0.5) *	29 (0.5) *	2 (0.1)	85 (0.4) *	31 (0.6)
2007	12 (0.2)	56 (0.3)	31 (0.2)	2 (0.1)	88 (0.2)	33 (0.3)
Grade 12						
1998	22 (0.7) *	57 (0.7)	21 (0.7) *	1 (0.1)	78 (0.7) *	22 (0.7) *
2002	26 (0.7) *	51 (0.7) *	22 (0.7)	2 (0.2) *	74 (0.7) *	24 (0.8)
2007	18 (0.5)	57 (0.4)	23 (0.5)	1 (0.1)	82 (0.5)	24 (0.6)

* Significantly different from the percentage in 2007.

NOTE: Standard errors of the estimated percentages appear in parentheses. Beginning in 2002, NAEP sample sizes at grade 8 have increased compared to previous years, resulting in smaller detectable differences than in previous assessments. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, and 2007 Writing Assessments.

Analyzing Group Differences in Averages and Percentages

Statistical tests determine whether, based on the data from the groups in the sample, there is strong enough evidence to conclude that the averages or percentages are actually different for those groups in the population. If the evidence is strong (i.e., the difference is statistically significant), the report describes the group averages or percentages as being different (e.g., one group performed higher or lower than another group), regardless of whether the sample averages or percentages appear to be approximately the same. The reader is cautioned to rely on the results of the statistical tests rather than on the apparent magnitude of the difference between sample averages or percentages when determining whether the sample differences are likely to represent actual differences among the groups in the population.

To determine whether a real difference exists between the average scale scores (or percentages of a certain attribute) for two groups in the population, one needs to obtain an estimate of the degree of uncertainty associated with the difference between the averages (or percentages) of these groups for the sample. This estimate of the degree of uncertainty, called the "standard error of the difference" between the groups, is obtained by taking the square of each group's standard error, summing the squared standard errors, and taking the square root of that sum.

$$\text{Standard Error of the Difference} = SE_{A-B} = \sqrt{(SE_A^2 + SE_B^2)}$$

The standard error of the difference can be used, just like the standard error for an individual group average or percentage, to help determine whether differences among groups in the population are real. The difference between the averages or percentages of the two groups plus or minus 1.96 standard errors of the difference represents an approximately 95 percent confidence interval. If the resulting interval includes zero, there is insufficient evidence to claim a real difference between the groups in the population. If the interval does not contain zero, the difference between the groups is statistically significant at the .05 level.

The following example of comparing groups addresses the problem of determining whether the average writing scale score of group A is higher than that of group B. The sample estimates of the average scale scores and estimated standard errors are as follows:

Group	Average scale score	Standard error
A	218	0.9
B	216	1.1

The difference between the estimates of the average scale scores of groups A and B is two points (218 - 216). The estimated standard error of this difference is

$$\sqrt{(0.9^2 + 1.1^2)} = 1.4$$

Thus, an approximately 95 percent confidence interval for this difference is plus or minus 1.96 standard errors of the difference.

$$2 \pm 1.96 \times 1.4$$

$$2 \pm 2.7$$

$$(-0.7, 4.7)$$

The value zero is within the confidence interval; therefore, there is insufficient evidence to conclude that group A performed statistically differently from group B.

The procedure above is appropriate to use when it is reasonable to assume that the groups being compared have been independently sampled for the assessment. Such an assumption is clearly warranted when comparing results across assessment years (e.g., comparing the 2002 and 2007 results for a particular state or group) or when comparing results for one state with another. This is the approach used for NAEP reports when comparisons involving independent groups are made. The assumption of independence is violated to some degree when comparing group results for the nation or a particular state (e.g., comparing national 2007 results for males and females), since these samples of students have been drawn from the same schools. When the groups being compared do not share students (as is the case, for example, when comparing males and females), the impact of this violation of the independence assumption on the outcome of the statistical tests is assumed to be small, and NAEP, by convention, has, for computational convenience, routinely applied the procedures described above to those cases as well.

When making comparisons of results for groups that share a considerable proportion of students in common, it is not appropriate to ignore such dependencies. In such cases, NAEP has used procedures appropriate to comparing dependent groups. When the dependence in group results is due to the overlap in samples (e.g., when a subgroup is being compared to a total group), a simple modification of the usual standard error of the difference formula can be used. The formula for such cases is:

$$SE_{Total-Subgroup} = \sqrt{(SE^2_{Total} + SE^2_{Subgroup} - 2pSE^2_{Subgroup})}$$

where p is the proportion of the total group contained in the subgroup.[10] This formula was used for this report when a state was compared to the aggregate nation.

Conducting Multiple Tests

The procedures used to determine whether group differences in the samples represent actual differences among the groups in the population and the certainty ascribed to intervals (e.g., a 95 percent confidence interval) are based on statistical theory that assumes that only one confidence interval or test of statistical significance is being performed. However, there are times when many different groups are being compared (i.e., multiple sets of confidence intervals are being analyzed). In sets of confidence intervals, statistical theory indicates that the certainty associated with the entire set of intervals is less than that attributable to each individual comparison from the set. To hold the significance level for the set of comparisons at a particular level (e.g., .05), standard methods must be adjusted by multiple comparison procedures.[11] One such procedure, the Benjamini-Hochberg False Discovery Rate (FDR) procedure, was used to control the certainty level.[12]

Unlike other multiple comparison procedures that control the familywise error rate (i.e.,the probability of making even one false rejection in the set of comparisons), the FDR procedure controls the expected proportion of falsely rejected hypotheses. (A "family" in this context is the number of categories to be compared for a given variable. This might be six within the race/ethnicity variable or 50 when considering states.) Furthermore, the FDR procedure used in NAEP is considered appropriately less conservative than familywise procedures for large families of comparisons.[13] Therefore, the FDR procedure is more suitable for multiple comparisons in NAEP than other procedures.

To illustrate how the FDR procedure is used, consider the comparisons of current and previous years' average scale scores for the five groups presented in table A-15. Note that the difference in average scale scores and the estimated standard error of the difference are calculated as the example in the previous section. The test statistic shown is the difference in average scale scores divided by the estimated standard error of the difference. (Rounding of the data occurs after the test is done.)

Table A-15

Example of False Discovery Rate comparisons of average scale scores for different groups of students

	Previous year		Current year		Previous year and current year			
Group	Average scale score	Standard error	Average scale score	Standard error	Differences in averages	Standard error of differences	Test statistic	Percent confidence[1]
1	224	1.3	226	1.0	2.08	1.62	1.29	20
2	187	1.7	193	1.7	6.31	2.36	2.68	1
3	191	2.6	197	1.7	6.63	3.08	2.15	4
4	229	4.4	232	4.6	3.24	6.35	0.51	62
5	201	3.4	196	4.7	-5.51	5.81	-0.95	35

[1] The percent confidence is 2(1-F(x)), where F(x) is the cumulative distribution of the *t*-distribution with the degrees of freedom adjusted to reflect the complexities of the sample design.

NOTE: Data in table are for illustration purposes only and are not actual NAEP data.

The difference in average scale scores and its estimated standard error can be used to find an approximately 95 percent confidence interval, or they can be used to identify a confidence percentage. The confidence percentage for the test statistics is identified from statistical tables instead of checking to see whether zero is within the 95 percent confidence interval about the mean. The significance level from the statistical tables can be directly compared to the maximum acceptable error of 5 percent (100 - 95 = 5 percent).

If the comparison of average scale scores across two years were made for only one of the five groups, there would be a significant difference between the average scale scores for the two years at a significance level of less than 5 percent. However, because of interest in the difference in average scale scores across the two years for all five of the groups, comparing each of the significance levels to 5 percent is not adequate. Groups of students defined by shared characteristics, such as racial/ethnic groups, are treated as sets or families when making comparisons. However, comparisons of average scale scores for each pair of years were treated separately, so the steps described in this example would be replicated for the comparison of other current and previous year average scale scores.

Using the FDR procedure to take into account that all comparisons are of interest, the percents of confidence in the example are ordered from largest to smallest: 62, 35, 20, 4, and 1. In the FDR procedure, 62 percent confidence for the group 4 comparison would be compared to 5 percent, 35 percent for the group 5 comparison would be compared to 0.05 x (5-1)/5 = 0.04 = 4 percent,[14] 20 percent for the group 1 comparison would be compared to 0.05 x (5-2)/5 = 0.03 = 3 percent, 4 percent for the group 3 comparison would be compared to 0.05 x (5-3)/5 = 0.02 = 2 percent, and 1 percent for the group 2 comparison (actually slightly smaller than 1 prior to rounding) would be compared to 0.05 x (5-4)/5 = 0.01 = 1 percent. The procedure stops with the first contrast found to be significant. The last of these comparisons is the only one for which the percent confidence is smaller than the FDR procedure value. The difference between the current year's and previous years' average scale scores for the group 2 students is significant; for all of the other groups, average scale scores for the current and previous year are not significantly different from one another. In practice, a very small number of counterintuitive results occur when the FDR procedures are used to examine between-year differences in subgroup results by jurisdiction. In those cases, results were not included in this report.

Understanding NAEP Reporting Groups

NAEP results are provided for groups of students defined by shared characteristics—gender, race/ethnicity, parental education, region of the country, type of school, school's type of location (categorized by population density), and eligibility for free/reduced-price school lunch under the National School Lunch Program. Based on participation rate criteria, results are reported for subpopulations only when sufficient numbers of students and adequate school representation are present. In addition, based on statistical considerations about power and variance estimation, the minimum requirement on which to base any statistic is at least 62 students in a particular subgroup from at least five primary sampling units (PSUs).[15] Definitions of the subpopulations are presented below.

Gender: Results are reported separately for male and female students.

Race/Ethnicity: In all NAEP assessments, data about student race/ethnicity are collected from two sources: school records and student self-reports. Prior to 2002, NAEP used students' self-reported race as the primary race/ethnicity reporting variable. Beginning in 2002, the race/ethnicity variable presented in NAEP reports has been based on the race reported by the school. When school-recorded information is missing, student-reported data are used to determine race/ethnicity. Therefore, beginning in 2002 the data for racial/ethnic groups included for all assessment years are based on the school-reported race/ethnicity variable. Information on student race/ethnicity is reported as one of six categories: White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin unless specified. Unclassified students are those whose school-reported race/ethnicity was "other" or "unavailable" or was missing, and whose race/ethnicity category could not be determined from self-reported information. Information based on student self-reported race/ethnicity is available on the NAEP Data Tool (http://nces.ed.gov/nationsreportcard/naepdata/).

Parental Education: Eighth- and twelfth-graders were asked the following two questions, the responses to which were combined to derive the parental education variable:

How far in school did your mother go?

- She did not finish high school.
- She graduated from high school.
- She had some education after high school.
- She graduated from college.
- I don't know.

How far in school did your father go?

- He did not finish high school.
- He graduated from high school.
- He had some education after high school.
- He graduated from college.
- I don't know.

The information was combined into one parental-education reporting variable in the following way: If a student indicated the extent of education for only one parent, that level was included in the data. If a student indicated the extent of education for both parents, the higher of the two levels was included in the data. If a student responded "I don't know" for both parents, or responded "I don't know" for one parent and did not respond for the other, the parental education level was classified as "I don't know." If the student did not respond for either parent, the student was recorded as having provided no response. Prior to 2005, parental education questions were presented to students at grade 4, but were not reported because their responses were highly variable. Starting in 2005, parental education questions were not presented to students at grade 4.

Region of the Country: Prior to 2003, NAEP results were reported for four NAEP-defined regions of the nation: Northeast, Southeast, Central, and West. As of 2003, to align NAEP with other federal data collections, NAEP analysis and reports have used the U.S. Census Bureau's definition of "region." The four regions defined by the U.S. Census Bureau are Northeast, South, Midwest, and West. The Central region used by NAEP before 2003 contained the same states as the Midwest region defined by the U.S. Census. The former Southeast region consisted of the states in the Census-defined South minus Delaware, the District of Columbia, Maryland, Oklahoma, Texas, and the section of Virginia in the District of Columbia metropolitan area. The former West region consisted of Oklahoma, Texas, and the states in the Census-defined West. The former Northeast region consisted of the states in the Census-defined Northeast plus Delaware, the District of Columbia, Maryland, and the section of Virginia in the District of Columbia metropolitan area. Therefore, trend data by region are provided in NAEP reports for 2003 and 2005 only. Figure A-2 shows how states are subdivided into these census regions. All 50 states and the District of Columbia are listed. The Department of Defense Education Activity schools are not assigned to any region.

Figure A-2

States within regions of the country defined by the U.S. Census Bureau

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

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

Type of School: Results are reported by the type of school that the student attends—public or private. Private schools include Catholic and other private schools.[16] Because they are funded by federal authorities (not state/local governments), Bureau of Indian Education (BIE) schools and Department of Defense Education Activity schools (DoDEA) are not included in either the public or private categories; they are included in the overall national results. State-level reporting in NAEP includes only public schools. The national sample reporting for NAEP includes public, private, the DoDEA, and BIE schools.

Type of Location: NAEP results are reported for four mutually exclusive categories of school location: city, suburb, town, and rural. The categories are based on standard definitions established by the Federal Office of Management and Budget using population and geographic information from the U.S. Census Bureau. Schools are assigned to these categories in the NCES Common Core of Data based on their physical address. The classification system was revised for 2007; therefore, trend comparisons to previous years are not available. The new locale codes are based on an address's proximity to an urbanized area (a densely settled core with densely settled surrounding areas). This is a change from the original system based on metropolitan statistical areas. To distinguish the two systems, the new system is referred to as "urban-centric locale codes."

The urban-centric locale code system classifies territory into four major types: city, suburban, town, and rural. Each type has three subcategories. For city and suburb, these are gradations of size—large, midsize, and small. Towns and rural areas are further distinguished by their distance from an urbanized area. They can be characterized as fringe, distant, or remote. More detail on the locale codes is available at http://nces.ed.gov/ccd/rural_locales.asp.

Eligibility for the National School Lunch Program: As part of the Department of Agriculture's National School Lunch Program, schools can receive cash subsidies and donated commodities in turn for offering free or reduced-price lunches to eligible children. Based on available school records, students were classified as either currently eligible for free/reduced-price school lunch or not eligible. Eligibility for the program is determined by students' family income in relation to the federally established poverty level. Free lunch qualification is set at 130 percent of the poverty level or below, and reduced-price lunch qualification is set at between 130 and 185 percent of the poverty level. (For the period July 1, 2006 through June 30, 2007, for a family of four, 130 percent of the poverty level was $26,000, and 185 percent was $37,000.) Additional information on eligibility may be found at the Department of Agriculture website at http://www.fns.usda.gov/cnd/lunch/. The classification applies only to the school year when the assessment was administered (i.e., the 2006–07 school year) and is not based on eligibility in previous years. If school records were not available, the student was classified as "Information not available." If the school did not participate in the program, all students in that school were classified as "Information not available." The percentage of students in this category has declined in recent assessments. The decline has sometimes been sufficiently large as to preclude the reporting of trend data. Real changes in the eligible student percentages could not be distinguished from changes resulting from improved data collection methods.

End Notes

[1] Section 504 of the Rehabilitation Act of 1973 is a civil rights law designed to prohibit discrimination on the basis of disability in programs and activities, including education, that receive federal financial assistance.

[2] Office of Special Education Programs. (1997*). To Assure the Free Appropriate Public Education of all Children with Disabilities. Nineteenth Annual Report to Congress on the Implementation of the Individuals With Disabilities Education Act.* Archived at the U.S. Department of Education website: http://www.ed.gov/about/offices/list/osers/index.html .

[3] The two samples are described as "overlapping" because, in 1998 and 2000, the same group of non-SD and/or ELL

students was included in both samples.

[4] Weighting procedures are described more fully in the "Weighting and Variance Estimation" section in this document.

[5] Muraki, E. (1992). A Generalized Partial Credit Model: Application of an EM Algorithm. *Applied Psychological Measurement*, *16*(2): 159–176.

[6] More detailed information regarding the IRT analyses used in NAEP will be included in the technical documentation section of the NAEP website (http://nces.ed.gov/nationsreportcard).

[7] Mislevy, R.J. and Sheehan, K.M. (1987). Marginal Estimation Procedures. In A.E. Beaton (Ed.), *Implementing the New Design: The NAEP 1983–1984 Technical Report* (Technical Rep. No. 15-TR-20), pp. 293–360. Princeton, NJ: Educational Testing Service.

[8] For theoretical and empirical justification of the procedures employed, see Mislevy, R.J. (1988). Randomization-Based Inferences About Latent Variables From Complex Samples. *Psychometrika*, *56*(2): 177–196.

[9] For further details, see Johnson, E.G., and Rust, K.F. (1992). Population Inferences and Variance Estimation for NAEP Data*. Journal of Educational Statistics*, *17*(2): 175–190.

[10] This is a special form of the common formula for standard error of dependent samples. The standard formula can be found, for example, in Kish, L. (1995*). Survey Sampling*. New York: John Wiley and Sons, Inc.

[11] Miller, R.G. (1981). *Simultaneous Statistical Inference* (2nd ed.). New York: Springer-Verlag.

[12] Benjamini, Y. and Hochberg, Y. (1995). Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing. *Journal of the Royal Statistical Society, Series B*, (1): 289–300.

[13] Williams, V.S.L., Jones, L.V., and Tukey, J.W. (1999). Controlling Error in Multiple Comparisons with Examples From State-to-State Differences in Educational Achievement. *Journal of Educational and Behavioral Statistics*, *24*(1): 42–69.

[14] The level of confidence times the number of comparisons minus one divided by the number of comparisons is 0.05 x (5-1)/5 = 0.04 = 4 percent.

[15] For the NAEP national assessments prior to 2002, a PSU is a selected geographic region (a county, group of counties, or metropolitan statistical area). Since 2002, the first-stage sampling units are schools (public and nonpublic) in the selection of the combined sample. Further details about the procedure for determining minimum sample size will appear in the technical documentation section of the NAEP website at http://nces.ed.gov/nationsreportcard.

[16] A more detailed breakdown of private school results is available on the NAEP website at http://nces.ed.gov/nationsreportcard/naepdata.

Where to Find More Information

The NAEP Writing Assessment
The latest news about the NAEP 2007 writing assessment and the national results can be found on the NAEP website at http://nces.ed.gov/nationsreportcard/writing/. The individual snapshot reports for each participating state and other jurisdictions are also available in the state results section of the website at http://nces.ed.gov/nationsreportcard/states/.

The Nation's Report Card: Writing 2007 may be ordered or downloaded at the NAEP website.

The *Writing Framework for the 2007 National Assessment of Educational Progress*, on which this assessment is based, is available at the National Assessment Governing Board website at http://nagb.org/frameworks/writing-framework-07.pdf

Additional Results From the Writing Assessment
For more findings from the 2007 writing assessment, refer to the NAEP 2007 results at http://nces.ed.gov/nationsreportcard/naepdata/. The interactive database at this site includes student, teacher, and school variables for all participating states and other jurisdictions, the nation, and the four census regions. Data tables are also available for each jurisdiction, with all background questions cross-tabulated with the major demographic variables. Users can design and create tables and can perform tests of statistical significance at this website. Released test questions, scoring guides, and question-level performance data are also available on the website (http://nces.ed.gov/nationsreportcard/itmrls/).

Technical Documentation
For explanations of NAEP survey procedures, see Allen, N.L., Donoghue, J.R., and Schoeps, T.L. (2001). *The NAEP 1998 Technical Report*. (NCES 2001–509). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics. Technical information may also be found on the NAEP website at http://nces.ed.gov/nationsreportcard/tdw/.

Publications on the Inclusion of Students With Disabilities and English Language Learners

Olson, J.F., and Goldstein, A.A. (1997). *The Inclusion of Students With Disabilities and Limited-English-Proficient Students in Large-Scale Assessments: A Summary of Recent Progress* (NCES 97–482). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Mazzeo, J., Carlson, J.E., Voelkl, K.E., and Lutkus, A.D. (2000). *Increasing the Participation of Special-Needs Students in NAEP: A Report on 1996 Research Activities* (NCES 2000–473). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Lutkus, A.D., and Mazzeo, J. (2003). *Including Special-Needs Students in the NAEP 1998 Reading Assessment, Part I: Comparison of Overall Results With and Without Accommodations* (NCES 2003–467). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.

Lutkus, A.D. (2004). *Including Special-Needs Students in the NAEP 1998 Reading Assessment, Part II: Results for Students With Disabilities and Limited-English-Proficient Students* (ETS-NAEP 04-R01). Princeton, NJ: Educational Testing Service.

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The NAEP State Report Generator was developed for the NAEP 2007 reports by Phillip Leung, Anthony Lutkus, Paul Gazzillo, Mike Narcowich, Ming Kuang, Janice Lukas, and Linda Myers.

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