



NAEP 2008 Trends in Academic Progress

READING 1971–2008 | MATHEMATICS 1973–2008

The 
Nation's
Report Card



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What is The Nation's Report Card™?

The Nation's Report Card™ informs the public about the academic achievement of elementary and secondary students in the United States. Report cards communicate the findings of the National Assessment of Educational Progress (NAEP), a continuing and nationally representative measure of achievement in various subjects over time.

Since 1969, NAEP assessments have been conducted periodically in reading, mathematics, science, writing, U.S. history, civics, geography, and other subjects. NAEP collects and reports information on student performance at the national, state, and local levels, making the assessment an integral part of our nation's evaluation of the condition and progress of education. Only academic achievement data and related background information are collected. The privacy of individual students and their families is protected.

NAEP is a congressionally authorized project of the National Center for Education Statistics (NCES) within the Institute of Education Sciences of the U.S. Department of Education. The Commissioner of Education Statistics is responsible for carrying out the NAEP project. The National Assessment Governing Board oversees and sets policy for NAEP.

Executive Summary

This report presents the results of the NAEP long-term trend assessments in reading and mathematics, which were most recently given in the 2007–08 school year to students at ages 9, 13, and 17. Nationally representative samples of over 26,000 public and private school students were assessed in each subject area.

The long-term trend assessments make it possible to chart educational progress since the early 1970s. Results in reading are available for 12 assessments going back to the first in 1971. The first of 11 assessments in mathematics was administered in 1973. Throughout this report, the most recent results are compared to those from 2004 and from the first year the assessment was conducted.

The original assessment format, content, and procedures were revised somewhat in 2004 to update content and provide accommodations to students with disabilities and English language learners. The knowledge and skills assessed, however, remain essentially the same since the first assessment year.

Improvements seen in reading and mathematics

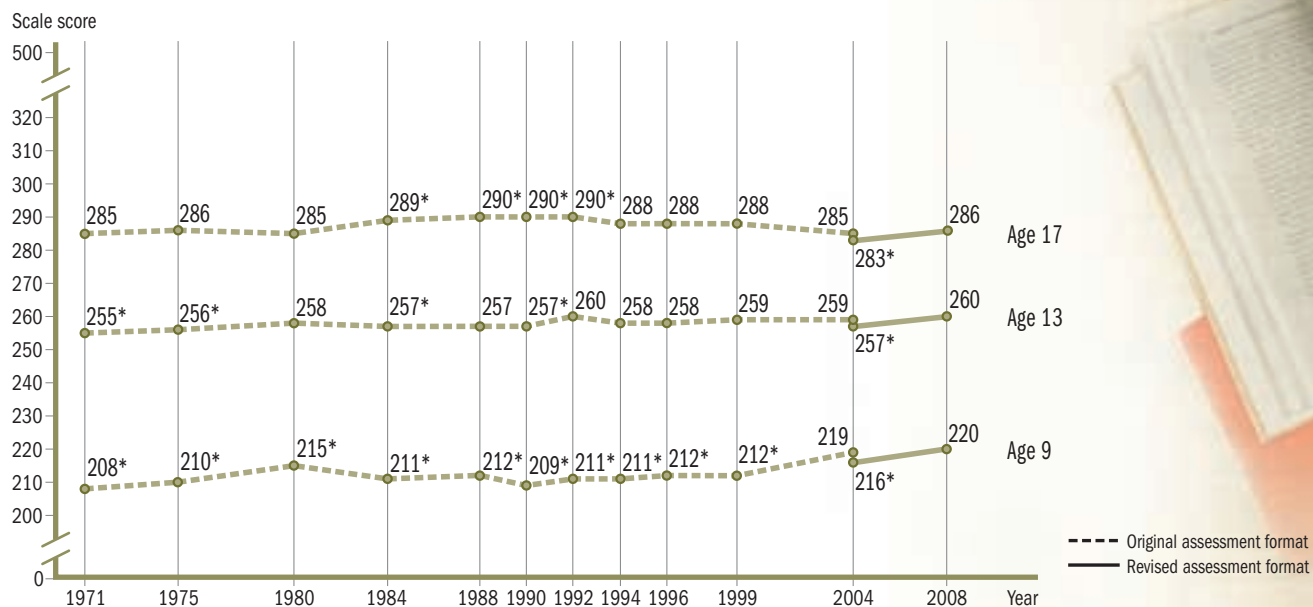
In reading, average scores increased at all three ages since 2004 (figure A). Average scores were 12 points higher than in 1971 for 9-year-olds and 4 points¹ higher for 13-year-olds. The average reading score for 17-year-olds was not significantly different from that in 1971.

In mathematics, average scores for 9- and 13-year-olds increased since 2004, while the average score for 17-year-olds did not change significantly (figure B). Average scores were 24 points higher than in 1973 for 9-year-olds and 15 points higher for 13-year-olds. The average mathematics score for 17-year-olds was not significantly different from that in 1973.

¹ The score-point change is based on the difference between unrounded scores as opposed to the rounded scores shown in the figure.

Reading

FIGURE A. Trend in NAEP reading average scores for 9-, 13-, and 17-year-old students

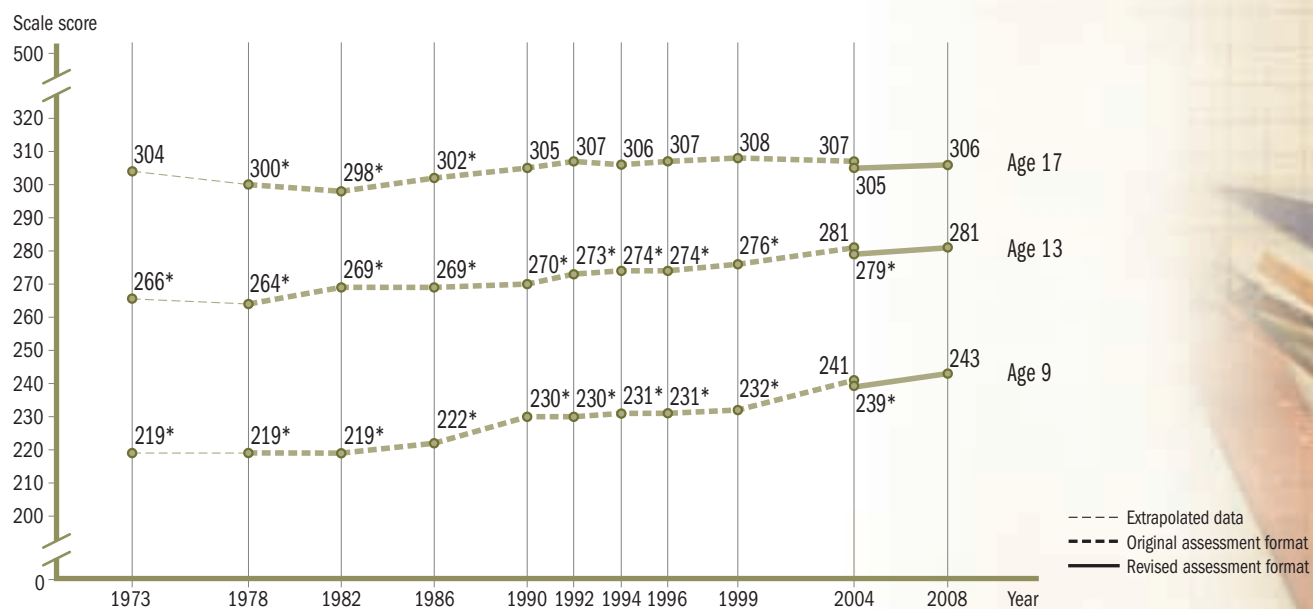


* Significantly different ($p < .05$) from 2008.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1971–2008 Long-Term Trend Reading Assessments.

Mathematics

FIGURE B. Trend in NAEP mathematics average scores for 9-, 13-, and 17-year-old students



* Significantly different ($p < .05$) from 2008.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1973–2008 Long-Term Trend Mathematics Assessments.

Black students make greater gains from early 1970s than White students

Average reading scores were higher in 2008 than in the first assessment year for White, Black, and Hispanic students. Across the three age groups, increases from 1971 to 2008 were larger for Black students than for White students. Increases from 1975 to 2008 were greater for Hispanic than for White students at ages 9 and 17, but were not significantly different at age 13.

In comparison to 2004, average reading scores were higher in 2008 for White students at all three ages, for Black students at ages 9 and 13, and for Hispanic students at age 9.

Across all three age groups, increases in average mathematics scores from 1973 to 2008 were greater for both Black and Hispanic students than for White students.

In comparison to 2004, average mathematics scores were higher in 2008 for White students at age 9. There were no significant changes in scores for 9-, 13-, and 17-year-old Black and Hispanic students or for 13- and 17-year-old White students over the same period.

Most racial/ethnic score gaps narrow compared to first assessment

While the reading score gaps between White and Black students at all three ages showed no significant change from 2004 to 2008, the gaps did narrow in 2008 compared to 1971. White – Hispanic gaps in reading scores also showed no significant change from 2004 to 2008 but were smaller in 2008 than in 1975 at ages 9 and 17.

Across all three age groups, neither the White – Black nor White – Hispanic gaps in mathematics changed significantly from 2004 to 2008, but both were smaller in 2008 than in 1973.

Reading

Age group	Changes from 1971		
	White	Black	Hispanic ¹
Age 9	↑ 14 points	↑ 34 points	↑ 25 points
Age 13	↑ 7 points	↑ 25 points	↑ 10 points
Age 17	↑ 4 points	↑ 28 points	↑ 17 points
Age group	Changes from 2004		
	White	Black	Hispanic
Age 9	↑ 4 points	↑ 7 points	↑ 8 points
Age 13	↑ 4 points	↑ 8 points	↔
Age 17	↑ 7 points	↔	↔

¹ Results for Hispanic students were first available in 1975. Therefore, the results shown in the 1971 section for Hispanic students are from the 1975 assessment.

Mathematics

Age group	Changes from 1973		
	White	Black	Hispanic
Age 9	↑ 25 points	↑ 34 points	↑ 32 points
Age 13	↑ 16 points	↑ 34 points	↑ 29 points
Age 17	↑ 4 points	↑ 17 points	↑ 16 points
Age group	Changes from 2004		
	White	Black	Hispanic
Age 9	↑ 5 points	↔	↔
Age 13	↔	↔	↔
Age 17	↔	↔	↔

- ↑ Indicates the score was higher in 2008.
↔ Indicates that there was no significant change in the score in 2008.



Changes in the student population over time show a decrease in the percentages of White students and an increase in the percentages of Hispanic students across all three age groups. For example, the percentage of 9-year-olds assessed in reading who were White decreased from 80 percent in 1975 to 56 percent in 2008, and the percentage of Hispanic students increased from 5 to 20 percent over the same period. The proportion of Black students has remained more stable over time, making up 14 percent of 9-year-olds assessed in reading in 1971 and 16 percent in 2008.

For students whose parents did not finish high school, mathematics scores increase compared to 1978

The average mathematics scores for 13- and 17-year-olds whose parents did not finish high school were higher than they were 30 years ago. At age 13, the score in 2008 for students whose parents did not finish high school was not significantly different from the score in 2004 but was 23 points higher than in 1978. At age 17, the average mathematics score for students whose parents did not finish high school was 5 points higher in 2008 than in 2004 and 12 points higher than in 1978.

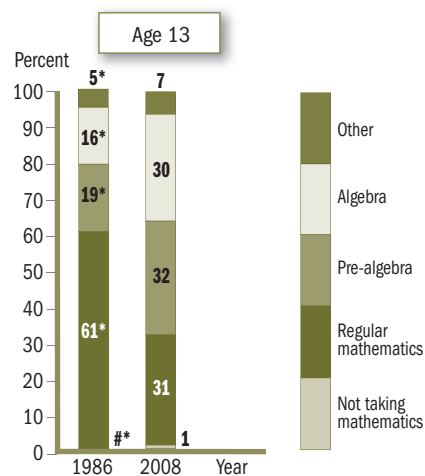
Scores for 13-year-olds whose parents had higher levels of education were also higher in 2008 than in 1978 but not significantly different compared to 2004. There were no significant changes in the scores for 17-year-olds whose parents had higher levels of education in comparison to 2004 or 1978.

Percentages of students taking higher-level mathematics increasing

Taking higher-level mathematics courses was generally associated with higher scores on the 2008 mathematics assessment at ages 13 and 17. For example, 13-year-olds who were enrolled in algebra classes scored higher on average than those enrolled in pre-algebra or regular mathematics. The percentages

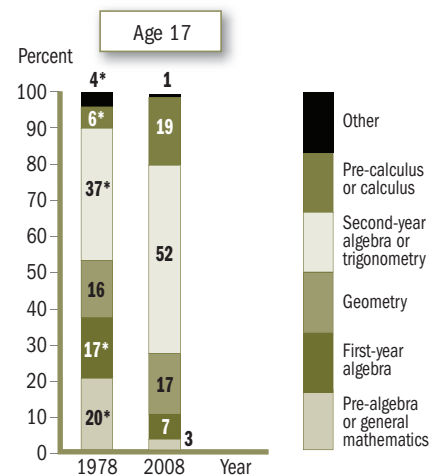
of 13-year-olds who reported taking pre-algebra or algebra in 2008 were higher than the percentages in 1986 (figure C). The percentage of 17-year-olds who reported they had taken pre-calculus or calculus was higher in 2008 than in 1978, as was the percentage who had taken second-year algebra or trigonometry (figure D).

FIGURE C. Percentage of 13-year-old students in NAEP mathematics, by type of mathematics course they have taken during the school year: 1986 and 2008



Rounds to zero.
* Significantly different ($p < .05$) from 2008.
NOTE: Results for 1986 are from the original assessment format, and results for 2008 are from the revised assessment format. 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), 1986 and 2008 Long-Term Trend Mathematics Assessments.

FIGURE D. Percentage of 17-year-old students in NAEP mathematics, by highest-level mathematics course they have ever taken: 1978 and 2008



* Significantly different ($p < .05$) from 2008.
NOTE: The "pre-algebra or general mathematics" response category includes "pre-algebra or introduction to algebra" and "general, business, or consumer mathematics" and students who did not take any of the listed courses. The "other" response category includes students for whom the highest-level mathematics course could not be determined due to missing or inconsistent responses. Results for 1978 are from the original assessment format, and results for 2008 are from the revised assessment format. 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), 1978 and 2008 Long-Term Trend Mathematics Assessments.

Introduction

The reporting of fair and accurate trends in student academic achievement is the primary purpose of NAEP. In this report, results from NAEP's long-term trend assessments provide an examination of student performance in reading and mathematics across four decades.

NAEP includes two components: the main assessments and the long-term trend assessments. Main NAEP assessments are periodically updated or changed to reflect current curricula and standards. The long-term trend assessments have measured essentially the same knowledge and skills since the 1970s. While both provide valuable information, it is not possible to accurately compare results from the two components because of differences in content and procedures.

Overview of the Long-Term Trend Assessments

This report presents results from the most recent NAEP long-term trend assessments, which were administered during the 2007–08 school year, as well as results from previous administrations of the long-term trend assessments in reading and mathematics. The reading assessment was first administered in 1971, and the mathematics assessment was first administered in 1973. The long-term trend program has used essentially the same assessments in each administration year to provide data that can be used to evaluate changes in student performance over long periods of time. In 2004, a number of changes were made to the long-term trend assessment to update the assessment content and procedures while maintaining the ability to report trends over the long term. Some of the changes included replacing questions that were based on outdated contexts; changing some administration procedures; and, most notably, providing accommodations for students with disabilities and for English language learners. These revisions did not alter the knowledge and skills that are assessed by the long-term trend assessments.

To ensure that results from the revised assessment format could be validly compared to results from earlier assessments, a special bridge study was conducted in 2004. The study involved administering both the original and revised versions to determine how the revisions may have affected the results. Because of the rigorous design of the

study, differences in 2004 results from the original and revised versions could be attributed solely to the inclusion of students who would have been excluded if accommodations had not been offered in the revised version. These differences were comparable to those seen when accommodations were first introduced in the main NAEP assessments. Average scores from the 2004 revised format were lower than scores from the original format for 9-year-olds overall in reading and for 9-year-old male students in reading and mathematics. This is consistent with expectations, given the increased inclusion in the revised assessment results of students with disabilities and English language learners who otherwise would have been excluded from the assessment. It was therefore concluded that, bearing in mind the differences in the populations of students assessed (accommodated vs. not accommodated), future assessment results could be compared to those from earlier assessments based on the original version. For a full discussion of the differences between the two assessments and findings, see the Technical Notes of this report and refer to *NAEP 2004 Trends in Academic Progress: Three Decades of Student Performance in Reading and Mathematics*, available at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005464>.

In the tables and figures of this report, results from 2004 are shown for both the original and revised versions of the assessments. Results from 2004 that are based on the original version are labeled *original assessment format* and are comparable to results from earlier assessment years in which accommodations were not available. The *revised assessment format* instituted in 2004 provides accommodations to students who otherwise would have been excluded from the assessment. In 2008, only the revised assessment format was administered. Therefore, this report compares the 2008 results to the results of the 2004 revised assessment format because both used the same instruments and administration procedures and were administered to a more inclusive population of students.

Results Provided in This Report

The results presented in this report are based on nationally representative samples of students at ages 9, 13, and 17 (table 1). These samples included both public and private school students.

TABLE 1.

Number of participating schools and students in NAEP reading and mathematics assessments, by student age group: 2008

Age group	Reading		Mathematics	
	Schools	Students	Schools	Students
Age 9	440	8,600	430	8,600
Age 13	420	8,400	420	8,500
Age 17	440	9,600	440	9,600

NOTE: The numbers of schools are rounded to the nearest ten, and the numbers of students are rounded to the nearest hundred.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Reading and Mathematics Assessments.

Scale scores

The reading and mathematics results are reported as scores on a 0–500 scale. Average scores are reported overall for each age and for selected groups of students. Although the score ranges for both subjects are identical, the reading and mathematics results cannot be compared to each other because they were scaled separately.

Percentiles

To show trends in performance for lower-, middle-, and higher-performing students, scores are also reported at five percentiles (10th, 25th, 50th, 75th, and 90th). Percentiles indicate the percentage of students whose scores fell below a particular point on the scale. For example, 75 percent of students’ scores fell below the 75th percentile score.

Performance levels

For each subject area, this report provides descriptions of the knowledge and skills that are likely to be demonstrated by students at five levels on the scale—150, 200, 250, 300, and 350. Although the same five levels are used for each age group, the likelihood of attaining higher performance levels is directly related to a student’s age because older students have had more educational experience. Therefore, only those performance levels that are most likely to show significant changes across the assessment years are discussed for each age.

Interpreting the Results

Changes in performance over time

In discussing performance trends, this report focuses on comparing results from 2008 with those from 2004 and from the first year the assessment was conducted. Comparisons between 2008 and 2004 are discussed based on the results of the revised assessment, although the results for both original and revised assessments for 2004 are shown in the tables and figures.

Consistent with widely accepted statistical standards, only those findings that are statistically significant at the .05 level with appropriate adjustments for multiple comparisons (using the False Discovery Rate procedure) are reported. In the tables and figures of this report, the symbol (*) is used to indicate that an earlier year’s score or percentage is significantly different from the 2008 results. Score differences or gaps cited in this report are calculated based on differences between unrounded numbers. Consequently, they may not be identical to differences that would be obtained by subtracting the rounded values in the tables and figures.

Changes in performance results over time may reflect not only changes in students’ knowledge and skills but also in other factors, such as changes in student demographics, education programs and policies, and teacher qualifications.

Accommodations and exclusions in NAEP

Beginning in 2004, the long-term trend assessments provided accommodations for students with disabilities and English language learners who could not otherwise be meaningfully assessed. Even with the availability of accommodations, however, some students may still be excluded. Variations in exclusion and accommodation rates that may be due to changes in identification, inclusion, and accommodation policies should be considered when comparing students’ performance over time. See the Technical Notes for more information on accommodations and exclusions.

Differences between groups

The reader is cautioned against making simple causal inferences about group differences, as a complex mix of educational and socioeconomic factors may affect student performance. See the Technical Notes for more information.

The Long-Term Trend Assessment in Reading



The NAEP long-term trend reading assessment required students to answer questions based on a variety of age-appropriate reading materials such as stories, poems, reports, and advertisements. The assessment was designed to measure students’ ability to

- locate specific information in the text provided,
- make inferences based on information in two or more parts of the text, and
- identify the main idea in the text.

Students’ reading skills were measured using mostly multiple-choice questions and some constructed-response (or open-ended) questions. Each student took only a part of the assessment, consisting of three 15-minute sections. The complete 2008 reading

assessment contained between 36 and 40 reading passages at each age (table 2). Students read between 8 and 15 passages and were asked between one and five questions about each passage. Sample questions are presented later in this section.

TABLE 2. Number of reading passages and questions in NAEP reading assessment, by student age group: 2008

Age group	Reading passages	Multiple-choice questions	Constructed-response questions
Age 9	37	84	4
Age 13	40	100	7
Age 17	36	96	8

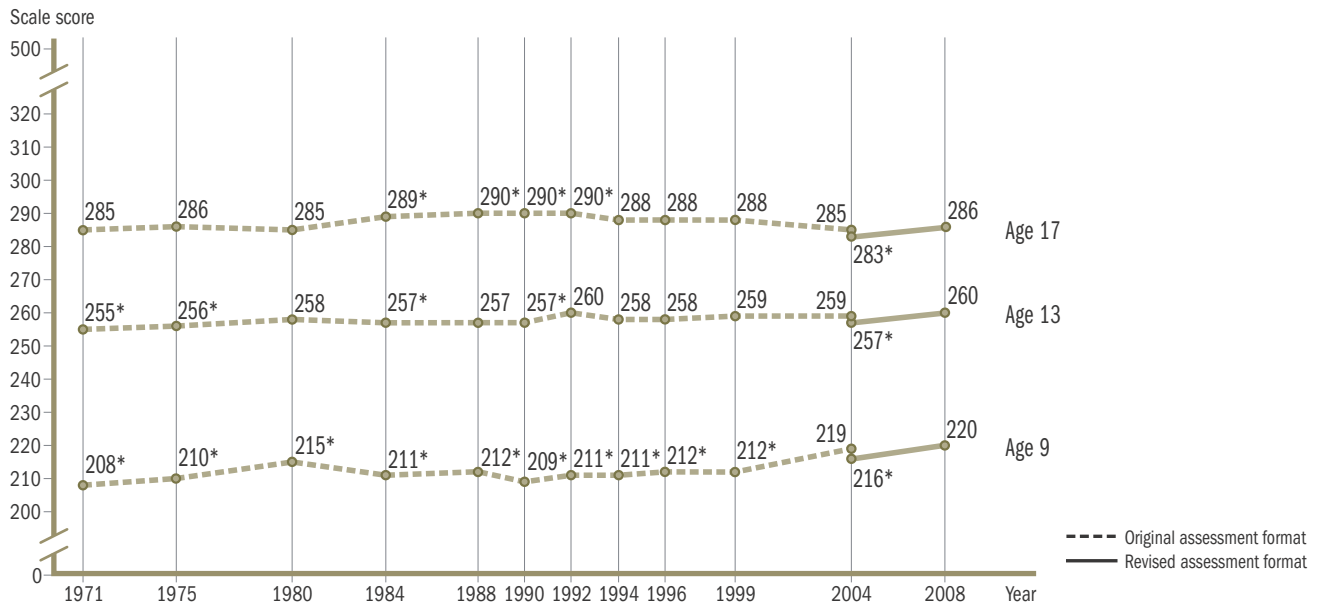
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Reading Assessment.

Reading skills improve

Overall, the national trend in reading showed improvement from 2004 to 2008 at all three ages (figure 1). The average reading score for 9-year-olds was higher in 2008 than in all previous assessment years, increasing 4 points since 2004 and 12 points in comparison to 1971. While the average score for 13-year-olds in 2008 was higher than in

both 2004 and 1971, it was not always significantly different from the scores in all the assessment years in between. The average reading score for 17-year-olds was higher in 2008 than in 2004 but was not significantly different from the score in 1971.

FIGURE 1. Trend in NAEP reading average scores for 9-, 13-, and 17-year-old students



* Significantly different ($p < .05$) from 2008.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1971–2008 Long-Term Trend Reading Assessments.



Lower-performing 9- and 13-year-olds make gains

Like the overall average reading score, the scores for 9-year-olds at the 10th, 25th, 50th, and 75th percentiles were higher in 2008 than in all previous assessment years (figure 2). While there was no significant change in the score for the highest-performing 9-year-olds (those at the 90th percentile) from 2004 to 2008, the score in 2008 was higher than in 1971.

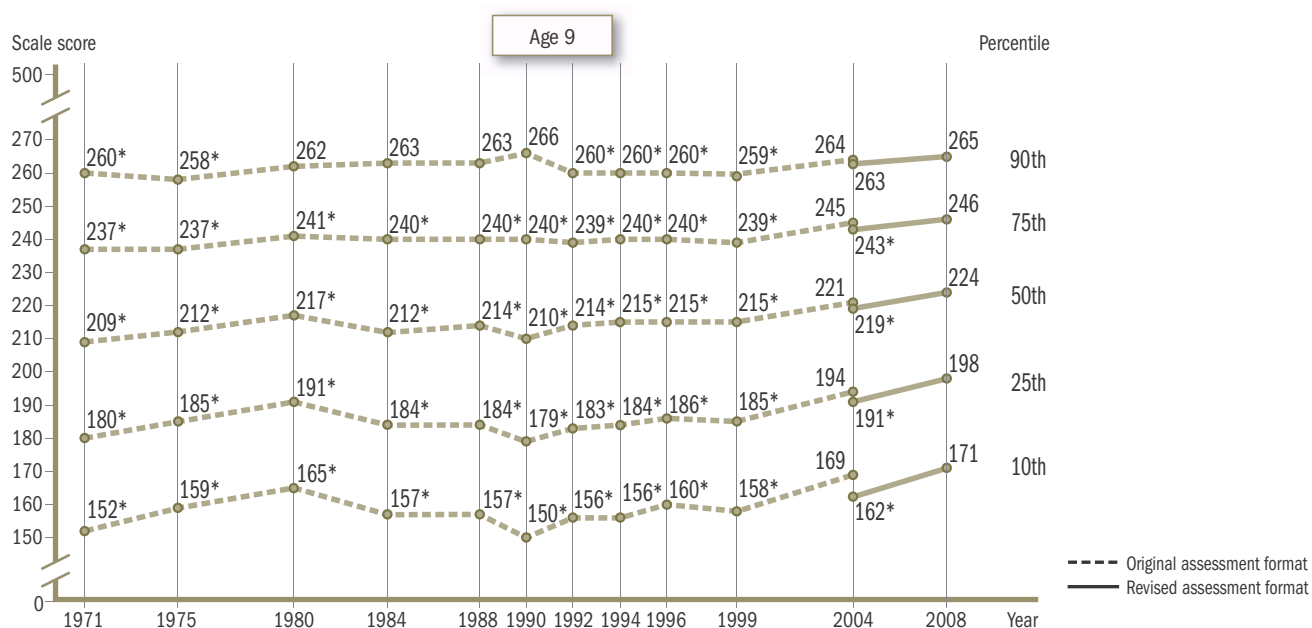
While the overall average score for 13-year-olds was higher in 2008 than in both 2004 and 1971, the results varied for students performing at different percentile levels. Scores increased since 2004 for lower-performing students (those at the 10th and 25th percentiles), but there were no significant changes

in the scores over the same period for middle- and higher-performing students (those at the 50th, 75th, and 90th percentiles). Increases were seen for all but the lowest-performing 13-year-olds (those at the 10th percentile) in 2008 compared to 1971.

Gains for 17-year-olds at the 25th and 75th percentiles contributed to the overall increase in the average reading score from 2004 to 2008. There were no significant changes in the scores for students at the 10th, 50th, and 90th percentiles over the same period. Scores did not change significantly in 2008 compared to 1971 for 17-year-olds at any of the five percentile levels.

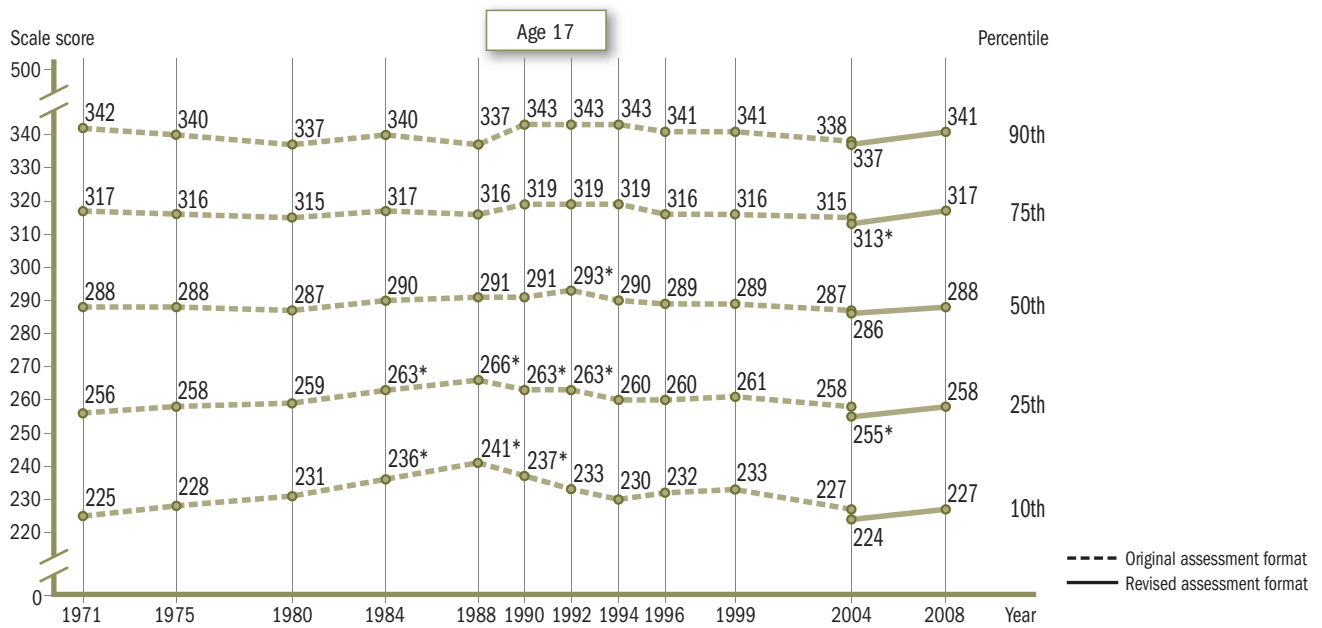
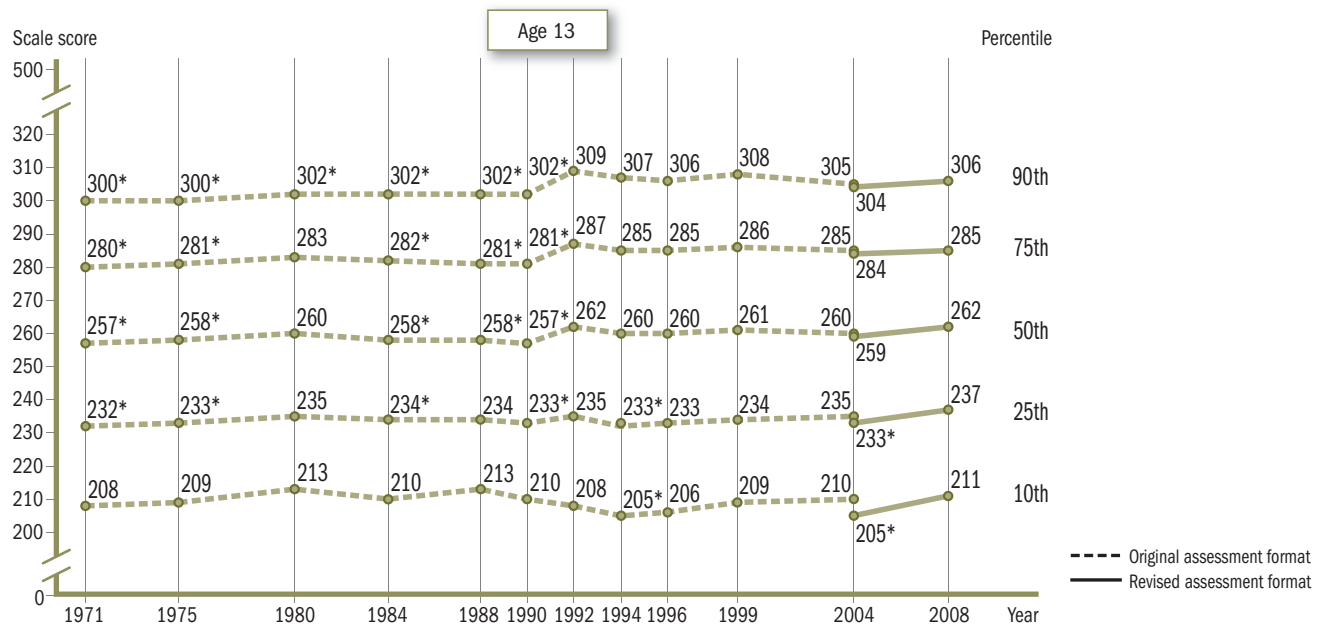


FIGURE 2. Trend in NAEP reading percentile scores for 9-, 13-, and 17-year-old students



See notes at end of figure.

FIGURE 2. Trend in NAEP reading percentile scores for 9-, 13-, and 17-year-old students—Continued



* Significantly different ($p < .05$) from 2008.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1971–2008 Long-Term Trend Reading Assessments.

No significant change for 17-year-olds at any performance level

The skills and abilities demonstrated by students performing at different points on the reading scale help provide additional context for understanding changes in students' performance over time. While there have been some increases in the percentages of 9- and 13-year-olds at different levels, the percentages of 17-year-olds at different levels have not changed significantly in comparison to 2004 or 1971 (figure 3).

At age 9, at least 90 percent of students in each assessment year since 1971 could perform the simple, discrete reading tasks described for performance level 150. In the 2008 reading assessment, 96 percent performed at this level or above, an increase of 2 percentage points since 2004 and 5 percentage points in comparison to 1971.

Seventy-three percent of 9-year-olds in 2008 showed evidence of the partially developed skills and understanding described for level 200. This percentage was higher than the percentages in either 2004 or 1971.

In addition to demonstrating the abilities described for levels 150 and 200, students performing at or above level 250 demonstrated the ability to interrelate ideas and make generalizations about what they read. Twenty-one percent

of 9-year-olds performed at or above level 250 in 2008, which was not significantly different from the percentage in 2004 but was higher than the percentage in 1971.

At age 13, at least 92 percent of students performed at or above level 200 in each assessment year. The percentage of students performing at or above this level in 2008 was 2 percentage points higher than in 2004 but was not significantly different from 1971.

Sixty-three percent of 13-year-olds performed at or above level 250 in 2008. A higher percentage of students reached this level in 2008 than in either 2004 or 1971.

Thirteen percent of students at age 13 were able to understand complicated information as described for level 300. This percentage was not significantly different from the percentage in 2004 but was higher than in 1971.

Among 17-year-olds, 80 percent of students performed at or above level 250 in 2008; 39 percent performed at or above level 300; and 6 percent were able to learn from specialized reading materials as described for level 350. For all three levels, the percentages of students in 2008 did not differ significantly from the percentages in 2004 or 1971.

Reading Performance-Level Descriptions

Level 350: Learn from Specialized Reading Materials

Readers at this level can extend and restructure the ideas presented in specialized and complex texts. Examples include scientific materials, literary essays, and historical documents. Readers are also able to understand the links between ideas, even when those links are not explicitly stated, and to make appropriate generalizations. Performance at this level suggests the ability to synthesize and learn from specialized reading materials.

Level 300: Understand Complicated Information

Readers at this level can understand complicated literary and informational passages, including material about topics they study at school. They can also analyze and integrate less familiar material about topics they study at school as well as provide reactions to and explanations of the text as a whole. Performance at this level suggests the ability to find, understand, summarize, and explain relatively complicated information.

Level 250: Interrelate Ideas and Make Generalizations

Readers at this level use intermediate skills and strategies to search for, locate, and organize the information they find in relatively lengthy passages and can recognize paraphrases of what they have read. They can also make inferences and reach generalizations about main ideas and the author's purpose from passages dealing with literature, science, and social studies. Performance at this level suggests the ability to search for specific information, interrelate ideas, and make generalizations.

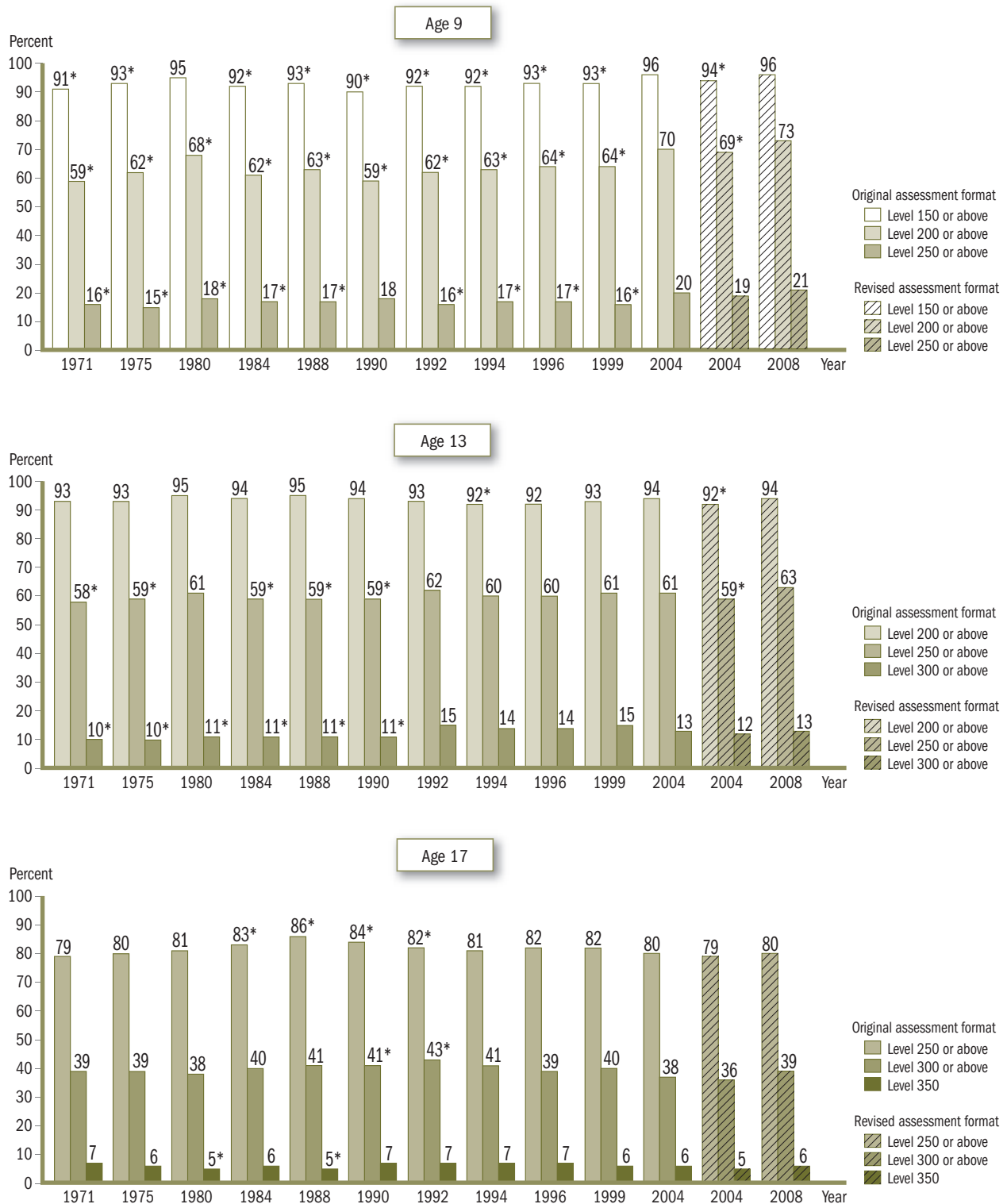
Level 200: Demonstrate Partially Developed Skills and Understanding

Readers at this level can locate and identify facts from simple informational paragraphs, stories, and news articles. In addition, they can combine ideas and make inferences based on short, uncomplicated passages. Performance at this level suggests the ability to understand specific or sequentially related information.

Level 150: Carry Out Simple, Discrete Reading Tasks

Readers at this level can follow brief written directions. They can also select words, phrases, or sentences to describe a simple picture and can interpret simple written clues to identify a common object. Performance at this level suggests the ability to carry out simple, discrete reading tasks.

FIGURE 3. Trend in NAEP reading performance-level results for 9-, 13-, and 17-year-old students



* Significantly different ($p < .05$) from 2008.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1971–2008 Long-Term Trend Reading Assessments.

Black students make greater gains compared to 1971 than White students

At age 9, White and Black students had higher average reading scores in 2008 than in all previous assessment years (figure 4). The average score for 9-year-old White students was 14 points higher in 2008 than in 1971, while the score for Black students was 34 points higher than in 1971.

At age 13, White and Black students had higher scores in 2008 than in 2004 and 1971. White students showed

a 7-point gain, and Black students showed a 25-point gain in 2008 compared to 1971.

At age 17, the average reading score increased for White students from 2004 to 2008 but showed no significant change for Black students. Comparing 1971 to 2008, White students showed a gain of 4 points, while Black students showed a gain of 28 points.¹

No significant change in White – Black score gaps since 2004

While there were no significant changes in the gaps in reading scores between White and Black students from 2004 to 2008, the gaps at all three ages were narrower in 2008 than in 1971. The gaps

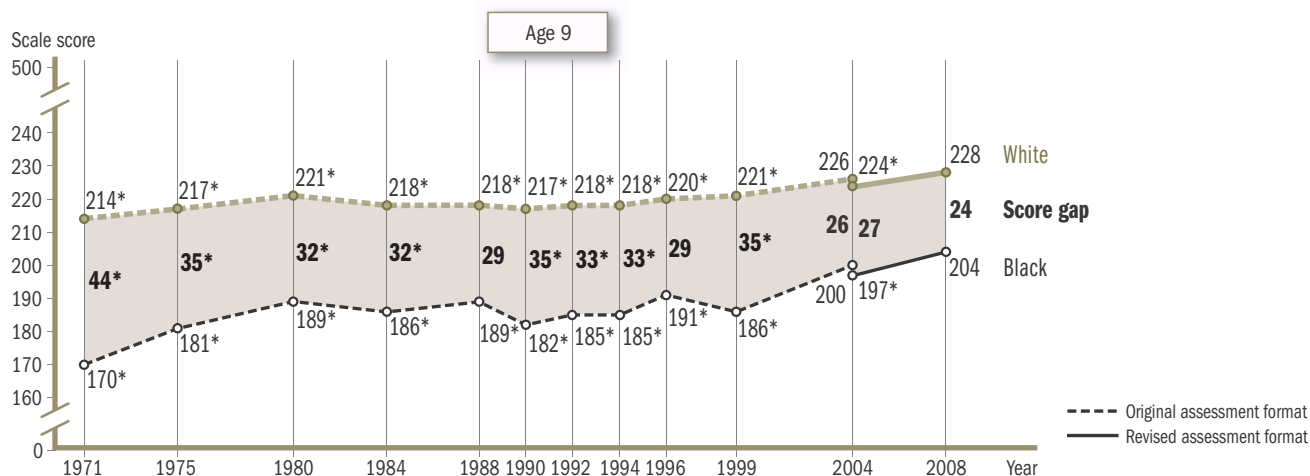
narrowed by 20 points, 17 points,² and 24 points at ages 9, 13, and 17, respectively.

¹ The score-point change is based on the difference between unrounded scores as opposed to the rounded scores shown in the figure.

² The score-gap change is based on the difference between unrounded score gaps as opposed to the rounded score gaps shown in the figure.

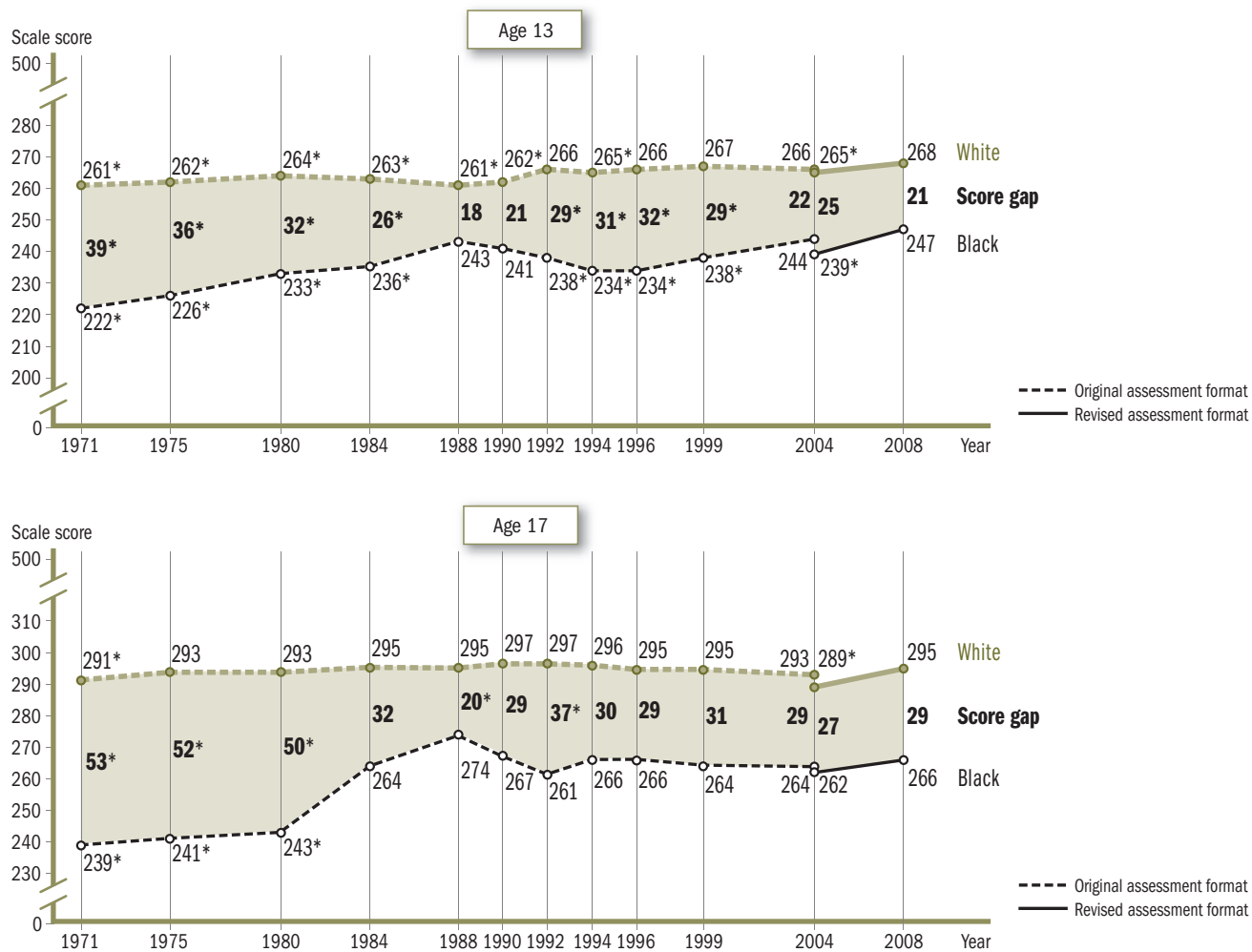


FIGURE 4. Trend in White – Black NAEP reading average scores and score gaps for 9-, 13-, and 17-year-old students



See notes at end of figure.

FIGURE 4. Trend in White – Black NAEP reading average scores and score gaps for 9-, 13-, and 17-year-old students—Continued



* Significantly different ($p < .05$) from 2008.

NOTE: Score gaps are calculated based on differences between unrounded average scores. Black includes African American. The White and Black 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), various years, 1971–2008 Long-Term Trend Reading Assessments.

About Student Demographics

Each assessment year, NAEP gathers information on student demographics. Reading results are available for White and Black students back to the 1971 long-term trend assessment, and for Hispanic students back to 1975. Because results for Asian/Pacific Islander students were not reportable for some of the previous assessment years, they are not included in this report. In the assessments administered between 1971 and 2004, students were assigned to a racial/ethnic category based on the assessment administrator's observation. One of the changes introduced as part of the revised assessment format in 2004 was the reporting of students' race/ethnicity based on information collected from school records (see the Technical Notes for more information).

Changes in the student population over time show a decrease in the percentages of White students in 2008 compared to 1971 at all three ages. In contrast, the percentages of Hispanic students increased in 2008 compared to 1975 at all three ages. For example, the percentage of White 9-year-olds decreased from 80 percent in 1975 to 56 percent in 2008, and the percentage of Hispanic 9-year-olds increased from 5 to 20 percent over the same period (see appendix table A-1). The percentage of Black students did not show a significant change from 14 percent of 9-year-olds in 1971 to 16 percent in 2008.

Gains for Hispanic students vary by age

At age 9, the average reading score for Hispanic students was higher in 2008 than in all previous assessment years (figure 5). Hispanic students showed an 8-point gain between 2004 and 2008 and a 25-point³ gain in comparison to 1975.

At ages 13 and 17, there were no significant changes in scores for Hispanic students since 2004, but scores at both ages were higher in 2008 than in 1975. Compared to 1975, scores increased in 2008 by 10 points at age 13 and by 17 points at age 17.

No significant change in White – Hispanic score gaps since 2004

Across all three age groups, there were no significant changes in the gaps in reading scores between White and Hispanic students from 2004 to 2008. However, when compared to 1975, the gaps in 2008 narrowed by 13 points at age 9 and

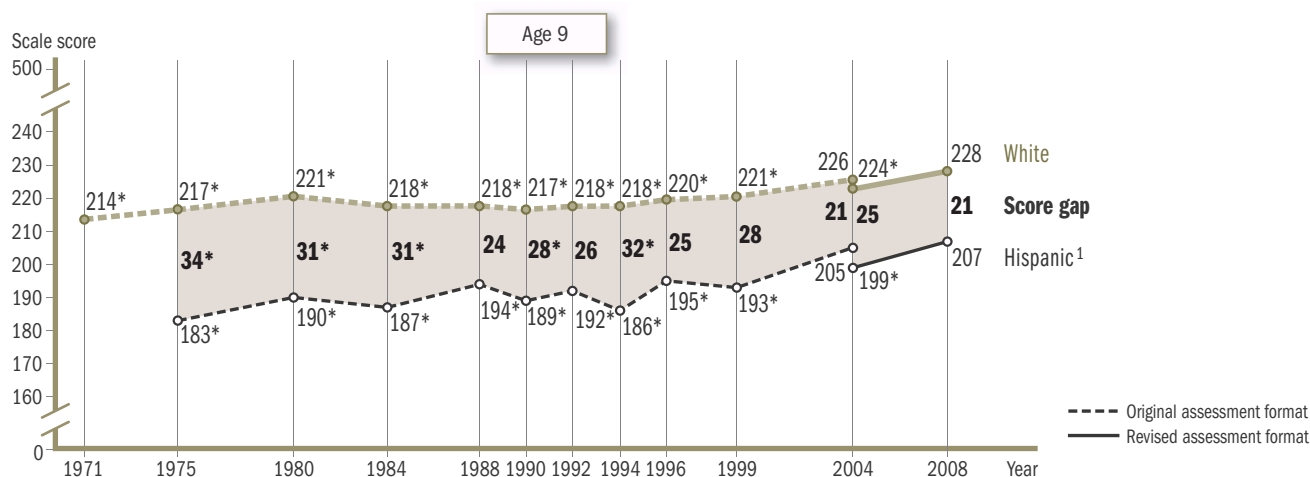
by 15 points at age 17. The White – Hispanic score gap for 13-year-old students did not change significantly in 2008 compared to 1975.

³ The score-point change is based on the difference between unrounded scores as opposed to the rounded scores shown in the figure.



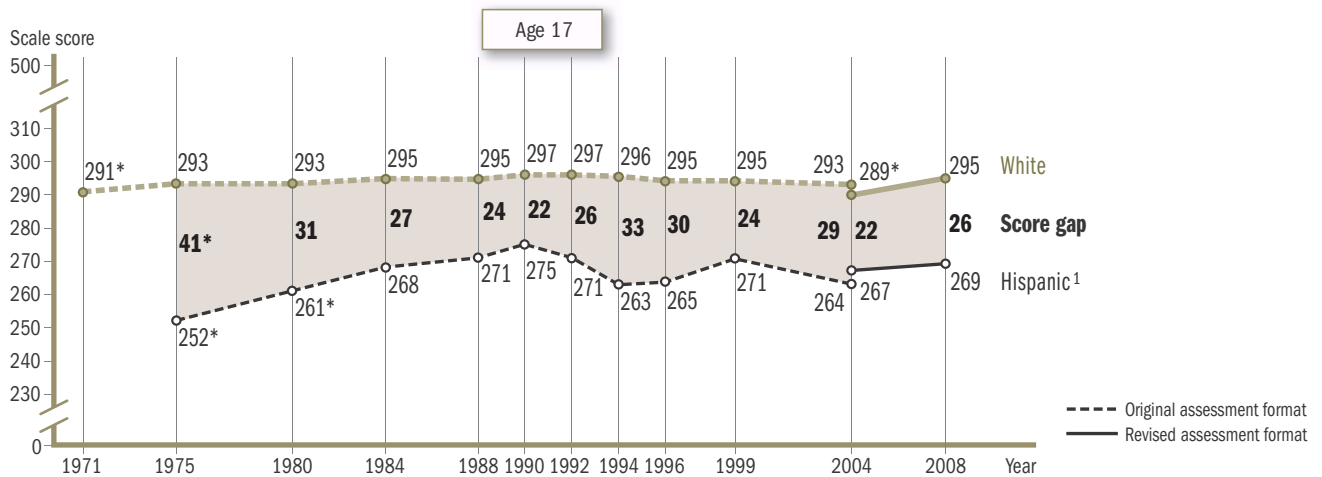
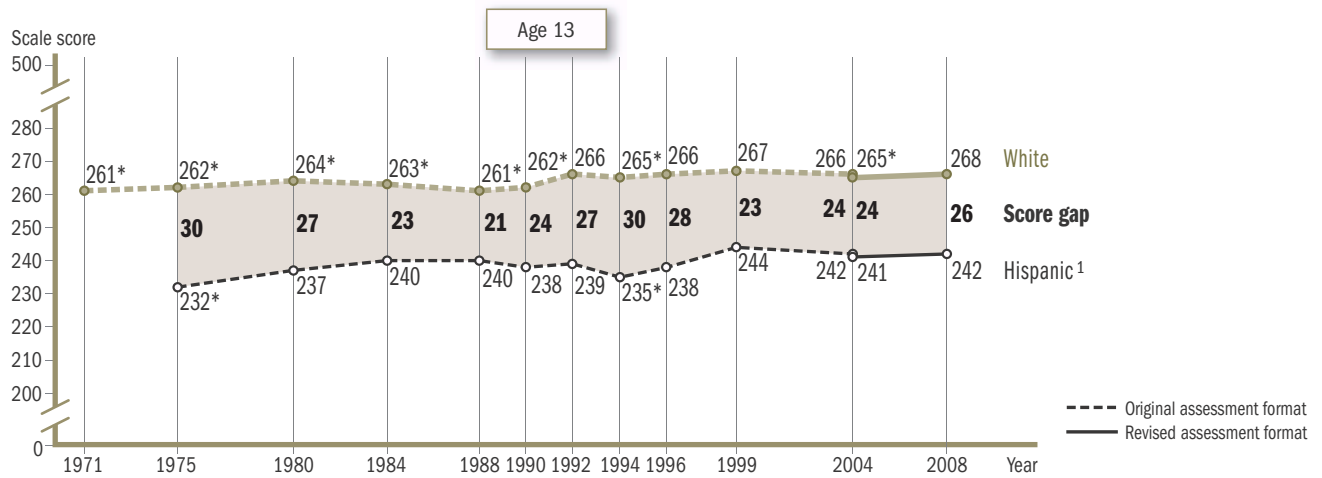
FIGURE 5.

Trend in White – Hispanic NAEP reading average scores and score gaps for 9-, 13-, and 17-year-old students



See notes at end of figure.

FIGURE 5. Trend in White – Hispanic NAEP reading average scores and score gaps for 9-, 13-, and 17-year-old students—Continued



* Significantly different ($p < .05$) from 2008.

¹ Hispanic was not reported as a separate race/ethnicity category in 1971, but data for Hispanic students were included in the overall national results.

NOTE: Score gaps are calculated based on differences between unrounded average scores. Hispanic includes Latino. The White race category excludes Hispanic origin.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1971–2008 Long-Term Trend Reading Assessments.



Scores increase since 2004 for males at all three ages

The overall improvement in reading for 9-year-olds was also seen in the results for both male and female students. Average scores for both male and female 9-year-olds were higher in 2008 than in any previous assessment year (figure 6).

Progress since 2004 varied by gender at age 13. The reading

score for 13-year-old male students was higher in 2008 than in 2004, while the score for female students showed no significant change. In comparison to 1971, scores were higher in 2008 for both male and female students.

At age 17, the average reading score for male students increased 4 points from 2004 to 2008, but the

score for female students did not change significantly over the same period. There was no significant change for either male or female students when the scores in 2008 were compared to those in 1971.

Most gender gaps remain unchanged

Across all three age groups, female students continued to score higher on average in reading than male students in 2008. At age 9, the 7-point gap in 2008 was not significantly different from the gap in 2004 but was narrower than the gap in 1971. The 8-point gender

gap for 13-year-olds in 2008 was not significantly different from the gaps in either 2004 or in 1971. At age 17, the 11-point gap in 2008 was not significantly different from the gaps in any of the previous assessment years.



FIGURE 6. Trend in Female – Male NAEP reading average scores and score gaps for 9-, 13-, and 17-year-old students

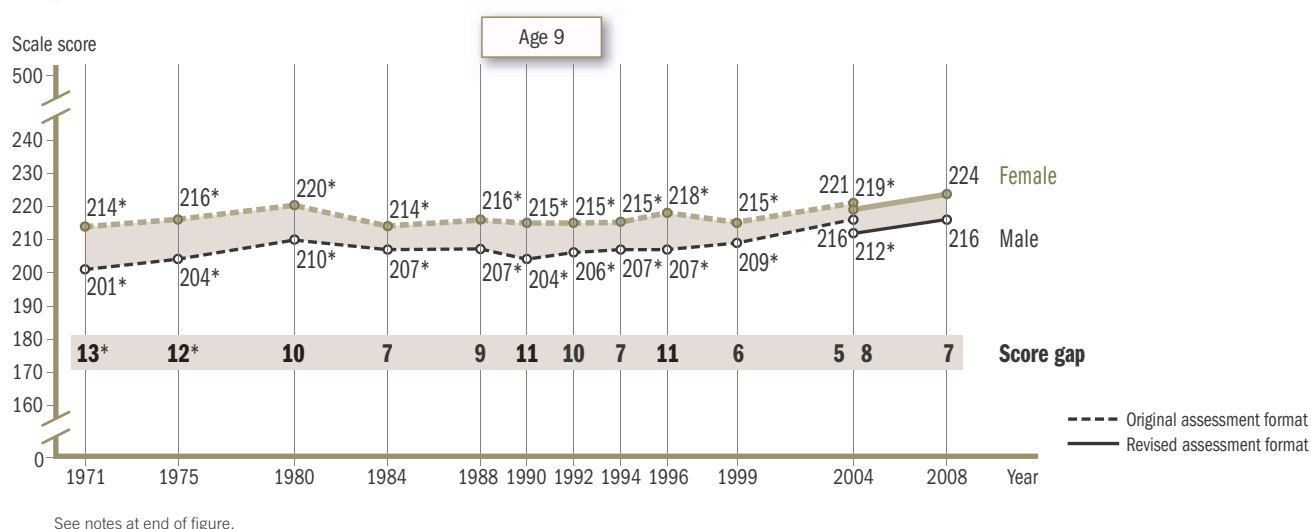
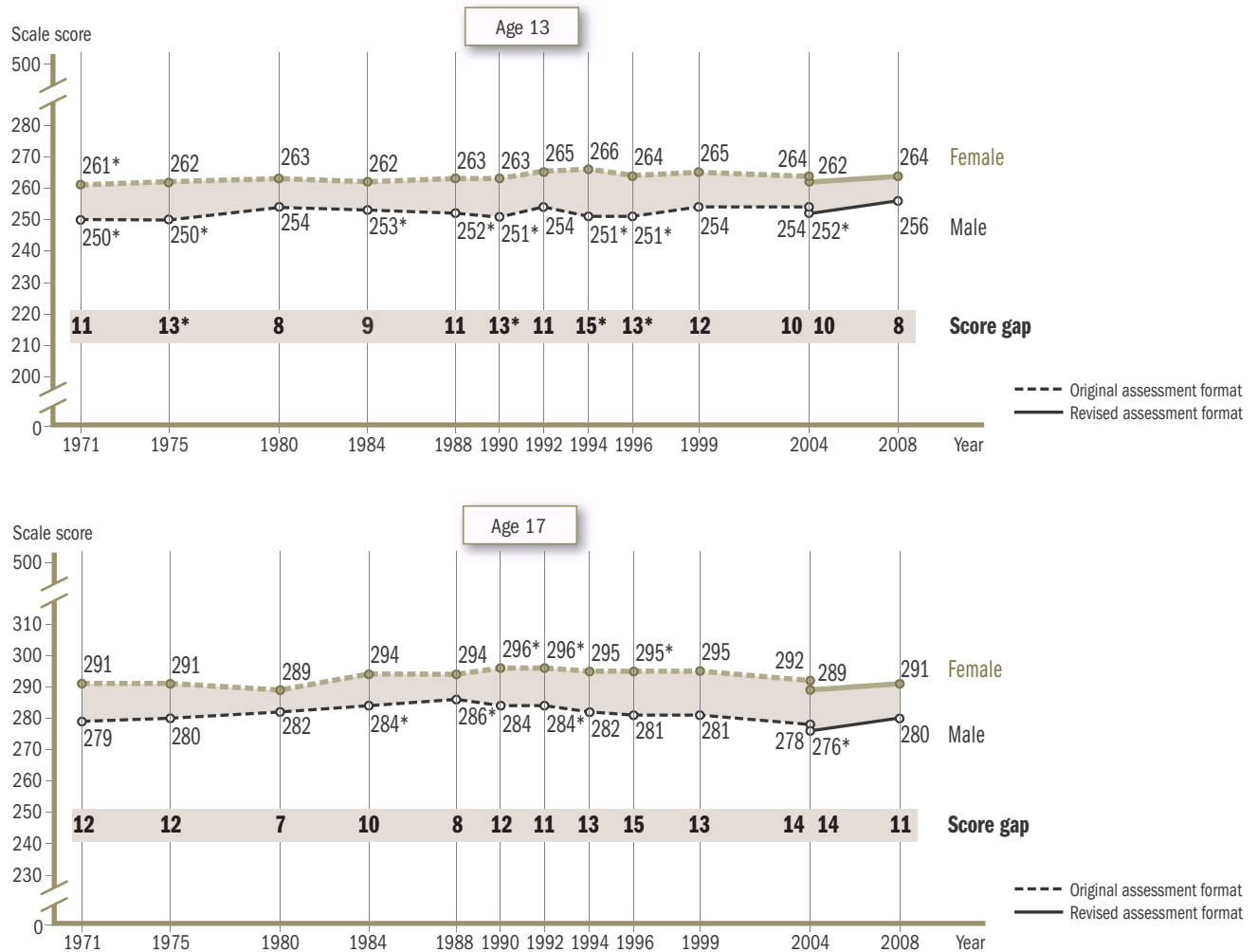


FIGURE 6. Trend in Female – Male NAEP reading average scores and score gaps for 9-, 13-, and 17-year-old students—Continued



* Significantly different ($p < .05$) from 2008.

NOTE: Score gaps are calculated based on differences between unrounded average scores.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1971–2008 Long-Term Trend Reading Assessments.

Reading scores improve for 9-year-old public and private school students over long term

In 2008, between 90 and 92 percent of 9-, 13-, and 17-year-olds attended public schools, and between 4 and 5 percent attended Catholic schools (see appendix table A-1). While the percentages of students attending public schools have not changed significantly in comparison to 1980 at any of the three ages, the percentages of 9- and 13-year-olds attending Catholic schools were lower in 2008 than in 1980.

Average reading scores for public school students at all three ages increased in 2008 in comparison to 2004 (table 3). When compared to 1980 (the earliest results available), the score for 9-year-old public school students was higher in 2008. However, scores for 13- and

17-year-old public school students in 2008 showed no significant changes compared to their scores in 1980.

Nine-year-olds attending private schools⁴ scored higher in 2008 than in 1980, while 13-year-olds showed no significant change in their score when comparing 2008 to 1980. The score for 9-year-old Catholic school students in 2008 was higher than their scores in 1980 and 2004.

In 2008, public school students scored lower than private school students at ages 9 and 13. Scores were lower for public school students than for Catholic school students at all three ages in 2008.

⁴ Private schools include Catholic schools.



School Participation in NAEP

Results by the type of school that students attended are available for the long-term trend reading assessments back to 1980. Assessment participation rates fell below the required standard for reporting results for 9- and 13-year-olds attending private schools in 2004, for 17-year-olds attending private schools in all the assessment years, and for 17-year-olds attending Catholic schools in 2004. In 1996, results for 17-year-old students attending Catholic schools are not reported because the sample size was insufficient to permit a reliable estimate. See the section on School and Student Participation Rates in the Technical Notes for more information.

TABLE 3. Average scores in NAEP reading, by student age group and type of school: Various years, 1980–2008

Age group and type of school	1980	1984	1988	1990	1992	1994	1996	1999	2004 ¹	2004 ²	2008
Age 9											
Public	214*	209*	210*	208*	209*	209*	210*	210*	217	214*	218
Private	227*	223*	223*	228*	225*	225*	227*	226*	‡	‡	237
Catholic	226*	221*	223*	225*	223*	223*	227	225	228	230*	235
Age 13											
Public	257	255*	256	255*	257	256	256	257	257	255*	258
Private	271	271	268	270	276	276	273	276	‡	‡	275
Catholic	270	270	266*	273	275	273	275	279	278	276	275
Age 17³											
Public	284	287*	289*	289*	288*	286	287	286	283	281*	284
Catholic	300	301	300	307	308	301	‡	305	‡	‡	303

‡ Reporting standards not met.

* Significantly different ($p < .05$) from 2008.¹ Original assessment format. Results prior to 2004 are also from the original assessment format.² Revised assessment format. Results after 2004 are also from the revised assessment format.³ For students at age 17, results are not shown for private schools because the minimum participation guidelines for reporting were not met.

NOTE: For all age groups, results are not available for 1971 and 1975.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1980–2008 Long-Term Trend Reading Assessments.



Sample Questions

Beginning in 2004, as a result of modifications to the long-term trend reading assessment, it became possible to share questions with the public. Again in 2008, some of the questions that have been administered to students since the early 1970s are being released. These released questions will not be administered in future NAEP long-term trend assessments.

The NAEP long-term trend reading assessment contains a range of reading materials, from simple narrative passages to complex articles on specialized topics. The selections include stories, poems, essays, reports, and passages from textbooks, as well as samples of a train schedule, telephone bill, and advertisements. While some passages in the assessment were administered across the age levels, passage length and difficulty generally increased at ages 13 and 17.

Two sample reading questions for each age group are presented in this section. These questions provide some insight into the types of comprehension skills measured by the long-term trend reading assessment. The response options for the multiple-choice sample questions are provided as the students saw them, and the oval for the correct answer is filled in. Constructed-response questions in the long-term trend reading assessment were typically scored using a 5-level scoring guide, which categorized the accuracy and level of detail provided in the student responses.

In the sample questions that follow, the percentages of students who answered correctly overall and within each performance level are shown in the tables below each sample. For example, 67 percent of age 9 students answered the first reading sample question correctly, while 30 percent of age 9 students at performance level 150 answered the question correctly (see facing page).



For More Information

Additional sample questions from the 2008 long-term trend assessments can be found at <http://nces.ed.gov/nationsreportcard/itmrls>.

Sample Reading Passage and Questions

AGE 9

Frontier Women

Like the early colonial women settlers of the backwoods, frontier women made everything their families needed. Most began work at daybreak and did not rest until late evening. They cooked, spun cloth, made clothing, raised children, and tried to keep their dirt homes clean. They cleared and plowed fields, tended and harvested crops, milked the cows, raised hogs, rode and trained horses, and did just about every chore on the farm.

The women not only worked, they also made most of their own tools. To make pitchforks, they attached handles to deer antlers. Many of the women learned to use a knife well enough to carve spoons, forks, and bowls out of animal bones. They fashioned cups and containers out of vegetable gourds and animal horns.

Sample question 1 asked students to make an inference based on the details of the passage to determine the best overall description of early colonial women.

Which statement best describes the frontier women?

- ☐ A They lived dangerous lives and tamed the West.
- ☐ B They hunted to provide food for their families.
- ☐ C They frequently worried about the safety of their homes.
- ☒ D They worked hard and possessed many skills.

Percentage of correct responses for 9-year-old students at each performance level: 2008

Overall	Below level 150	Level 150	Level 200	Level 250
67	26	30	75	99

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Reading Assessment.

Sample question 2 asked students to identify specific information from the passage.

According to the article, what did frontier women make from animal horns and bones?

- ☐ A Jewelry and ornaments
- ☒ B Tools and eating utensils
- ☐ C Beds and household furniture
- ☐ D Toys and horseshoes

Percentage of correct responses for 9-year-old students at each performance level: 2008

Overall	Below level 150	Level 150	Level 200	Level 250
83	20	56	94	99

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Reading Assessment.

Sample Reading Passage and Questions

AGE 13

Elephant Seals

Elephant seals cannot always be found together or even on land. In fact, for most of the year they prefer to be alone and at sea. But there are two reasons these seals gather on shore each year.

One is to escape the stinging effect of saltwater when they molt, or shed their old hair for new hair. At this time large patches of skin are also shed with the old hair. That is what makes them so sensitive to salt. The other reason elephant seals come ashore is to give birth to their young and to mate.

During the mating season, the seals are as heavy as they will ever be during the year. Females may weigh as much as 1,700 pounds. Males may weigh close to 6,000 pounds and be 17 feet long.

Much of the weight of these animals is fat, which they gain from their diet of squid and other seafood. This fat insulates them from the cold and provides the energy for the long periods when they eat nothing at all. But unfortunately for the seals, their blubber is also a very rich source of oil. The fat from a large male may yield up to 210 gallons of oil.

Although the animals are huge, they can be approached without fear, for on land they move fairly slowly. Unlike many other types of seals, elephant seals have little fear of people. Thus, when large-scale hunting of seals began around 1850, it didn't take long to kill most of them. By the 1890's scientists supposed that these seals had been hunted off.

In 1911 it was a great surprise when a small herd of about 100 seals was found on a Mexican island near the coast of Baja California. This discovery was reported to the Mexican government, which immediately stationed soldiers on the island with orders to shoot anyone harming the seals. As you can

imagine, the seals prospered and within another sixty years the size of the herd had greatly increased.

One feature of elephant seal behavior may have aided this remarkable comeback. The males engage in savage fighting that leaves one bull "King of the Beach." The winner is a champion prizefighter in the elephant seal world and, as a reward, he will have more "wives" on his part of the beach than any other bull. Farther down the beach, however, there are also other champions. This type of grouping helps the seals, for the strength of the most powerful bulls is passed on to the baby elephant seals. And in a vast ocean where these pups have to outswim an occasional white shark or killer whale, speed and strength are important.

Most of the fighting among males takes place in early December. They arrive at the Mexican island and other areas several weeks before the females so their problems will be settled before their wives arrive. From this time until they leave in March, the bulls eat nothing at all. They stay on shore and live only on the food and water contained in their stored fat.

Females arrive on the beaches in late December. Several days later each gives birth to a pup that weighs about 90 pounds. For one month the mother seal also eats nothing at all. In fact, she does very little other than nurse her pup. By the end of this 30-day period the pup may have tripled its weight, now weighing close to 300 pounds. At that time the mother leaves the pup to survive by itself. She then mates. One year later she gives birth to another pup.

And so the story goes, just as it did for thousands of years before the hunters arrived. Now, with the hunters gone and the seals recovered, this story should continue for thousands of years more.

Sample question 3 asked students to recognize the overall informative purpose of the passage and the emphasis on the seals’ appearance and habits.

What is the main purpose of this article?

- A** To explain why elephant seals are important to humans
- B** To convince the reader that elephant seals are not harmful to humans
- C** To describe the appearance and habits of elephant seals
- D** To convince the reader that laws should be made to protect elephant seals

Percentage of correct responses for 13-year-old students at each performance level: 2008

Overall	Below level 200	Level 200	Level 250	Level 300
63	32	55	67	82

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Reading Assessment.

Sample question 4 asked students to identify a specific cause of seal behavior presented in the passage.

Why do elephant seals come ashore each year?

- A** To eat and store up food
- B** To escape the winter migration of the white sharks and to avoid the cold water
- C** To rest up from their hard life at sea and hibernate
- D** To escape the saltwater and to give birth to their young

Percentage of correct responses for 13-year-old students at each performance level: 2008

Overall	Below level 200	Level 200	Level 250	Level 300
74	26	52	88	99

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Reading Assessment.



Sample Reading Passage and Questions

AGE 17

Travels with Charley
in Search of America

Even the cabin was dismal and damp. I turned the gas mantle high, lit the kerosene lamp, and lighted two burners of my stove to drive the loneliness away. The rain drummed on the metal roof. Nothing in my stock of food looked edible. The darkness fell and the trees moved closer. Over the rain drums I seemed to hear voices, as though a crowd of people muttered and mumbled offstage. Charley was restless. He didn't bark an alarm, but he growled and whined uneasily, which is very unlike him, and he didn't eat his supper and he left his water dish untouched—and that by a dog who drinks his weight in water every day and needs to because of the outgo. I succumbed utterly to my desolation, made two peanut-butter sandwiches, and went to bed and wrote letters home, passing my loneliness around. Then the rain stopped falling and the trees dripped and I helped spawn a school of secret dangers. Oh, we can populate the dark with horrors, even we who think ourselves informed and sure, believing nothing we cannot measure or weigh. I knew beyond all doubt that the dark things crowding in on me either did not exist or were not dangerous to me, and still I was afraid. I thought how terrible the nights must have been in a time when men knew the things were there and were deadly. But no, that's wrong. If I knew they were there, I would have weapons against them, charms, prayers, some kind of alliance with forces equally strong but on my side. Knowing they were not there made me defenseless against them and perhaps more afraid.

Sample question 5 asked students to use their understanding of the narrator's words in the passage to recognize the nature of his fear.

Which of the following best describes the man's fear?

- A He was worried that his dog was becoming ill.
- B He kept having fearful thoughts even though he knew there was no danger.
- C He suspected that there were dangerous animals outside.
- D He heard voices of people trying to break into the cabin.

Percentage of correct responses for 17-year-old students at each performance level: 2008

Overall	Below level 250	Level 250	Level 300	Level 350
84	58	84	97	99

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Reading Assessment.



Sample question 6 is a constructed-response question that asked students to interpret the overall mood or feeling of a short literary passage and then to explain how the writer of the passage created the mood. Responses to this question were rated with a 5-level scoring guide in one of the following categories:

- 5 – Mood identified and substantiated with multiple pieces of evidence
- 4 – Mood identified and substantiated
- 3 – Mood identified and substantiated with minimal evidence
- 2 – Mood identified without substantiation
- 1 – Unable to identify mood

The following sample response was rated as level 5 because it correctly identified the mood of the passage and provided multiple pieces of evidence. Overall, 3 percent of 17-year-olds provided responses that were rated as level 5.

Think about the article again. Write down a few words that describe the mood or feeling of the story.

dismal, eerie, mysterious, dark

Explain how the writer created this mood.

The writer created this mood through description of the setting. The cabin is described as dismal and lonely, and the rain on the roof along with the unknown creatures outside the cabin give it an eerie mood. Also, the fact that the main character knows he shouldn't be scared yet still is is somewhat mysterious because maybe subconsciously he knows that he should be afraid. The strange behavior of the dog supports this argument as well.

Percentage of level 5 responses for 17-year-old students at each performance level: 2008

Overall	Below level 250	Level 250	Level 300	Level 350
3	#	#	5	16

Rounds to zero.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Reading Assessment.

The following sample response was rated as level 3 because it provided minimal evidence of how the author created the mood. Overall, 74 percent of 17-year-olds wrote responses that were rated as level 3 or better.

Think about the article again. Write down a few words that describe the mood or feeling of the story.

The mood of the story is creepy

Explain how the writer created this mood.

The writers mood was created because of where the story took place. who wouldn't feel scared in the dark woods?

Percentage of level 3 or better responses for 17-year-old students at each performance level: 2008

Overall	Below level 250	Level 250	Level 300	Level 350
74	44	73	89	97

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2008 Long-Term Trend Reading Assessment.