

These long-term trend results show some progress since 1999 towards reducing the White-Black and White-Hispanic score gaps at age 9.

Chapter 3

Trends in Academic Achievement Among Student Groups

A key goal of the NAEP long-term trend assessment is to monitor the progress of various groups of students to determine whether any change in national scores is occurring across all student groups or is limited to a particular group. It is important to examine the performance gaps between student groups and any changes in these gaps over time as well as the overall achievement of all students. The assessment results presented in this chapter provide one source of information useful in monitoring progress of student achievement in this country.

Some of the student groups measured by this assessment are defined by gender, race/ethnicity, parental education level, and type of school (public or nonpublic). However, this report provides data only on those groups with sufficient sample size to produce reliable results. For instance, only White, Black, and Hispanic racial/ethnic groups are described here, as the sample sizes for Asian/Pacific Islander and American Indian/Alaska Native students were too small to provide reliable estimates. See tables B-1 and B-2 in the appendix for information on the percentage distribution of participating students by racial/ethnic group.

The NAEP long-term trend assessment has examined public and nonpublic school students' performance separately since 1980 in reading and 1978 in mathematics. However, in this report, results for nonpublic schools are neither displayed nor discussed because the participation rates for nonpublic schools were too low to produce valid and reliable results (see the School and the Student Sampling sections of appendix A for more detail). NAEP is preparing a report on the performance of nonpublic (private) school students with trend results from the main NAEP assessments (Perie, Vanneman, and Goldstein [forthcoming]).

The performance of students in each of these student groups is described in this chapter. First, descriptions of the student groups are given, and then the results for reading are displayed, followed by mathematics. Line graphs are used to display the average reading and mathematics scale scores attained by students in each group across the assessment years. Where appropriate, gaps between the student groups are also presented. For instance, the charts highlight any differences in scores of male and female students as well as the average score gaps between Black and White students and Hispanic and White students. The average score of each student group and age (9-, 13-, and 17-year-olds) is placed on a 0–500 scale in both subject areas to provide a numeric summary of students' performance.

Description of Student Groups

Results from the long-term trend assessment are presented in this chapter for gender, race/ethnicity, and highest level of parents' education. The following sections describe how the data were collected on each of the student groups discussed in this chapter, and give relevant background information about group membership and achievement.

Gender

In years past, gender differences have received considerable attention. Male students traditionally scored higher on average than female students in mathematics and science, while females scored higher on average than males in reading and writing (Baker and Jones 1993; Bauer, Park, and Sullivan 1998; Freeman 2004; Mullis et al. 1998). Now, gender differences are less pronounced in the United States than in other countries. For instance, in a recent international assessment of 15-year-olds, no differences were found in the United States between male and female students' scores in mathematics, but there were gender gaps in reading in which females scored higher than males in the United States (Lemke et al. 2002). So, although much of the nation's attention has shifted to the performance gaps between different racial/ethnic groups, it is important to continue to examine the trends in the male-female score gap.

The roster of sampled students from each participating school identifies the students as either male or female. These data are used to examine trends in male and female students' average reading and mathematics scores, which are presented in this chapter.

Race/Ethnicity

Previous main NAEP reports have shown a consistent finding of White and Asian students outperforming their Black and Hispanic peers. (See, for example, Braswell et al. 2005; Donahue, Daane, and Jin 2005.) Reducing the performance gaps between racial/ethnic groups is a primary goal of the recent federal legislation in education (NCLB 2002).

Although data are collected on five mutually exclusive racial/ethnic groups, the performance of only three groups is reported in this section—White, Black, and Hispanic students. The other racial/ethnic groups—Asian/Pacific Islander and American Indian/Alaska Native—are not reported, as the samples collected were of insufficient size to analyze and report separately. Data for Hispanic students were not available in 1971, so the trend in reading scores for this group runs from 1975 through 2004.

Relatively small numeric changes in scores are more likely to be statistically significant for White students than for Black or Hispanic students, because the weighted samples of White students tended to be larger than weighted samples for other racial/ethnic groups, with a corresponding lower margin of error. That is, the standard errors associated with larger groups, such as White students, are smaller than the standard errors associated with smaller groups, such as Hispanic students. Therefore, a similar difference between years in scale scores is more likely to be statistically significant for the larger group than for the smaller group.

Parents' Highest Level of Education

Parental education may influence student performance in school in a variety of ways. Earlier NAEP reports have shown that across all ages and subject areas, students who reported higher parental education levels tended to have higher assessment scores, on average. (See, for example, Braswell et al. 2005; Donahue, Daane, and Jin 2005.)

In the long-term trend assessment background questionnaires, students at all three ages are asked to identify the highest level of education attained by their parents. The student indicates how far each parent went in school, choosing from the following categories: did not finish high school, graduated from high school, went to another school after high school, graduated from college, and I don't know. The highest education level of either parent is used in these analyses. Data go back to 1978 in mathematics and 1980 in reading. In 1971 and 1975, students were asked to choose their parents' highest education level from among fewer categories. For purposes of this section, only the results from 1978 forward will be discussed so that "some education after high school" and "college graduate" can be analyzed separately. It should be noted that 9-year-olds' reports of their parents' education level may not be as reliable as those of older students and are therefore not reported.

Trends in Reading Scores by Student Groups

This section presents the results of the long-term trend reading assessment for each of the four types of groups. For gender and race/ethnicity, first the results are presented for each student group, and then the score gaps between the groups are examined.

Trends in Reading Scores by Gender

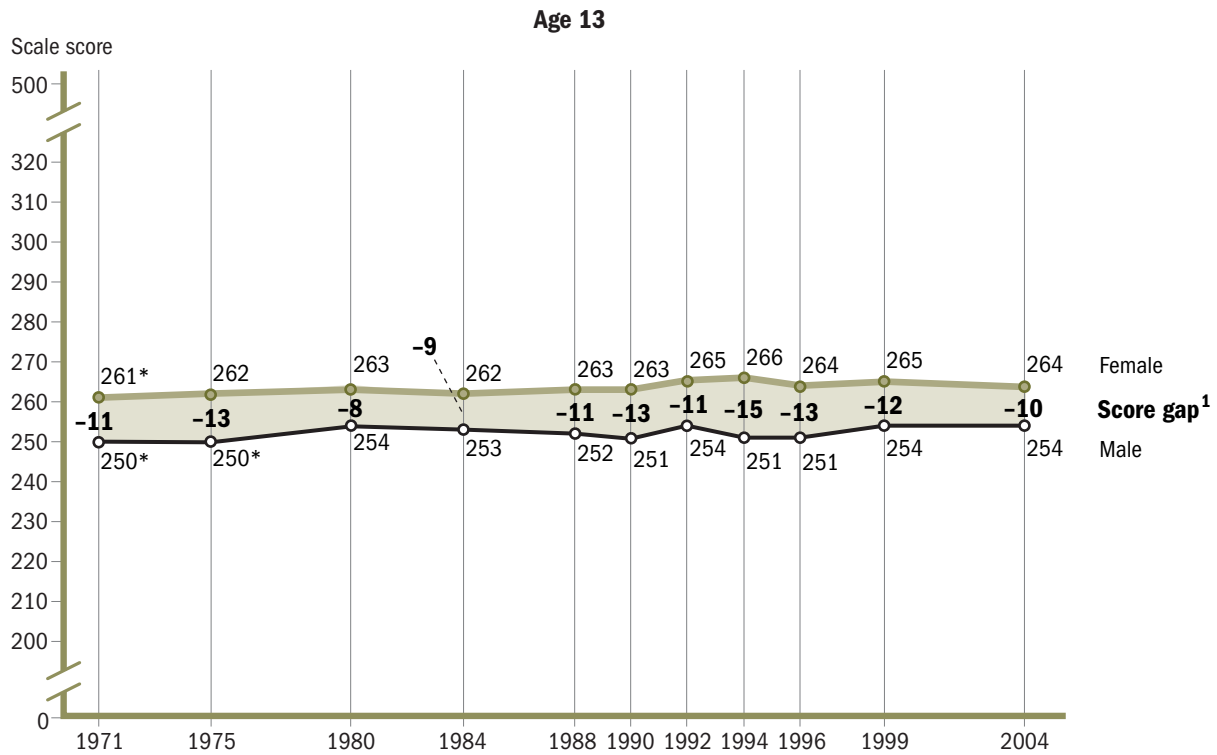
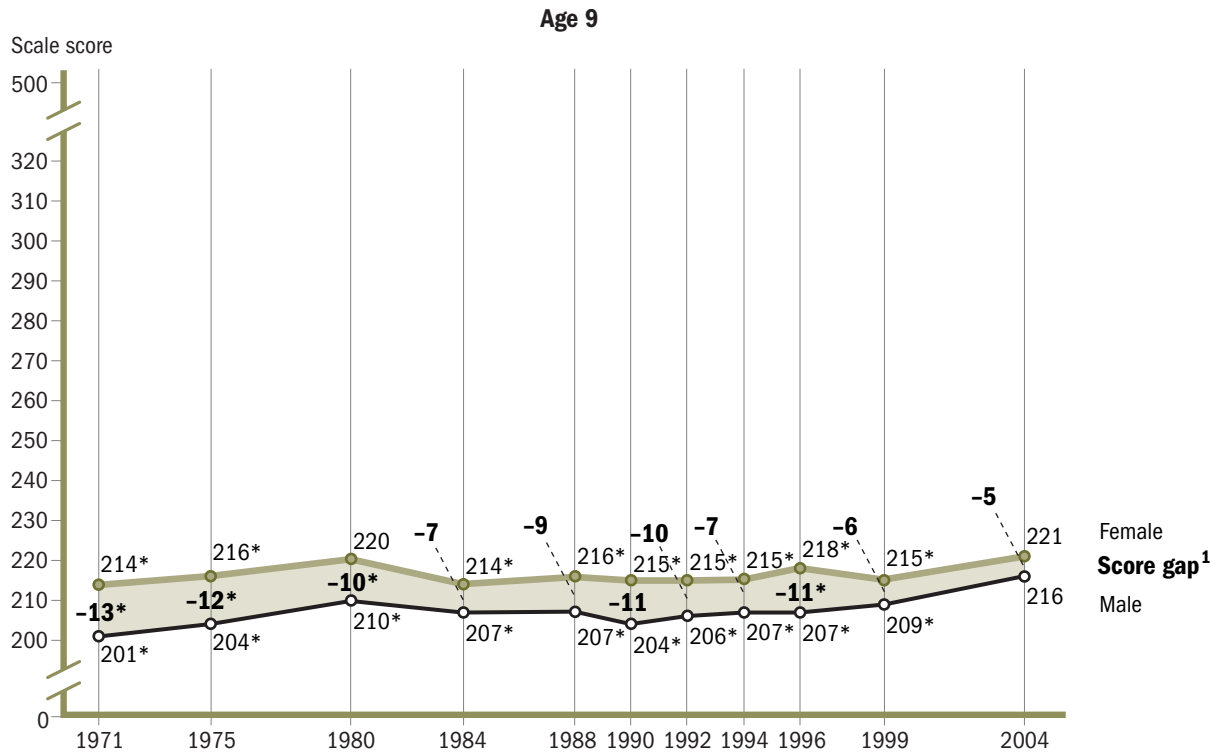
Trends in reading scores for both male and female students are shown in figure 3-1. Among male students, 9-year-olds had a higher average score in 2004 than in any previous assessment year. Thirteen-year-old males' average reading score in 2004 was higher than the scores in 1971 and 1975 but not measurably different from the scores in all other assessment years. In 2004, the average score of male 17-year-olds showed no measurable difference from 1971 or 1999.

The reading trends of female students are similar to those of male students. At both ages 9 and 13 the female students' average reading scores were significantly higher in 2004 than in 1971. At age 9, the average score for female students was higher in 2004 than in any previous assessment year except 1980. There were no measurable differences in average scores for 13-year-old female students between 1975 and 2004. At age 17, female students' average score in 2004 was lower than those in 1990 and 1992 but not measurably different from that in 1971.

Score Differences Between Male and Female Students

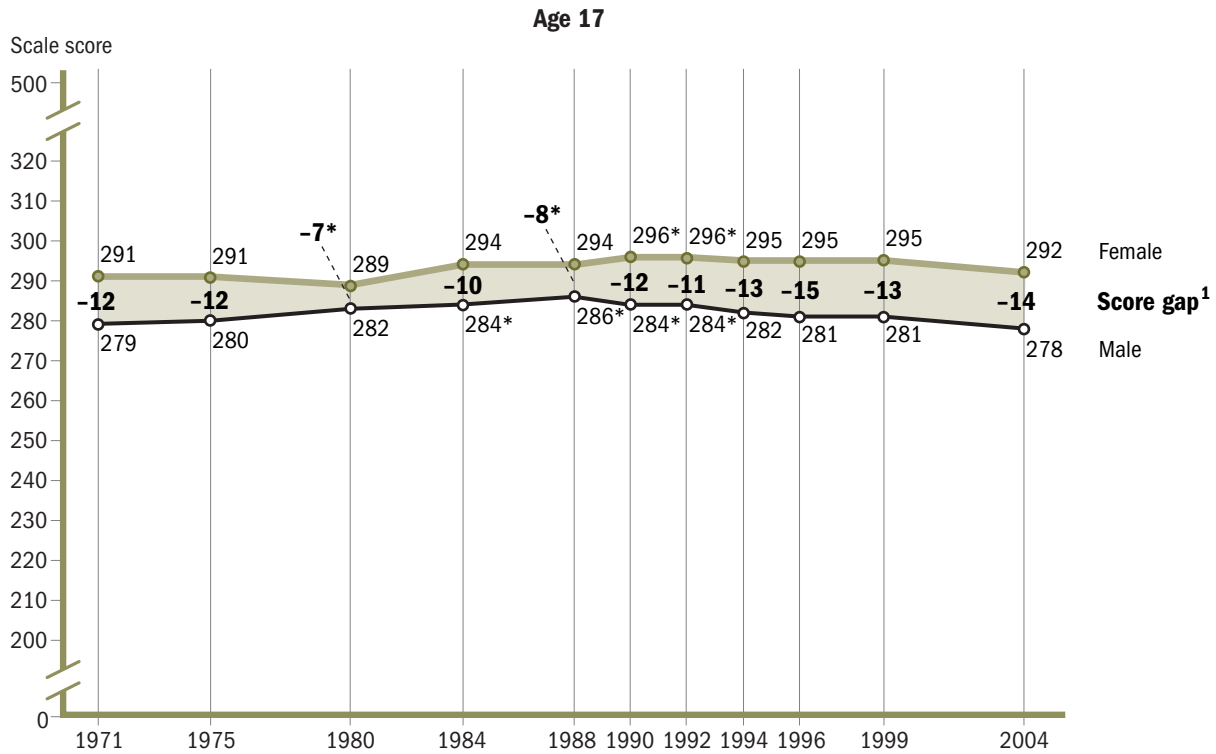
Figure 3-1 also displays the gap between the male and female average scores. All reading score differences show female students scored higher on average than their male counterparts in 2004. The gender gap at age 9 decreased from 13 score points in 1971 to 5 score points in 2004. In contrast, there has been no measurable change in the score gap at age 13 between 2004 and any previous assessment year. For 17-year-olds, the score gap in 2004 was larger than the gaps in 1988 and 1980, but showed no measurable difference from the gaps in other assessment years.

Figure 3-1. Trends in average reading scale scores and score gaps for students ages 9, 13, and 17, by gender: 1971–2004



See notes at end of figure.

Figure 3-1. Trends in average reading scale scores and score gaps for students ages 9, 13, and 17, by gender: 1971–2004—Continued



*Significantly different from 2004.

¹Male average scale score minus female average scale score.

NOTE: Score gaps are calculated based on differences between unrounded average scale scores. Negative numbers indicate that the average scale score for male students was lower than the score for female students.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1971–2004 Long-Term Trend Reading Assessments.

How to interpret this graphic . . .

Graphics such as those in figures 3-1, 3-2, and 3-3 are called “gap charts.” They are intended to show both the trend in performance of a single student group over time (such as female students) and the gap between two groups of students (such as males and females). In figure 3-1, the average reading scores of male and female students are graphed separately, and the difference between the two scores is shown. For example, in 2004, female 9-year-olds had an average score of 221, and male 9-year-olds had an average score of 216. When the average score for female students is subtracted from the average score of male students, the difference is –5 points. All differences are shaded.

Trends in Reading Scores by Race/Ethnicity

Figures 3-2 and 3-3 display the average reading scores across assessment years for White, Black, and Hispanic students as well as the score gaps between White and Black or White and Hispanic students.

Trends in Reading for White Students

For White students, the average scores for 9- and 13-year-olds were higher in 2004 than in 1971. As with the national sample, scores for White 9-year-olds were higher in 2004 than in any previous assessment year.

Trends in Reading for Black Students

For Black students at all three ages, average reading scores in 2004 were higher than in 1971. At age 9, Black students scored higher on average in 2004 than in any previous administration year, up 30 points

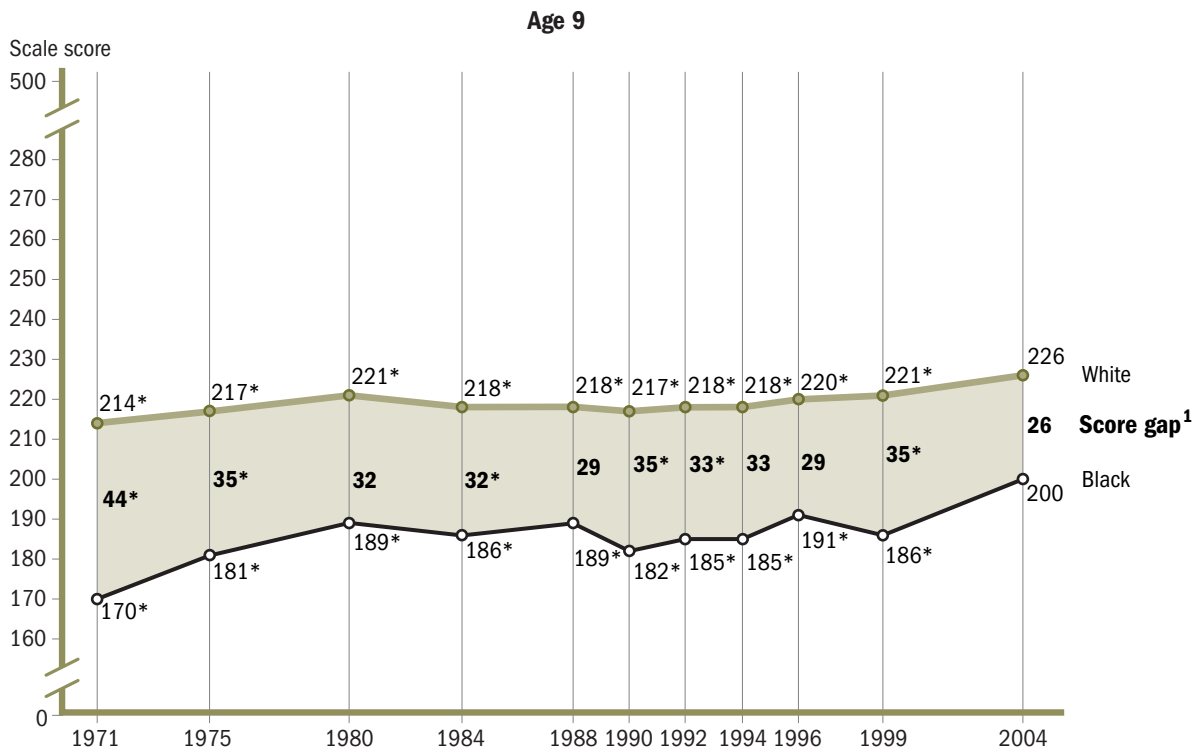
from 1971 and up 15 points¹ since 1999. For age 13, scores increased by 22 points between 1971 and 2004. Average scores for Black students at age 17 increased between 1971 and 2004 by 25 points.

Score Differences Between White and Black Students

As shown in figure 3-2, the differences in scores for White and Black students have decreased between the first (1971) and the most recent (2004) assessments across all three ages, although White students scored higher on average than Black students at each age level in 2004.

The score gap between Black and White students at age 9 decreased by 18 points between 1971 and 2004 and by 9 points between 1999 and 2004. At age 13, the gap decreased from 39 points in 1971 to 22 points in 2004. At age 17, the gap decreased by 24 points between 1971 and 2004.

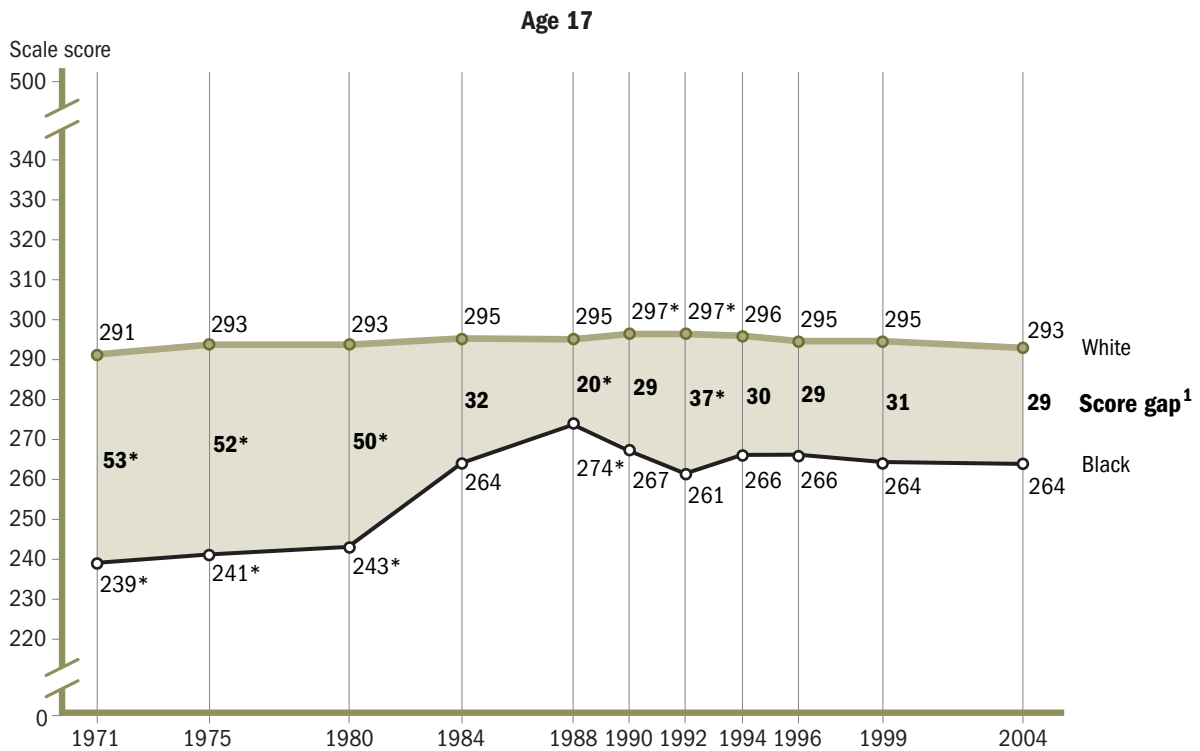
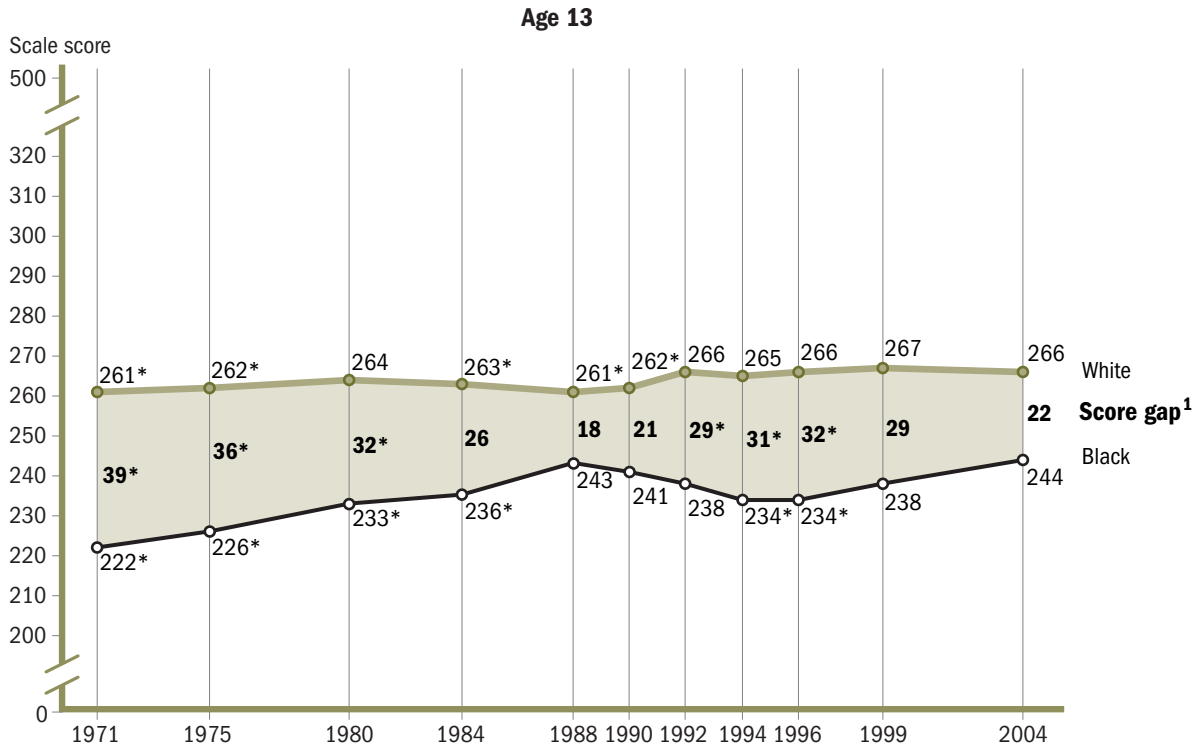
Figure 3-2. Trends in average reading scale scores and score gaps for White students and Black students ages 9, 13, and 17: 1971-2004



See notes at end of figure.

¹ Detail may not sum to totals because of rounding. Differences between scores are calculated using unrounded values. In this instance, the result of the subtraction differs from what would be obtained by subtracting the rounded values shown in the accompanying figure.

Figure 3-2. Trends in average reading scale scores and score gaps for White students and Black students ages 9, 13, and 17: 1971-2004—Continued



*Significantly different from 2004.

¹White average scale score minus Black average scale score.

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

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1971-2004 Long-Term Trend Reading Assessments.

Trends in Reading for Hispanic Students

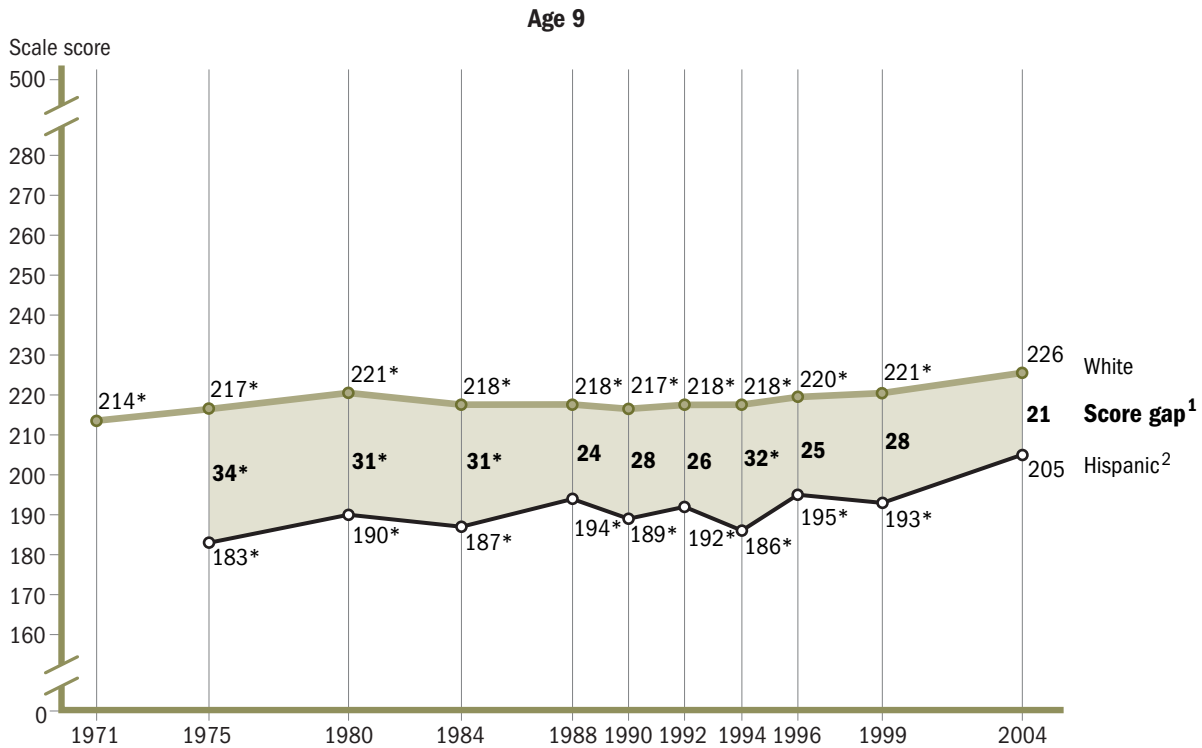
The average reading scores for Hispanic students show mixed results across the ages. As with the other racial/ethnic groups, the average reading score for Hispanic students at age 9 was higher in 2004 than in any other assessment year. The average score for Hispanic students at age 13 shows an increase of 10 points between 1975 and 2004. The scores for 17-year-old Hispanic students increased by 11 points² between 1975 and 2004, but no measurable changes were seen between 1999 and 2004. It is worth noting that due to smaller sample sizes, the standard errors associated with the scores of Hispanic students are relatively large, meaning that differences that look large may not be statistically significant.

Score Differences Between White and Hispanic Students

As shown in figure 3-3, White students scored higher on average than their Hispanic peers in reading at each age in 2004.

At age 9, the score gap between White and Hispanic students decreased from 34 points in 1975 to 21 points in 2004. At age 13, any apparent changes between 2004 and all previous assessment years in the size of the score gap were not statistically significant, except between 2004 and 1994, when the score gap narrowed by 6 points. At age 17, the score gap between White and Hispanic students was measurably smaller in 2004 than in 1975.

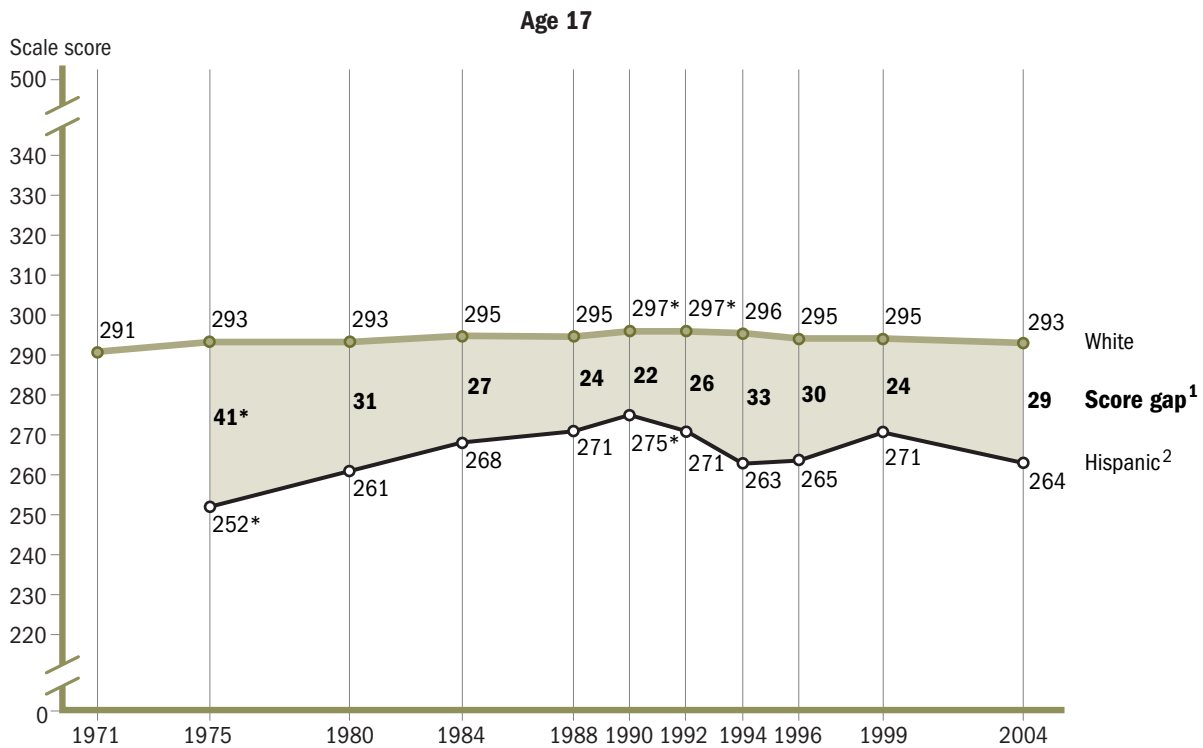
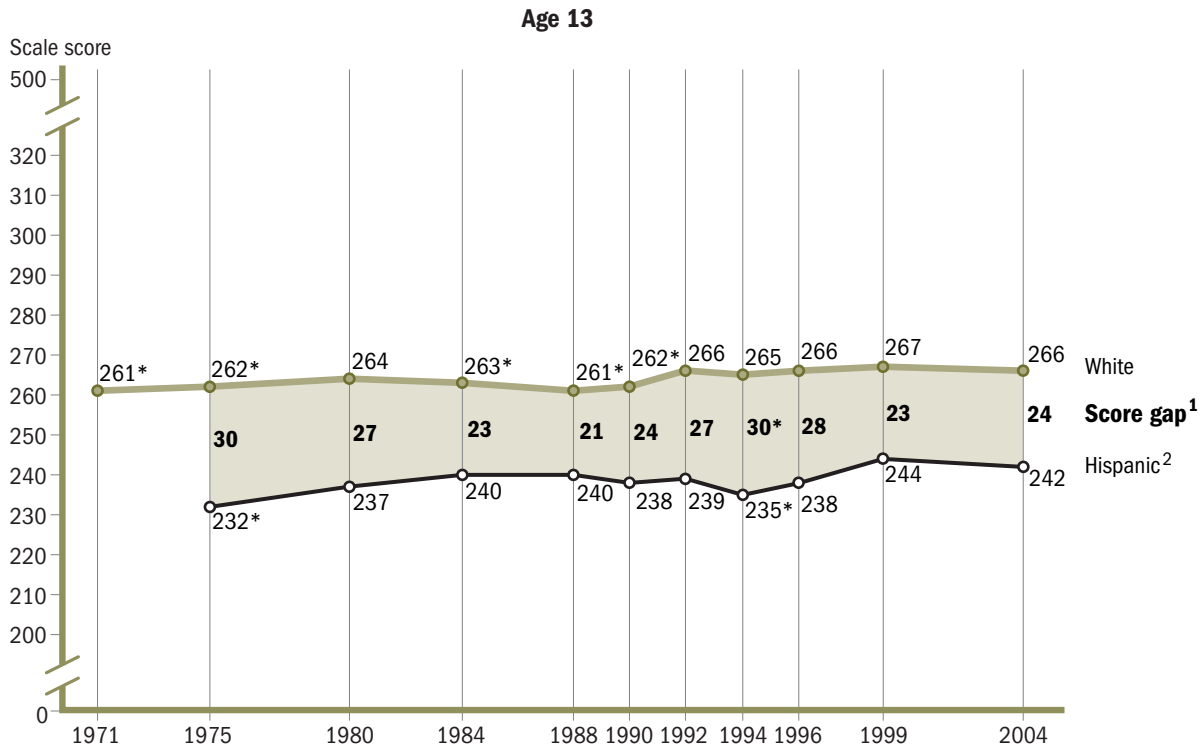
Figure 3-3. Trends in average reading scale scores and score gaps for White students and Hispanic students ages 9, 13, and 17: 1971-2004



See notes at end of figure.

² Detail may not sum to totals because of rounding. Differences between scores are calculated using unrounded values. In this instance, the result of the subtraction differs from what would be obtained by subtracting the rounded values shown in the accompanying figure.

Figure 3-3. Trends in average reading scale scores and score gaps for White students and Hispanic students ages 9, 13, and 17: 1971–2004—Continued



*Significantly different from 2004.

¹White average scale score minus Hispanic average scale score.

²Data for Hispanic students are included in the overall national results but not reported as a separate racial/ethnic category in 1971.

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

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1971–2004 Long-Term Trend Reading Assessments.

Trends in Reading Scores by Parents' Highest Level of Education

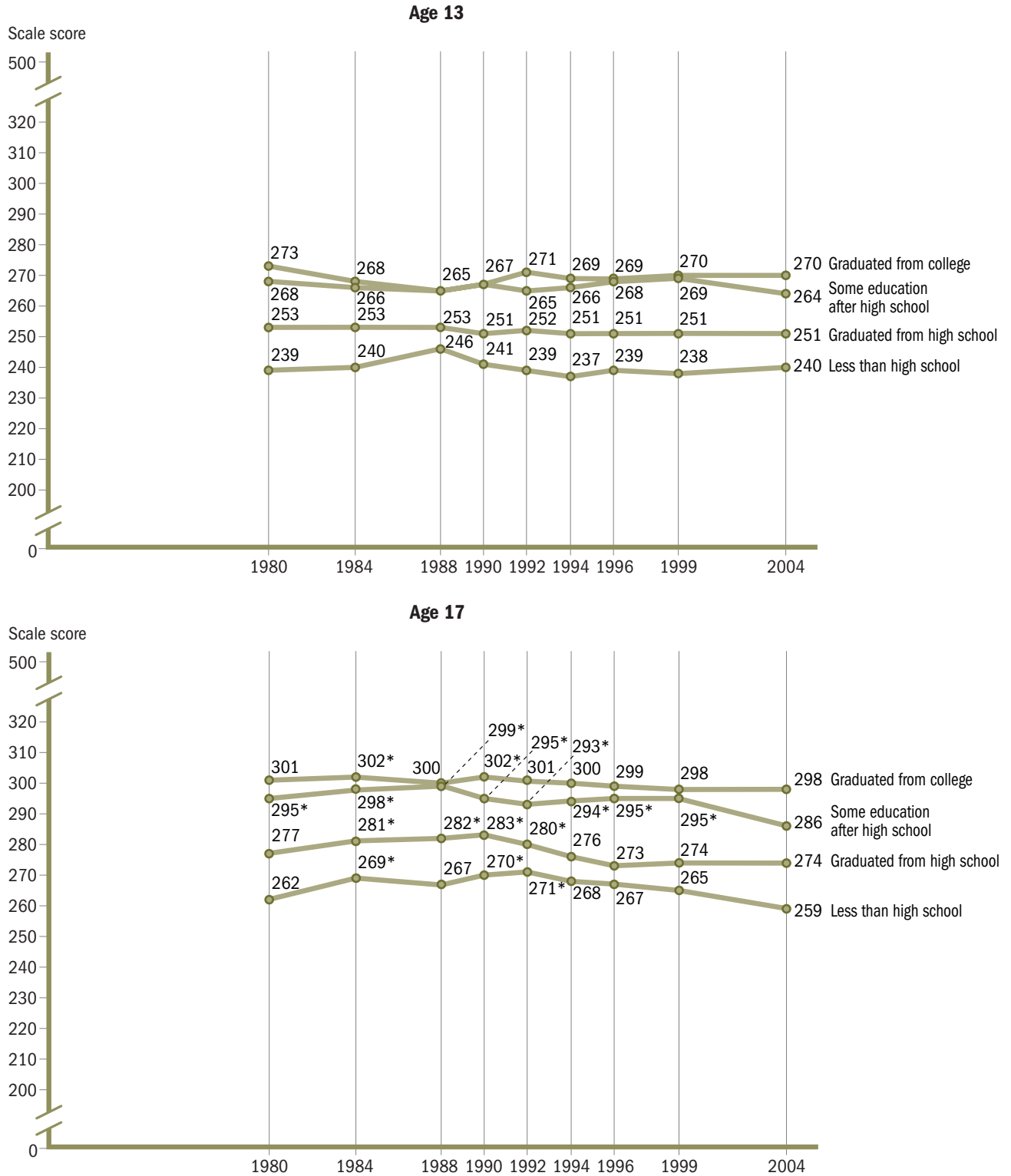
The average reading scores of students at ages 13 and 17 by students' reports of parents' highest education level across the assessment years are shown in figure 3-4. Results are not reported at age 9, because internal research shows that students' reports of their parents' education level are less reliable at this age. The percentage of students reporting that at least one parent had graduated from college has increased since 1980, while the percentages of students reporting that the highest level of education for their parents was a high school diploma or less has decreased (see table B-2).

Among 13-year-olds, there were no measurable differences in average scores between 2004 and all previous assessment years regardless of student-reported level of parental education. In 2004, scores averaged 251, 264, and 270, respectively, for students who reported that at least one parent graduated from high school, completed some education after high school, or graduated from

college. None of these average scores was measurably different from the average scores in 1999 or 1980.

At age 17, there were no measurable differences in average scores in 2004 compared to average scores in 1980 and 1999 for three of the four student-reported levels of parents' education. The exception was for students who reported that at least one parent had some education after high school. At age 17, the average score for students who indicated their parents had some education after high school was lower in 2004 than in any previous assessment year, dropping from 295 to 286 between 1999 and 2004.

Figure 3-4. Trends in average reading scale scores for students ages 13 and 17, by student-reported parents' highest level of education: 1980-2004



*Significantly different from 2004.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1980-2004 Long-Term Trend Reading Assessments.

Trends in Mathematics Scores by Student Groups

This section presents the results of the long-term trend mathematics assessment for the various student groups. For gender and race/ethnicity, the results are presented first for each group separately and then the score gaps between the groups are examined.

Trends in Mathematics Scores by Gender

As discussed in chapter 2, the mathematics national trend showed higher average scores in 2004 than in previous assessment years for ages 9 and 13, while at age 17 there were no measurable changes in average scores between 2004 and 1973 or 1999. For the most part, the scores of male and female students paralleled that trend, as seen in figure 3-5.

For male students, the average mathematics scores at ages 9 and 13 were higher in 2004 than in any previous assessment year. Scores for males at age 9 increased by 25 points between 1973 and 2004 and by 10 points between 1999 and 2004. The average score for male students at age 13 was higher in 2004 than in 1999 by 5 points.³ The average score for male students at age 17 was higher in 2004 than in 1978, but there was no measurable difference between the scores in 1999 and 2004.

The trends for female students were similar, as average scores in 2004 were higher than in any previous assessment year at ages 9 and 13. At age 13, there was a 5-point increase in the average scores of female students between 1999 and 2004. At age 17, female students scored higher in 2004 than in 1973 but showed no measurable difference between the scores in 1999 and 2004.

Score Differences Between Male and Female Students

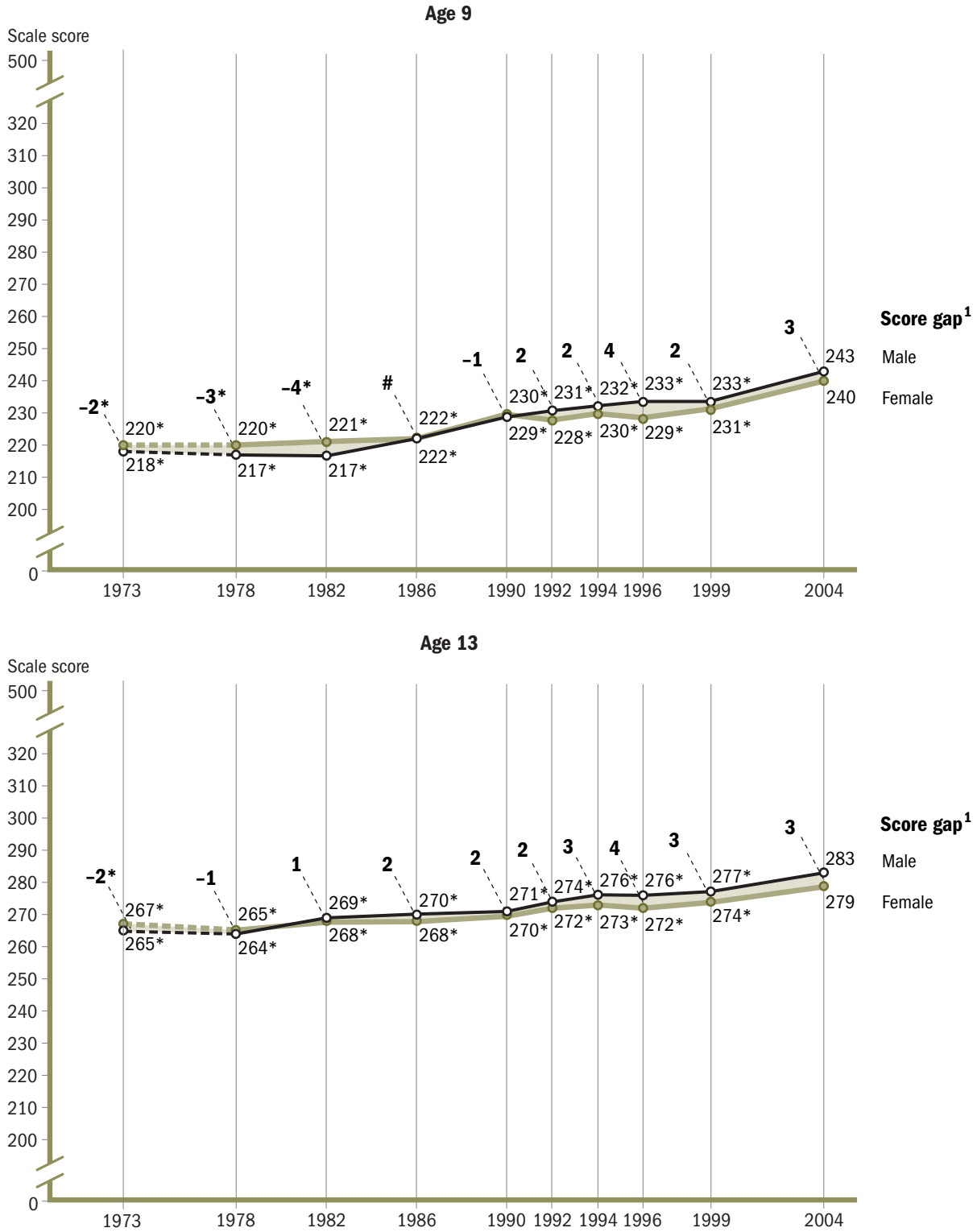
Figure 3-5 also shows the gap between the average mathematics scores of males and females. At age 9, the apparent difference between male and female students in 2004 was not statistically significant, while the change in the score gap between 1973 and 2004 was statistically significant. Males had higher average scores than females at ages 13 and 17. The gender score gaps for 13- and 17-year-olds were measurably different between 1973 and 2004.

How to interpret this graphic . . .

Graphics such as those in figures 3-5–3-7 are called “gap charts.” They are intended to show both the trend in performance of a single student group over time (such as female students) and the gap between two groups of students (such as males and females). In figure 3-6, the average mathematics scores of male and female students are graphed separately, and the difference between the two scores is shown. For example, in 2004, female 9-year-olds had an average score of 240, and male 9-year-olds had an average score of 243. When the average score for female students is subtracted from the average score of male students, the difference is 3 points, shown with the dotted line. All differences are shaded.

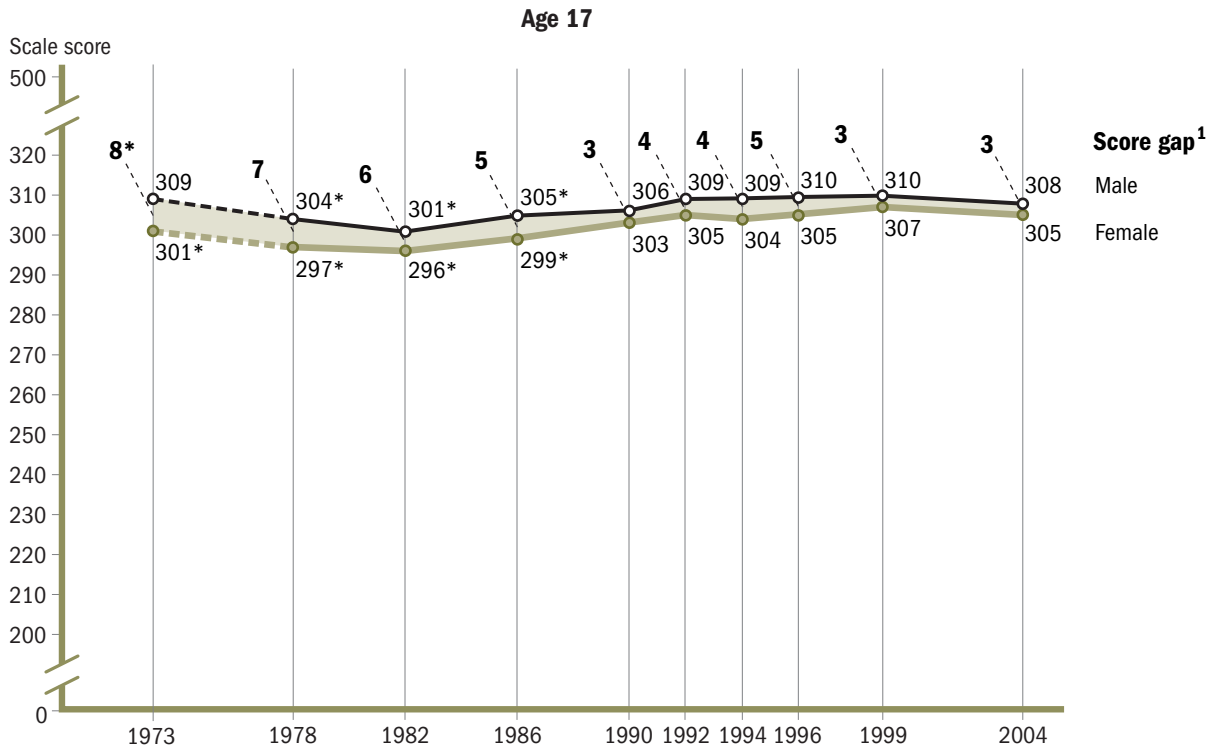
³ Detail may not sum to totals because of rounding. Differences between scores are calculated using unrounded values. In this instance, the result of the subtraction differs from what would be obtained by subtracting the rounded values shown in the accompanying figure.

Figure 3-5. Trends in average mathematics scale scores and score gaps for students ages 9, 13, and 17, by gender: 1973–2004



See notes at end of figure.

Figure 3-5. Trends in average mathematics scale scores and score gaps for students ages 9, 13, and 17, by gender: 1973–2004—Continued



#The estimate rounds to zero.

*Significantly different from 2004.

¹Male average scale score minus female average scale score. Negative numbers indicate that the average scale score for male students was lower than the score for female students. NOTE: Dashed lines represent extrapolated data. Score gaps are calculated based on differences between unrounded average scale scores.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1973–2004 Long-Term Trend Mathematics Assessments.

Trends in Mathematics Scores by Race/Ethnicity

In 2004, the mathematics scores of the three largest racial/ethnic groups, as measured by the NAEP long-term trend assessment, show increases in performance at all ages. Oftentimes, these changes seem different from the overall trends. These differences are due to changes in the demographics in the population. Figure 3-6 displays the average scores and score gaps across assessment years in mathematics for White and Black 9-, 13-, and 17-year-old students.

Trends in Mathematics for White Students

The average score of 247 in 2004 for White students at age 9 was higher than in any previous assessment year. At age 13, White students had an average score of 288 in 2004, which was higher than in any previous assessment year. Average scores for White 17-year-olds

showed no measurable difference between 1999 and 2004. However, their average score of 313 in 2004 was higher than the average score in 1973.

Trends in Mathematics for Black Students

The average scores for Black students were higher in 2004 than in 1973 at all three ages. The scores for Black 9-year-olds showed measurable increases between 2004 and any previous assessment year. The score in 2004 was 34 points higher than the score in 1973 and 13 points higher than that in 1999. The 2004 mathematics score for Black 13-year-olds was higher than in any previous assessment year, and an 11-point increase in scores occurred between 1999 and 2004. The aver-

age score for Black 17-year-olds in 2004 was higher than the average score in 1973, but not measurably different from the average score in 1999.

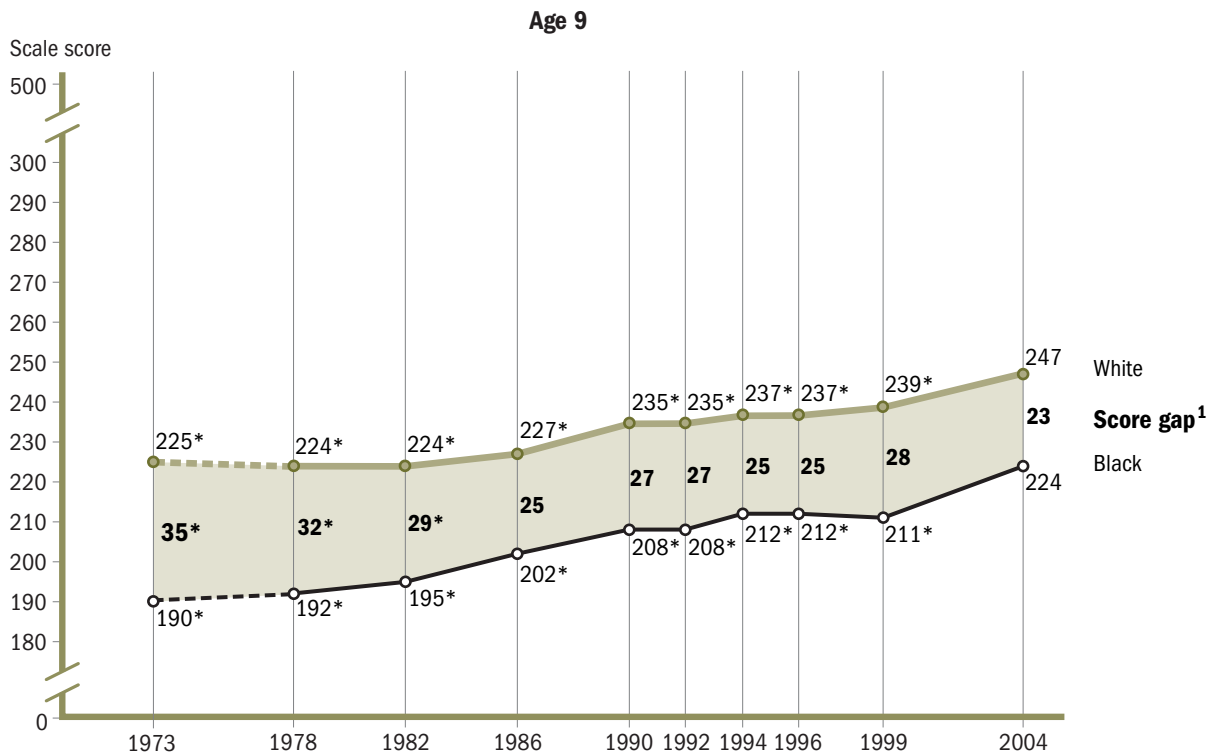
Score Differences Between White and Black Students

As seen in figure 3-6, the differences in average scores for White and Black students at all ages decreased between the first (1973) and the most recent (2004)

assessments in mathematics, although White students continued to outperform Black students in 2004.

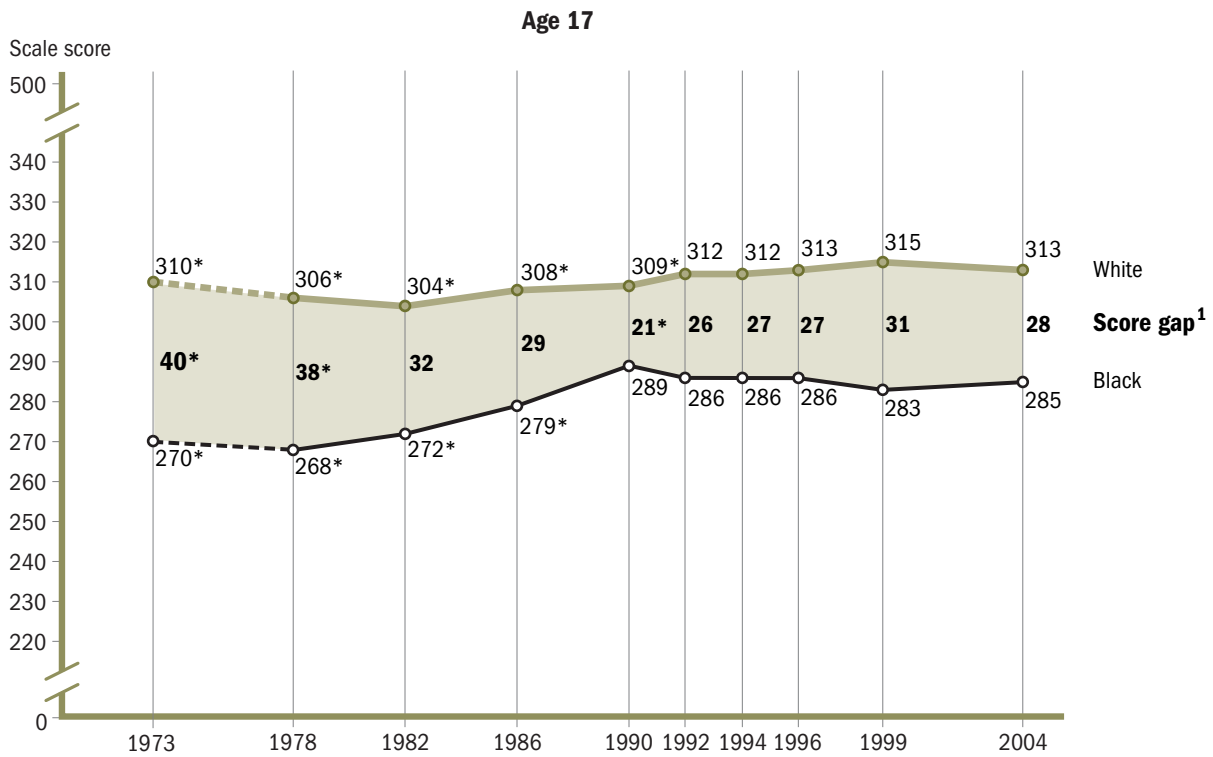
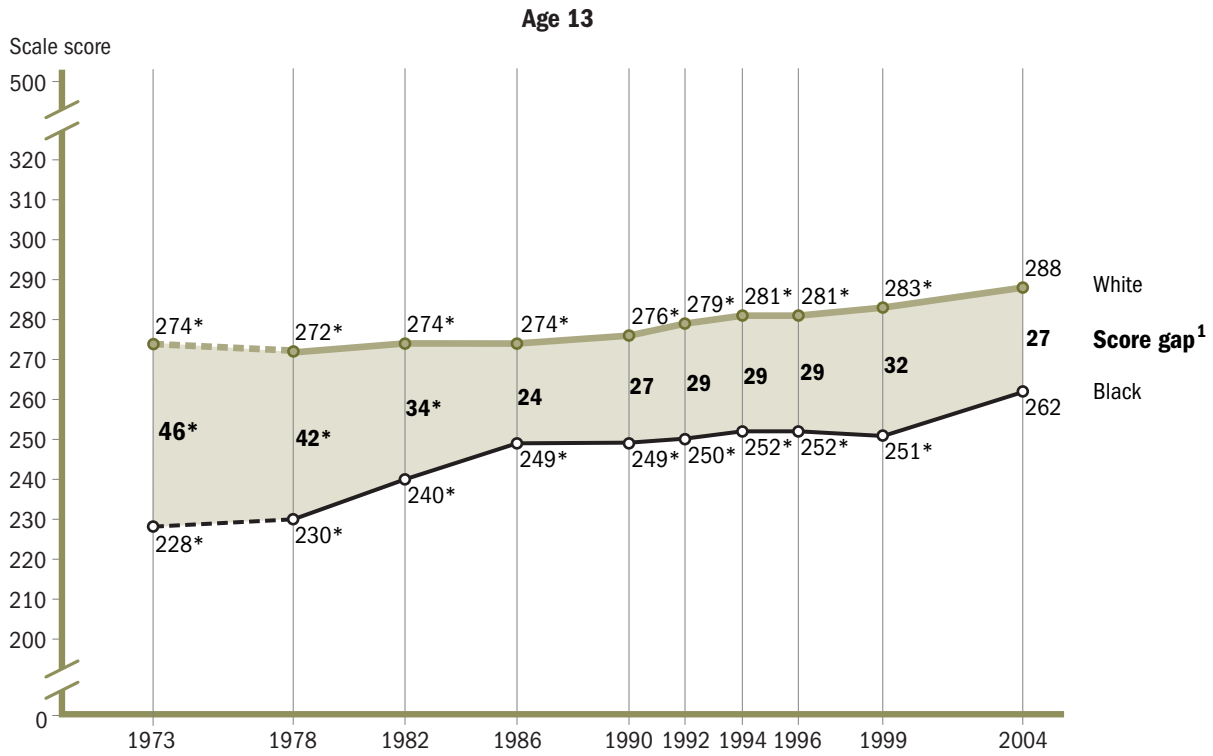
At age 9, the gap decreased from 35 points in 1973 to 23 points in 2004. At age 13, the gap decreased from 46 points in 1973 to 27 points in 2004, while the apparent difference in the gaps between 1999 and 2004 was not statistically significant. At age 17, the gap decreased from 40 points in 1973 to 28 points in 2004.

Figure 3-6. Trends in average mathematics scale scores and score gaps for White students and Black students ages 9, 13, and 17: 1973-2004



See notes at end of figure.

Figure 3-6. Trends in average mathematics scale scores and score gaps for White students and Black students ages 9, 13, and 17: 1973–2004—Continued



*Significantly different from 2004.

¹White average scale score minus Black average scale score.

NOTE: Dashed lines represent extrapolated data. Score gaps are calculated based on differences between unrounded average scale scores.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1973–2004 Long-Term Trend Mathematics Assessments.

Trends in Mathematics for Hispanic Students

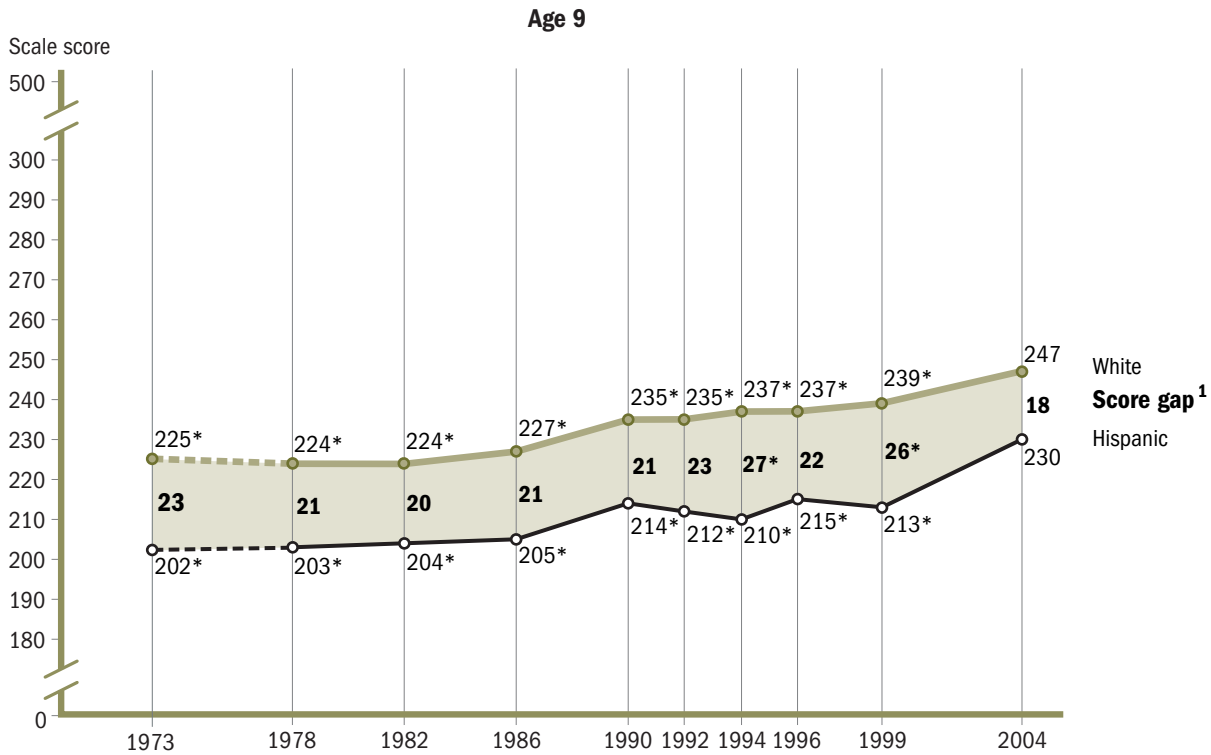
Figure 3-7 shows the trend lines for White and Hispanic students from 1973 to 2004. Hispanic students' average scores in mathematics were higher at all three ages in 2004 than in 1973. At age 9, the average score for Hispanics in 2004 was 28 points higher than the score in 1973 and higher than in any previous assessment year. At age 13, the average score in 2004 was higher than in any previous assessment year. At age 17, there was no measurable difference in average scores for Hispanic students between 1999 and 2004.

Score Differences Between White and Hispanic Students

As shown in figure 3-7, there were few changes in the score gap between White and Hispanic students. White students outscored Hispanic students at all three ages in 2004.

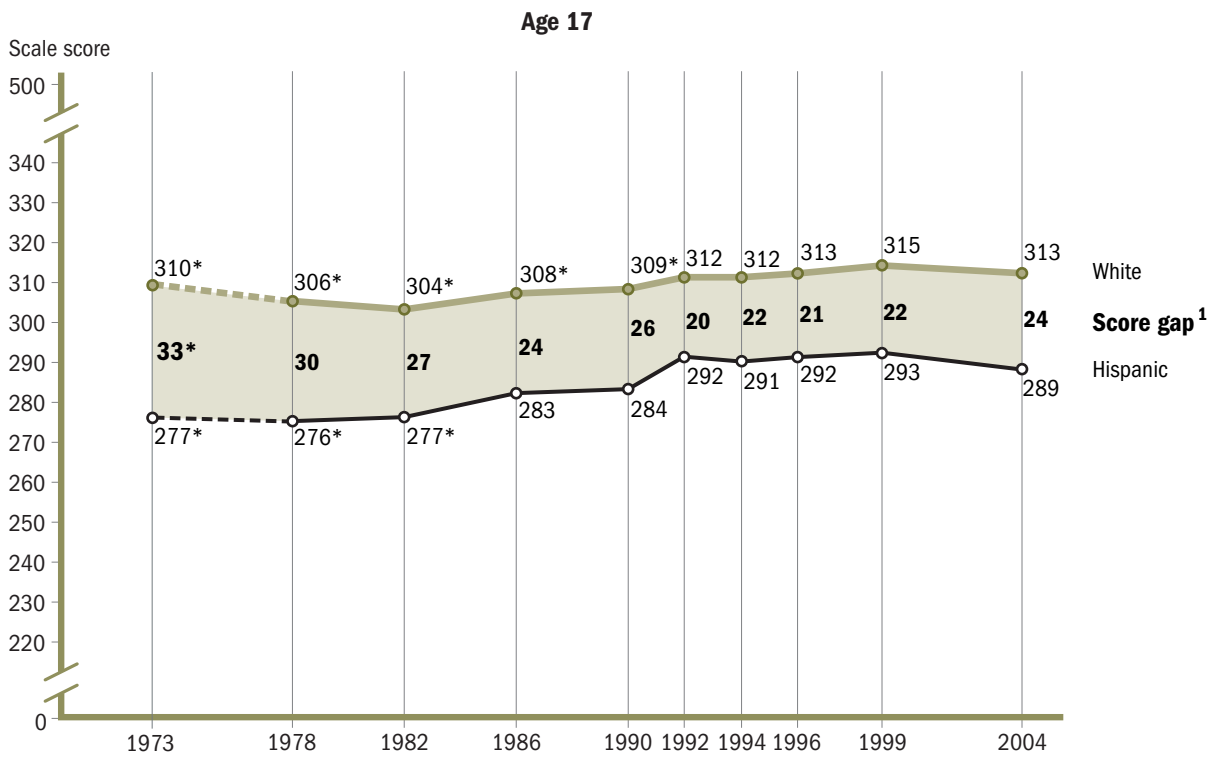
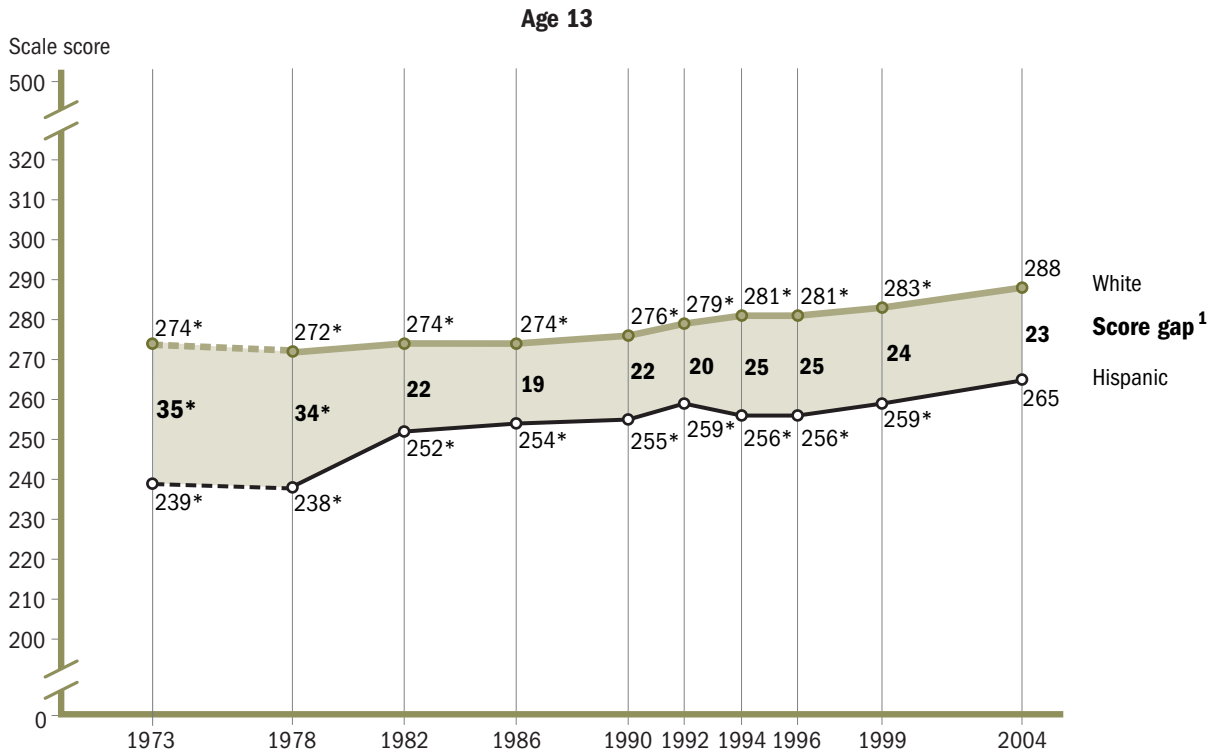
At age 9, the 2004 score gap between White and Hispanic students was measurably narrower than the gap in 1999, but showed no measurable difference from the gap in 1973. At age 13, the score gap in 2004 was narrower than the gaps in 1973 and 1978, but not measurably different from the gaps in any other assessment year. At age 17, the White-Hispanic score gap was smaller in 2004 than in 1973, but it was not measurably different from 1999 or any other assessment year after 1973.

Figure 3-7. Trends in average mathematics scale scores and score gaps for White students and Hispanic students ages 9, 13, and 17: 1973–2004



See notes at end of figure.

Figure 3-7. Trends in average mathematics scale scores and score gaps for White students and Hispanic students ages 9, 13, and 17: 1973–2004—Continued



*Significantly different from 2004.

¹White average scale score minus Hispanic average scale score.

NOTE: Dashed lines represent extrapolated data. Score gaps are calculated based on differences between unrounded average scale scores.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1973–2004 Long-Term Trend Mathematics Assessments.

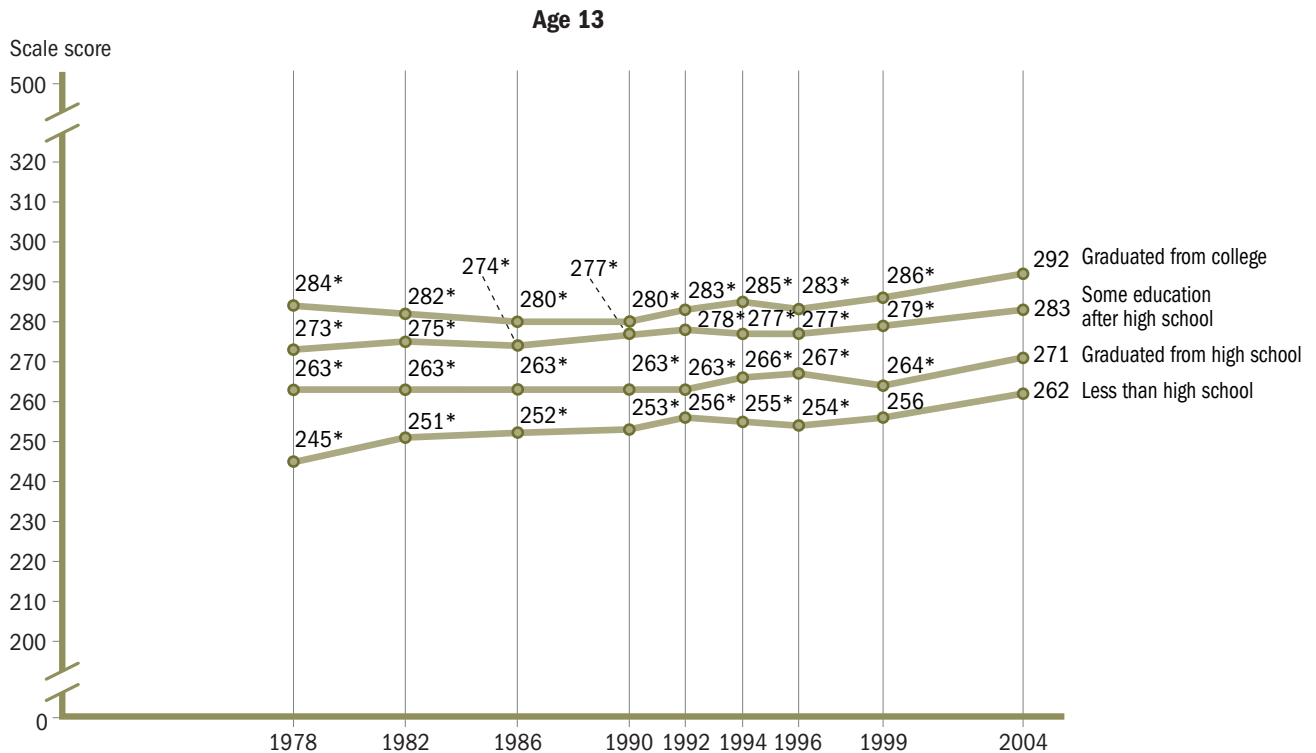
Trends in Mathematics Scores by Parents' Highest Level of Education

Average mathematics scores for students at ages 13 and 17 by highest level of parents' education as reported by the student are shown in figure 3-8. Results are not reported at age 9, because studies have shown that students' reports of their parents' education level are less reliable at this age.

At age 13, for students who reported that at least one parent had graduated from high school, had some education after high school, or had graduated from college, the average scores in 2004 were higher than in any other assessment year. Students who reported that their parents had less than a high school education had an average score in 2004 that was higher than the average score in 1978, but was not measurably different from the average score in 1999.

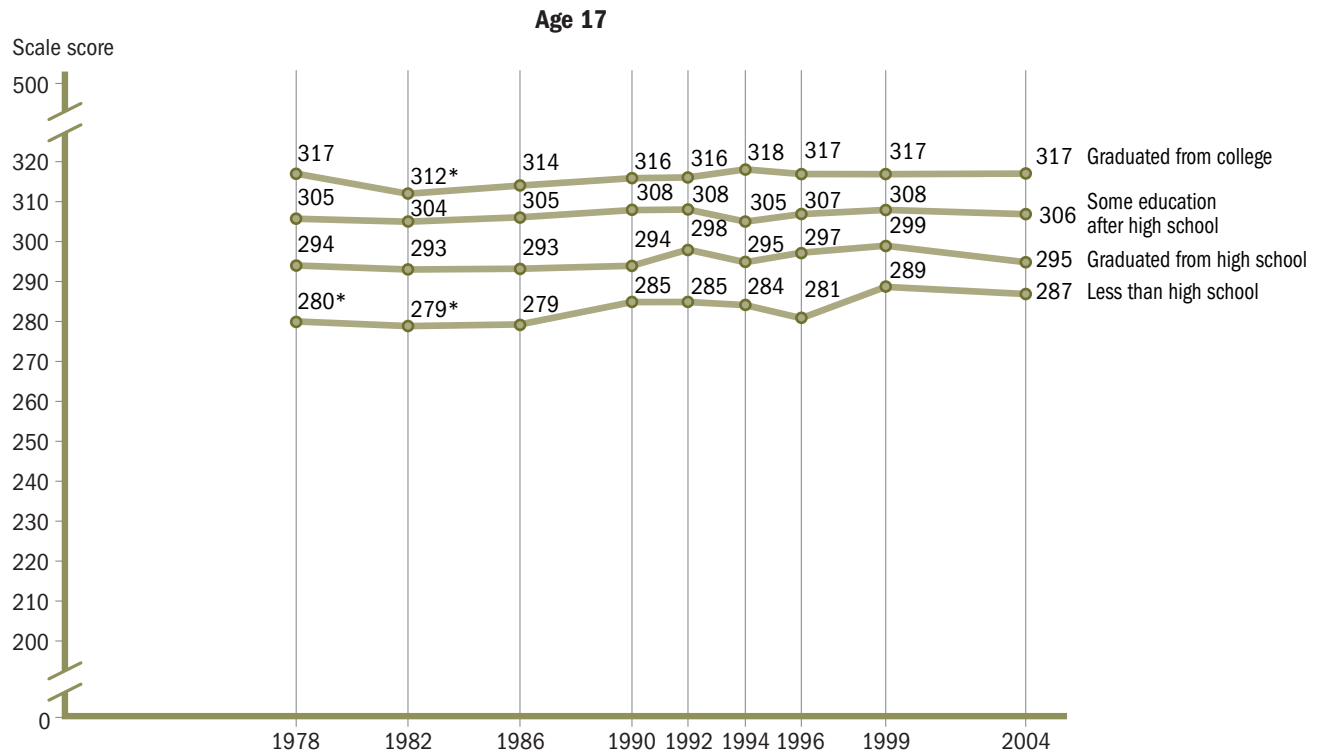
The average mathematics scores for 17-year-olds showed no measurable changes between 2004 and any previous assessment year for students who reported that at least one parent had graduated from high school or had some education after high school. For students with at least one parent who graduated from college, the average score of 17-year-olds was about the same in 2004 as in 1999 and in 1978 with an average score of 317. Students who reported that their parents had less than a high school education comprised the only group to show improvement between 1978 and 2004.

Figure 3-8. Trends in average mathematics scale scores for students ages 13 and 17, by student-reported parents' highest level of education: 1978-2004



See notes at end of figure.

Figure 3-8. Trends in average mathematics scale scores for students ages 13 and 17, by student-reported parents' highest level of education: 1978-2004—Continued



*Significantly different from 2004.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1978-2004 Long-Term Trend Mathematics Assessments.

Summary

This chapter presented results from the NAEP reading and mathematics long-term trend assessments for students in different reporting groups. The reporting groups examined were gender, race/ethnicity, and level of parental education.

The following figures, 3-9 through 3-11, provide an overview of the major findings presented in this chapter. In each line of the display, the average score for a particular group of students in 2004 is compared to that in the first assessment year in which data are available, and to that in 1999. Arrows pointing upward (↑) indicate increases, horizontal arrows (→) indicate no measurable change, and arrows pointing downward (↓) indicate decreases. For example, the first line of the display in figure 3-9 indicates that the average reading score for male 9-year-olds in 2004 was higher than in both 1999 and 1971.

Figure 3-9. Summary of trends in reading and mathematics average scale scores for students ages 9, 13, and 17, by gender: 1971–2004

Reading

Male

- ↑ 9-year-olds' average scale scores since 1971 (↑ since 1999)
- ↑ 13-year-olds' average scale scores since 1971 (→ since 1999)
- 17-year-olds' average scale scores since 1971 (→ since 1999)

Female

- ↑ 9-year-olds' average scale scores since 1971 (↑ since 1999)
- ↑ 13-year-olds' average scale scores since 1971 (→ since 1999)
- 17-year-olds' average scale scores since 1971 (→ since 1999)

Mathematics

Male

- ↑ 9-year-olds' average scale scores since 1973 (↑ since 1999)
- ↑ 13-year-olds' average scale scores since 1973 (↑ since 1999)
- 17-year-olds' average scale scores since 1973 (→ since 1999)

Female

- ↑ 9-year-olds' average scale scores since 1973 (↑ since 1999)
 - ↑ 13-year-olds' average scale scores since 1973 (↑ since 1999)
 - ↑ 17-year-olds' average scale scores since 1973 (→ since 1999)
-

↑ Significantly higher in 2004.

→ Indicates no significant difference between earlier year and 2004.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1971–2004 Long-Term Trend Reading and Mathematics Assessments.

Figure 3-10. Summary of trends in reading and mathematics average scale scores for students ages 9, 13, and 17, by race/ethnicity: 1971–2004

Reading

White

- ↑ 9-year-olds' average scale scores since 1971 (↑ since 1999)
- ↑ 13-year-olds' average scale scores since 1971 (→ since 1999)
- 17-year-olds' average scale scores since 1971 (→ since 1999)

Black

- ↑ 9-year-olds' average scale scores since 1971 (↑ since 1999)
- ↑ 13-year-olds' average scale scores since 1971 (→ since 1999)
- ↑ 17-year-olds' average scale scores since 1971 (→ since 1999)

Hispanic

- ↑ 9-year-olds' average scale scores since 1975 (↑ since 1999)
- ↑ 13-year-olds' average scale scores since 1975 (→ since 1999)
- ↑ 17-year-olds' average scale scores since 1975 (→ since 1999)

Mathematics

White

- ↑ 9-year-olds' average scale scores since 1973 (↑ since 1999)
- ↑ 13-year-olds' average scale scores since 1973 (↑ since 1999)
- ↑ 17-year-olds' average scale scores since 1973 (→ since 1999)

Black

- ↑ 9-year-olds' average scale scores since 1973 (↑ since 1999)
- ↑ 13-year-olds' average scale scores since 1973 (↑ since 1999)
- ↑ 17-year-olds' average scale scores since 1973 (→ since 1999)

Hispanic

- ↑ 9-year-olds' average scale scores since 1973 (↑ since 1999)
- ↑ 13-year-olds' average scale scores since 1973 (↑ since 1999)
- ↑ 17-year-olds' average scale scores since 1973 (→ since 1999)

↑ Significantly higher in 2004.

→ Indicates no significant difference between earlier year and 2004.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1971–2004 Long-Term Trend Reading and Mathematics Assessments.

Figure 3-11. Summary of trends in reading and mathematics average scale scores for students ages 13 and 17, by student-reported parents' highest level of education: 1978–2004

Reading

Less than high school

- 13-year-olds' average scale scores since 1980 (→ since 1999)
- 17-year-olds' average scale scores since 1980 (→ since 1999)

Graduated from high school

- 13-year-olds' average scale scores since 1980 (→ since 1999)
- 17-year-olds' average scale scores since 1980 (→ since 1999)

Some education after high school

- 13-year-olds' average scale scores since 1980 (→ since 1999)
- ↓ 17-year-olds' average scale scores since 1980 (↓ since 1999)

Graduated from college

- 13-year-olds' average scale scores since 1980 (→ since 1999)
- 17-year-olds' average scale scores since 1980 (→ since 1999)

Mathematics

Less than high school

- ↑ 13-year-olds' average scale scores since 1978 (→ since 1999)
- ↑ 17-year-olds' average scale scores since 1978 (→ since 1999)

Graduated from high school

- ↑ 13-year-olds' average scale scores since 1978 (↑ since 1999)
- 17-year-olds' average scale scores since 1978 (→ since 1999)

Some education after high school

- ↑ 13-year-olds' average scale scores since 1978 (↑ since 1999)
- 17-year-olds' average scale scores since 1978 (→ since 1999)

Graduated from college

- ↑ 13-year-olds' average scale scores since 1978 (↑ since 1999)
- 17-year-olds' average scale scores since 1978 (→ since 1999)

↑ Significantly higher in 2004.

→ Indicates no significant difference between earlier year and 2004.

↓ Significantly lower in 2004.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), selected years, 1978–2004 Long-Term Trend Reading and Mathematics Assessments.