3 Subgroup Results for the Nation and States

In addition to reporting on the performance of all students, NAEP also provides results for a variety of subgroups of students for each grade level assessed. The subgroup results show not only how these groups of students performed in comparison with one another, but also the progress each group has made over time. The information presented in this chapter provides an indication of how well the nation is progressing toward the goal of improving the achievement of all students.

This chapter includes average mathematics scale scores and achievement-level results for subgroups of students in the nation and participating states and jurisdictions at grades 4 and 8. National results are reported by gender, race/ethnicity, students' eligibility for free/reduced-price school lunch, parents' highest level of education, type of school, and type of school location. Results for participating jurisdictions are presented by gender, race/ethnicity, and students' eligibility for free/reduced-price school lunch. The weighted percentage of students corresponding with each subgroup reported in this chapter can be found in appendix B. Tables with additional subgroup results by jurisdiction are presented in appendix C.

Differences in students' performance on the 2003 mathematics assessment between demographic subgroups and across years for a particular subgroup are discussed only if they have been determined to be statistically significant. The reader should bear in mind that the estimated scale score for a subgroup of students does not reflect the entire range of performance within that group. Differences in subgroup performance cannot be ascribed solely to students' subgroup identification. Average student performance is affected by the interaction of a complex set of educational, cultural, and social factors not discussed in this report or addressed by NAEP assessments.

Performance of Selected Subgroups for the Nation

Gender

A substantial body of research indicating that male students tend to outperform female students in mathematics has been documented.[1] A 1998 study of California students showed gender differences in mathematics performance in fourth- and sixth-graders.[2] Another study, based on an international sample, found gender differences at grades 8 and 12 were small but consistently showed higher performance by males.[3] The NAEP 2003 mathematics assessment findings were consistent with other research studies, showing that male students scored higher on average than female students at grades 4 and 8.

As shown in figure 3.1, at grades 4 and 8, the average scores for male and female students were higher in 2003 than in any of the previous assessment years.

---

1 Catsambis, S. (1994). The Path to Math: Gender and Racial-Ethnic Differences in Mathematics Participation from Middle School to High School. *Sociology of Education, 67*, 199–215.

Gonzales, P., Guzmán, J. C., Partelow, L., Pahlke, E., Jocelyn, L., Kastberg, D., and Williams, T. (2004). *Highlights From the Trends in International Mathematics and Science Study (TIMSS)* 2003 (NCES 2005–005). Washington, DC: Government Printing Office.

Hyde, J. S., Fennema, E., and Lamon, S. J. (1990). Gender Differences in Mathematics Performance: A Meta-Analysis. *Psychological Bulletin 107*(2), 139–155.

Oakes, J. (1990). *Keeping Track: How Schools Structure Inequality.* New Haven, CT: Yale University Press.

U.S. Department of Education, National Center for Education Statistics. (1998). *Pursuing Excellence: A Study of the U.S. Twelfth-Grade Mathematics and Science Achievement in International Context* (NCES 98–049). Washington, DC: U.S. Government Printing Office.

2 Bauer, S. C., Park, H. S., and Sullivan, L. M. (1998). Gender Differences Among Top Performing Elementary School Students in Mathematical Ability. *Journal of Research and Development in Education 31*(3), 133–141.

3 Baker, D. P., and Jones, D. P. (1993). Creating Gender Equality: Cross-National Gender Stratification and Mathematical Performance. *Sociology of Education, 66*(2), 91–103.

Figure 3.1 **Average mathematics scale scores, by gender, grades 4 and 8: 1990–2003**

Grades 4 and 8

* Significantly different from 2003.

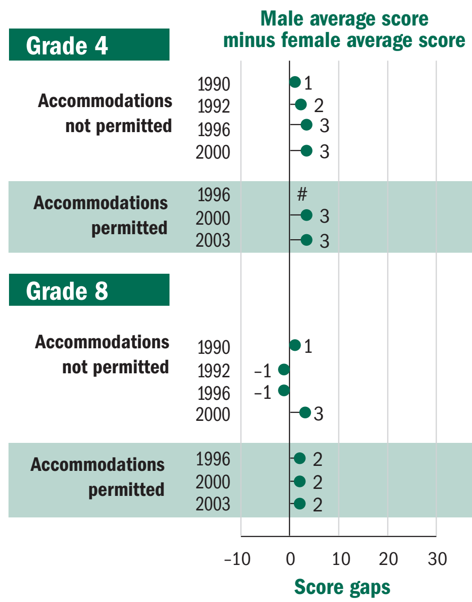
NOTE: In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Another way to view trends in student performance is to determine whether the score "gap" that exists between subgroups of students has narrowed or widened across assessment years. The scale score gaps between male and female students are presented in figure 3.2.

In 2003, male students outperformed female students by 3 points on average at grade 4 and 2 points on average at grade 8. The gender gap in 2003 was not found to be measurably different from the gap in any of the previous assessment years.

Figure 3.2 Gaps in average mathematics scale scores, by gender, grades 4 and 8: 1990–2003



The estimate rounds to zero.
NOTE: In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Score gaps are calculated based on differences between unrounded average scale scores. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments. Negative numbers indicate that the average 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), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Table 3.1 displays achievement-level information for the national sample of fourth- and eighth-graders both as the percentages of male and female students performing within each achievement-level range and as the percentages of male and female students performing below *Basic* and at or above the *Basic* and *Proficient* levels.

Consideration of the differences in performance between male and female students in the fourth and eighth grades in 2003 shows that higher percentages of male students than female students performed at or above *Basic* and *Proficient* and at *Advanced*. At grade 4, the percentages of males and females performing at or above *Basic* and *Proficient* levels were higher in 2003 than in any previous assessment year. At grade 8, the percentages of male and female students performing at or above *Basic* and *Proficient* levels were also higher in 2003 than in all previous assessment years.

Table 3.1 Percentages of students, by mathematics achievement level and gender, grades 4 and 8: 1990–2003

Grade 4		Below *Basic*	At *Basic*	At *Proficient*	At *Advanced*	At or above *Basic*	At or above *Proficient*
Male							
Accommodations not permitted	1990	49 *	38 *	12 *	2 *	51 *	13 *
	1992	40 *	41	17 *	2 *	60 *	19 *
	1996	35 *	41	21 *	3 *	65 *	24 *
	2000	30 *	41	25 *	3 *	70 *	28 *
Accommodations permitted	1996	37 *	42	19 *	3 *	63 *	22 *
	2000	33 *	41 *	22 *	3 *	67 *	26 *
	2003	22	43	30	5	78	35
Female							
Accommodations not permitted	1990	51 *	36 *	12 *	1 *	49 *	12 *
	1992	43 *	41 *	15 *	1 *	57 *	16 *
	1996	37 *	44	17 *	1 *	63 *	19 *
	2000	32 *	44 *	22 *	2 *	68 *	24 *
Accommodations permitted	1996	37 *	43	18 *	2 *	63 *	20 *
	2000	36 *	43 *	20 *	2 *	64 *	22 *
	2003	24	46	27	3	76	30
Grade 8							
Male							
Accommodations not permitted	1990	48 *	35	14 *	2 *	52 *	17 *
	1992	43 *	36 *	18 *	3 *	57 *	21 *
	1996	38 *	37	20 *	4 *	62 *	25 *
	2000	33 *	37	24	6	67 *	29
Accommodations permitted	1996	38 *	37	20 *	4 *	62 *	25 *
	2000	36 *	36	22 *	5	64 *	27 *
	2003	31	38	24	6	69	30
Female							
Accommodations not permitted	1990	48 *	38	12 *	2 *	52 *	14 *
	1992	42 *	37 *	18 *	3 *	58 *	21 *
	1996	37 *	41	19 *	3 *	63 *	23 *
	2000	35 *	40	21	4	65 *	25
Accommodations permitted	1996	40 *	38	19 *	3 *	60 *	22 *
	2000	37 *	39	20 *	4	63 *	24 *
	2003	33	40	22	5	67	27

* Significantly different from 2003.

NOTE: Detail may not sum to totals because of rounding. In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Race/Ethnicity

In recent years, a great deal of research documenting differences in academic achievement between students of different racial/ethnic backgrounds has been published. Some efforts to narrow the long-standing performance gaps between these subgroups have met with some success; however, significant performance differences can still be noted for a variety of mathematically related skills.[4]

[4] Bankston, C. L., and Caldas, S. J. (1997). The American School Dilemma: Race and Scholastic Performance. *Sociological Quarterly, 3*, 423–429.

Jencks, C., and Phillips, M. (Eds.). (1998). *The Black-White Test Score Gap.* Washington, DC: Brookings Institution Press.

Based on information obtained from school records, students who participated in the NAEP mathematics assessment were identified as belonging to one of the following mutually exclusive racial/ethnic subgroups: White, Black, Hispanic, Asian/Pacific Islander, American Indian (including Alaska Native), and Other (i.e., students whose race based on school records was "other race," or, if school data were missing, who self-reported their race as "multiracial" but not Hispanic, or did not self-report race/ethnicity information). The results presented here for 1990 through 2000 differ from those presented in earlier mathematics reports in which results were reported for five racial/ethnic subgroups based on student self-identification.

Between 1990 and 2003, the percentage of Hispanic students increased from 6 percent to 18 percent at grade 4, and from 7 percent to 15 percent at grade 8. During the same period, the percentage of White students decreased from 75 percent to 60 percent at grade 4 and from 73 percent to 63 percent at grade 8. The percentage of Black students, which has changed less over the years, was approximately 17 percent in 2003 at grade 4 and 16 percent at grade 8. Students categorized as "Other" made up approximately 1 percent of the students at each grade. (See table B.3 in appendix B.)[5]

Figure 3.3 shows the average mathematics scale scores of students in each of the six categories at grades 4 and 8. Results were not reported in 1990 and 1992 for American Indian/Alaska Native students at grades 4 and 8 and for American Indian/Alaska Native students at grade 8 in 1996 because the sample sizes were insufficient to permit reliable estimates. Further, data for Asian/Pacific Islander students at grade 4 in 2000 and grade 8 in 1996 were not available because special analyses raised concerns about the accuracy and precision of the results. Sample sizes were also insufficient to report results for students whose race/ethnicity was categorized as "Other" in 1990, 1992, and 1996 at grade 4, and in 1990 and 1996 at grade 8.

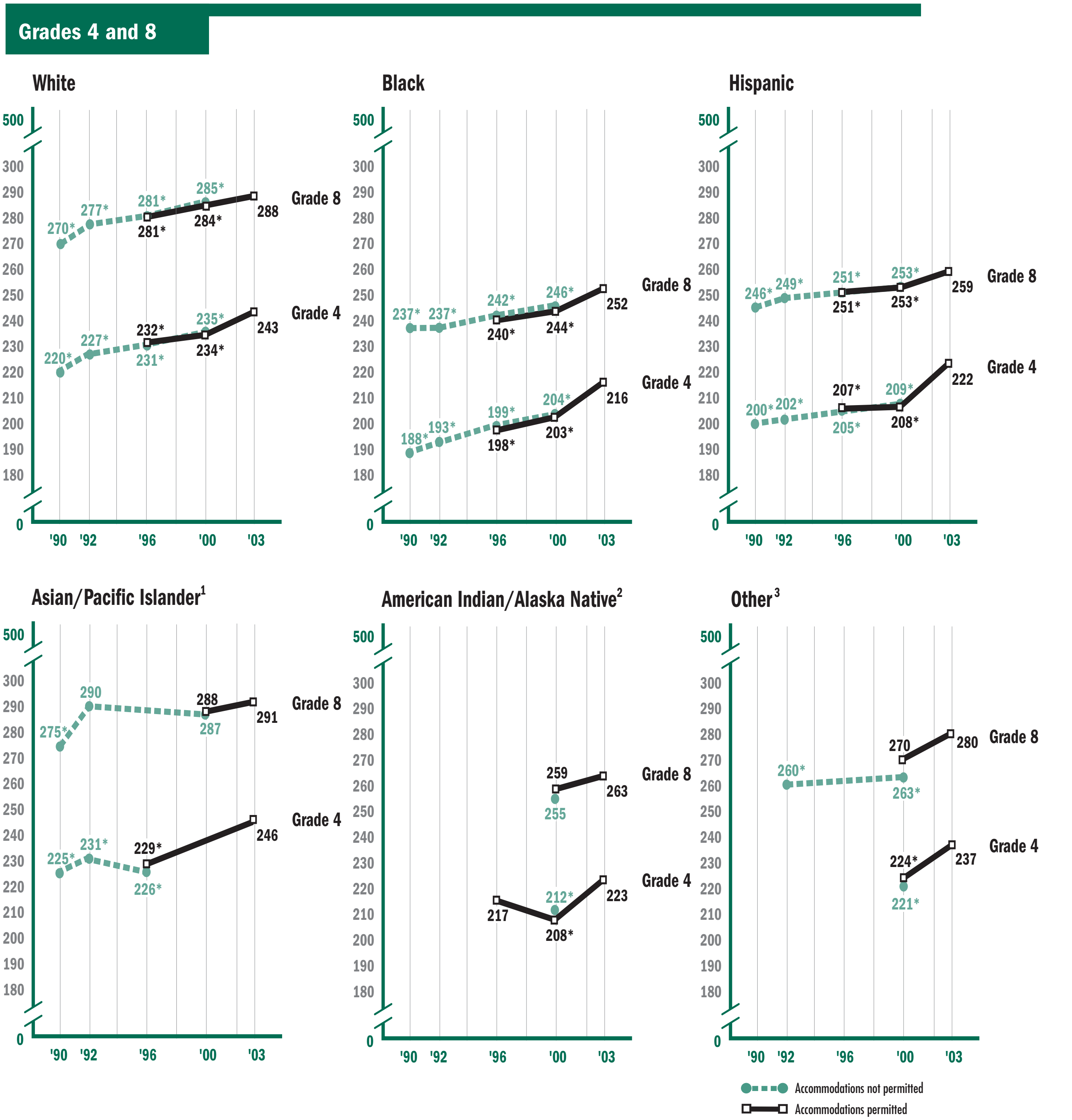
At both grades 4 and 8, Asian/Pacific Islander students scored higher on average in 2003 than White students. Both White students and Asian/Pacific Islander students had higher average scores than Black, Hispanic, and American Indian/Alaska Native students at both grades. Hispanic students and American Indian/Alaska Native students also scored higher on average than Black students at both grades.

At grade 4, White, Black, and Hispanic students all had higher average scores in 2003 than in any of the previous assessment years. American Indian/Alaska Native students had higher average scores in 2003 than in 2000 at grade 4. Average scores for Asian/Pacific Islander students were higher in 2003 than in 1990 for fourth-graders.

White, Black, and Hispanic eighth-grade students all showed increases in average scores between 2000 and 2003. At grade 8, average scores for Asian/Pacific Islander students were higher in 2003 than in 1990.

[5] In addition to reflecting a shift in the racial/ethnic composition of the student population, a portion of the differences may be due to the composition of the accommodated and nonaccommodated samples.

Figure 3.3 **Average mathematics scale scores, by race/ethnicity, grades 4 and 8: 1990–2003**



* Significantly different from 2003.

[1] Special analyses raised concerns about the accuracy and precision of national grade 8 Asian/Pacific Islander results in 1996 and grade 4 Asian/Pacific Islander results in 2000. As a result, they are omitted from this report.

[2] Sample size was insufficient to permit a reliable estimate for American Indian/Alaska Native students in 1990 and 1992 at grades 4 and 8, and in 1996 at grade 8.

[3] Sample size was insufficient to permit a reliable estimate for "Other" students in 1990 and 1996 at grades 4 and 8, and in 1992 at grade 4. "Other" comprises students whose race based on school records was "other race" or, if school data were missing, who self-reported their race as "multiracial" but not "Hispanic," or did not self-report racial/ethnic information.

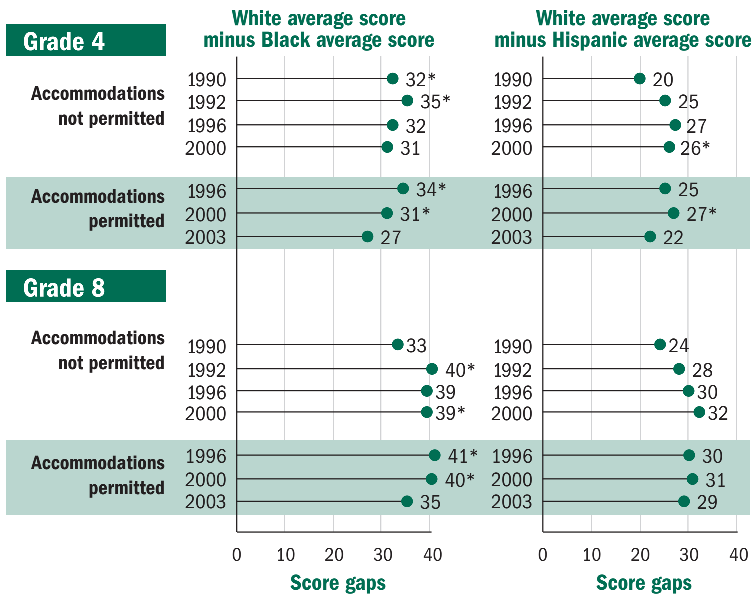
NOTE: In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Average scale score gaps between White students and Black students and between White students and Hispanic students are presented in figure 3.4. At grade 4, the score gap between White students and Black students decreased between 2000 and 2003, and was smaller in 2003 than in 1990. The gap between White fourth-graders and Hispanic fourth-graders also narrowed between 2000 and 2003, but the gap in 2003 was not found to be measurably different from that in 1990.

At grade 8, the score gap between White students and Black students was narrower in 2003 than in 2000, but the gap in 2003 was not found to be measurably different from 1990. The score gap between White eighth-graders and Hispanic eighth-graders in 2003 was not found to be measurably different from the gap in any of the previous assessment years.

Figure 3.4 Gaps in average mathematics scale scores, by race/ethnicity, grades 4 and 8: 1990–2003



* Significantly different from 2003.

NOTE: Score gaps are calculated based on differences between unrounded average scale scores. In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Achievement-level results across assessment years for racial/ethnic subgroups are shown in table 3.2. As with the scale score results, comparison of the performance of racial/ethnic subgroups in 2003 reveals higher percentages of White and Asian/Pacific Islander students performing at or above the *Basic* and *Proficient* levels and at *Advanced* than of Black, Hispanic, and American Indian/Alaska Native students at grades 4 and 8. Higher percentages of Asian/Pacific Islander students than White students performed at or above *Proficient* and at *Advanced* at grades 4 and 8.

At grade 4, the percentages of White, Black, and Hispanic students performing at or above the *Basic* and *Proficient* levels were higher in 2003 than in any of the previous assessment years. The percentages of Asian/Pacific Islander students performing at or above *Basic* and *Proficient* were higher in 2003 than in 1990. The percentage of American Indian/Alaska Native students at or above *Basic* was higher in 2003 than in 2000.

At grade 8, the percentages of White, Black, and Hispanic students performing at or above *Basic* and *Proficient* were higher in 2003 than in any of the previous assessment years. The percentages of Asian/Pacific Islander students performing at or above *Basic* and *Proficient* were higher in 2003 than in 1990.

Table 3.2 **Percentages of students, by mathematics achievement level and race/ethnicity, grades 4 and 8: 1990–2003**

Grade 4		Below *Basic*	At *Basic*	At *Proficient*	At *Advanced*	At or above *Basic*	At or above *Proficient*
White							
Accommodations not permitted	1990	41 *	43	14 *	2 *	59 *	16 *
	1992	31 *	47	20 *	2 *	69 *	22 *
	1996	26 *	48 *	24 *	3 *	74 *	27 *
	2000	21 *	46	30 *	3 *	79 *	33 *
Accommodations permitted	1996	24 *	49 *	24 *	3 *	76 *	27 *
	2000	22 *	46	28 *	3 *	78 *	31 *
	2003	13	45	37	5	87	43
Black							
Accommodations not permitted	1990	83 *	16 *	1 *	#	17 *	1 *
	1992	78 *	20 *	2 *	#	22 *	2 *
	1996	70 *	26 *	4 *	#	30 *	4 *
	2000	63 *	31 *	5 *	#	37 *	5 *
Accommodations permitted	1996	73 *	24 *	3 *	#	27 *	3 *
	2000	64 *	31 *	4 *	#	36 *	5 *
	2003	46	44	10	#	54	10
Hispanic							
Accommodations not permitted	1990	67 *	28 *	5 *	#	33 *	5 *
	1992	66 *	29 *	5 *	#	34 *	6 *
	1996	61 *	31 *	7 *	#	39 *	7 *
	2000	54 *	37 *	8 *	#	46 *	9 *
Accommodations permitted	1996	60 *	33 *	7 *	#	40 *	7 *
	2000	58 *	34 *	7 *	# *	42 *	7 *
	2003	38	47	15	1	62	16
Asian/Pacific Islander							
Accommodations not permitted	1990	38 *	39	20 *	3	62 *	22 *
	1992	27 *	46	23 *	4 *	73 *	28 *
	1996	35 *	44	17 *	4 *	65 *	21 *
	2000	‡	‡	‡	‡	‡	‡
Accommodations permitted	1996	33 *	40	22 *	5	67 *	27 *
	2000	‡	‡	‡	‡	‡	‡
	2003	13	39	39	10	87	48
American Indian/Alaska Native							
Accommodations not permitted	1990	‡	‡	‡	‡	‡	‡
	1992	‡	‡	‡	‡	‡	‡
	1996	‡	‡	‡	‡	‡	‡
	2000	55	35	11	#	45	11
Accommodations permitted	1996	43	47	10	#	57	10
	2000	60 *	32 *	8	#	40 *	8
	2003	36	47	16	1	64	17
Other [1]							
Accommodations not permitted	1990	‡	‡	‡	‡	‡	‡
	1992	‡	‡	‡	‡	‡	‡
	1996	‡	‡	‡	‡	‡	‡
	2000	39 *	47	11 *	2	61 *	14 *
Accommodations permitted	1996	‡	‡	‡	‡	‡	‡
	2000	35 *	49	15	1	65 *	16 *
	2003	19	48	29	4	81	33

See notes at end of table. ▶

Table 3.2 Percentages of students, by mathematics achievement level and race/ethnicity, grades 4 and 8: 1990–2003—Continued

Grade 8		Below *Basic*	At *Basic*	At *Proficient*	At *Advanced*	At or above *Basic*	At or above *Proficient*
White							
Accommodations not permitted	1990	40 *	42	16 *	2 *	60 *	18 *
	1992	32 *	42	22 *	4 *	68 *	26 *
	1996	27 *	43	25 *	5 *	73 *	30 *
	2000	23 *	42	28 *	6	77 *	34 *
Accommodations permitted	1996	27 *	43	25 *	5 *	73 *	30 *
	2000	24 *	42	28 *	6	76 *	34 *
	2003	20	42	30	7	80	37
Black							
Accommodations not permitted	1990	78 *	17 *	5	#	22 *	5 *
	1992	80 *	18 *	2 *	#	20 *	2 *
	1996	73 *	23 *	4 *	#	27 *	5 *
	2000	69 *	26 *	5 *	#	31 *	5 *
Accommodations permitted	1996	75 *	21 *	4 *	#	25 *	4 *
	2000	69 *	26 *	5 *	#	31 *	5 *
	2003	61	32	7	1	39	7
Hispanic							
Accommodations not permitted	1990	66 *	27	7	1 *	34 *	7 *
	1992	65 *	28 *	6 *	1	35 *	7 *
	1996	61 *	31	8	1	39 *	9
	2000	59 *	32	8	1	41 *	9
Accommodations permitted	1996	61 *	31 *	7 *	1	39 *	8 *
	2000	59 *	33	8 *	# *	41 *	8 *
	2003	52	36	10	1	48	12
Asian/Pacific Islander							
Accommodations not permitted	1990	36 *	36	23	6 *	64 *	29 *
	1992	24	33	30	14	76	43
	1996	‡	‡	‡	‡	‡	‡
	2000	26	33	29	12	74	41
Accommodations permitted	1996	‡	‡	‡	‡	‡	‡
	2000	25	34	29	12	75	41
	2003	22	35	31	13	78	43
American Indian/Alaska Native							
Accommodations not permitted	1990	‡	‡	‡	‡	‡	‡
	1992	‡	‡	‡	‡	‡	‡
	1996	‡	‡	‡	‡	‡	‡
	2000	58	32	8	2	42	9
Accommodations permitted	1996	‡	‡	‡	‡	‡	‡
	2000	53	37	8	2	47	10
	2003	48	37	13	2	52	15
Other [1]							
Accommodations not permitted	1990	‡	‡	‡	‡	‡	‡
	1992	53 *	36	10 *	#	47 *	11 *
	1996	‡	‡	‡	‡	‡	‡
	2000	46 *	36	14	5	54 *	18 *
Accommodations permitted	1996	‡	‡	‡	‡	‡	‡
	2000	44	34	17	4	56	22
	2003	27	44	24	5	73	29

\# The estimate rounds to zero.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate. Special analyses raised concerns about the accuracy and precision of national grade 8 Asian/Pacific Islander results in 1996 and grade 4 Asian/Pacific Islander results in 2000. As a result, they are omitted from this report.
* Significantly different from 2003.
[1] "Other" comprises students whose race based on school records was "other race" or, if school data were missing, who self-reported their race as "multiracial" but not "Hispanic," or did not self-report racial/ethnic information.
NOTE: Detail may not sum to totals because of rounding. In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

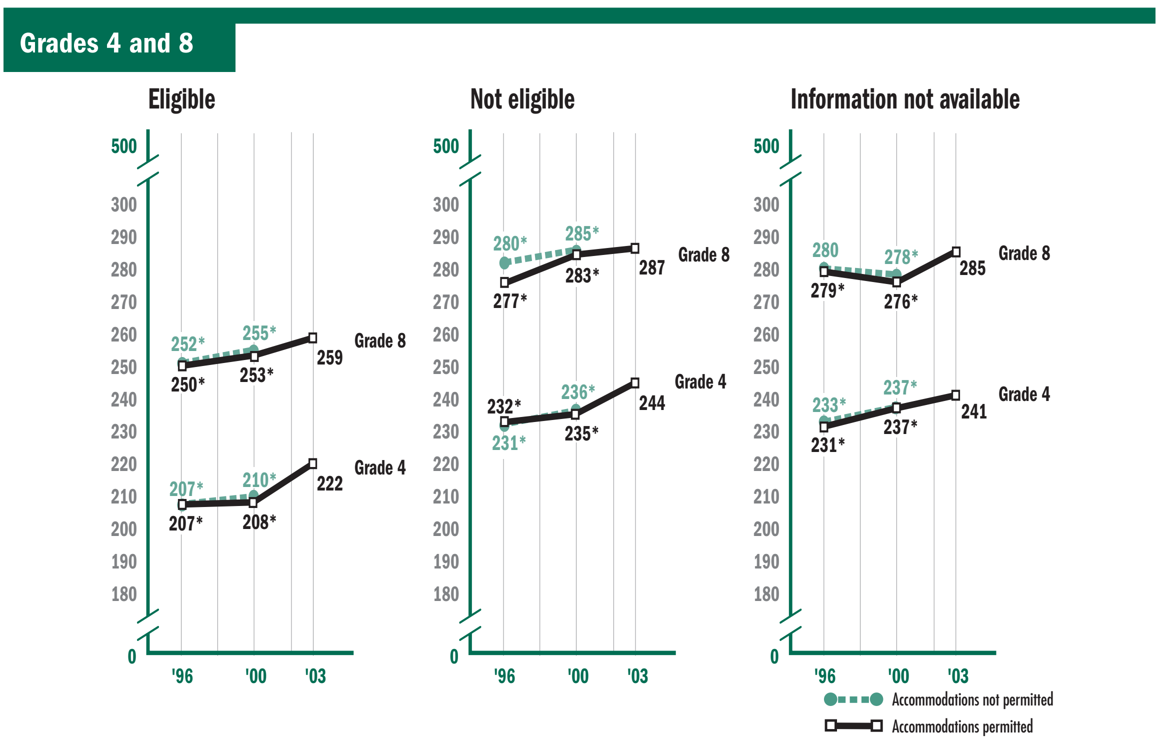
Student Eligibility for Free/Reduced-Price School Lunch

NAEP collects data on students' eligibility for free/reduced-price lunch as an indicator of family economic status. Eligibility for free and reduced-price lunch is determined by students' family income in relation to the federally established poverty level. Free lunch qualification is set at 130 percent of the poverty level, and reduced-price lunch qualification is set at between 130 and 185 percent of the poverty level.

NAEP first began collecting information on student eligibility for this program in 1996; therefore, cross-year comparisons to 1990 and 1992 cannot be made. The percentage of eligible students varied by grade. In 2003, 40 percent of fourth-graders and 33 percent of eighth-graders were eligible for free/reduced-price lunch. Information regarding eligibility was not available for 10 percent of fourth-graders and 11 percent of eighth-graders. (See table B.4 in appendix B.) If school records were not available, the student was classified as "Information not available." If the school did not participate in the program, all students in the school were classified as "Information not available."

As shown in figure 3.5, the average mathematics score in 2003 for students who were eligible for free/reduced-price lunch was lower than that of students who were not eligible at both grades 4 and 8. The average mathematics scores for fourth-grade and eighth-grade students were higher in 2003 than in the 2000 and 1996 assessment years for students who were eligible for free/reduced-price lunch and for those who were not eligible.

Figure 3.5 **Average mathematics scale scores, by student eligibility for free/reduced-price school lunch, grades 4 and 8: 1996–2003**



* Significantly different from 2003.

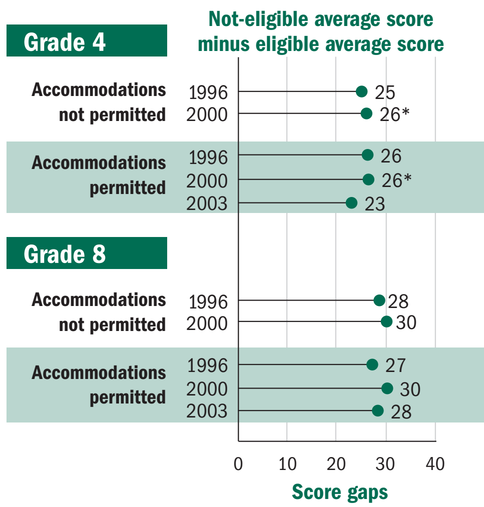
NOTE: In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Information on students' eligibility in 2003 was not available for 10 percent of fourth-graders and 11 percent of eighth-graders. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996, 2000, and 2003 Mathematics Assessments.

Figure 3.6 shows the scale score gaps between students who were eligible and students who were not eligible for free/reduced-price lunch. At grade 4, the average score gap decreased from 2000 to 2003, but the gap in 2003 was not found to be measurably different from the gap in 1996.

At grade 8, there was no measurable change detected in the gap in 2003 in comparison to any of the previous assessment years.

Figure 3.6 Gaps in average mathematics scale scores, by student eligibility for free/reduced-price school lunch, grades 4 and 8: 1996–2003



* Significantly different from 2003.
NOTE: Score gaps are calculated based on differences between unrounded average scale scores. In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996, 2000, and 2003 Mathematics Assessments.

Achievement-level results by students' eligibility for free/reduced-price lunch are presented in table 3.3. The percentages of fourth- and eighth-graders performing at or above *Basic* and *Proficient* were higher in 2003 than in 2000 and 1996 both for students who were eligible and those who were not eligible.

Table 3.3 Percentages of students, by mathematics achievement level and eligibility for free/reduced-price school lunch, grades 4 and 8: 1996–2003

Grade 4		Below *Basic*	At *Basic*	At *Proficient*	At *Advanced*	At or above *Basic*	At or above *Proficient*
Eligible							
Accommodations not permitted	1996	58 *	33 *	8 *	#	42 *	9 *
	2000	54 *	37 *	8 *	# *	46 *	9 *
Accommodations permitted	1996	60 *	33 *	7 *	# *	40 *	8 *
	2000	57 *	35 *	7 *	# *	43 *	8 *
	2003	38	47	14	1	62	15
Not eligible							
Accommodations not permitted	1996	26 *	48 *	23 *	3 *	74 *	26 *
	2000	21 *	46 *	30 *	4 *	79 *	33 *
Accommodations permitted	1996	24 *	49 *	24 *	3 *	76 *	27 *
	2000	22 *	46	28 *	4 *	78 *	32 *
	2003	12	43	39	6	88	45
Information not available							
Accommodations not permitted	1996	25	46	26 *	3	75	30 *
	2000	20	44	32	4 *	80	36
Accommodations permitted	1996	28 *	44	25 *	4	72 *	28 *
	2000	20	44	32	4 *	80	36 *
	2003	16	43	36	6	84	41

Grade 8		Below *Basic*	At *Basic*	At *Proficient*	At *Advanced*	At or above *Basic*	At or above *Proficient*
Eligible							
Accommodations not permitted	1996	61 *	31 *	7 *	1	39 *	8 *
	2000	57 *	33	9	1	43 *	10
Accommodations permitted	1996	62 *	30 *	8 *	1	38 *	8 *
	2000	59 *	32 *	9 *	1	41 *	9 *
	2003	52	36	11	1	48	12
Not eligible							
Accommodations not permitted	1996	29 *	42	25 *	5	71 *	30 *
	2000	24 *	41	28	7	76 *	35
Accommodations permitted	1996	31 *	41	24 *	4 *	69 *	28 *
	2000	26 *	41	27 *	7	74 *	34 *
	2003	21	41	30	7	79	37
Information not available							
Accommodations not permitted	1996	29	40	25	6	71	30
	2000	32 *	38	25	5 *	68 *	30 *
Accommodations permitted	1996	30	40	24	6	70	30 *
	2000	33 *	39	23 *	5 *	67 *	29 *
	2003	25	39	28	8	75	36

The estimate rounds to zero.
* Significantly different from 2003.
NOTE: Detail may not sum to totals because of rounding. In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996, 2000, and 2003 Mathematics Assessments.

The previous results presented for students within different racial/ethnic subgroups and by eligibility for free/ reduced-price lunch are explored in more detail in table 3.4. Average scores for students within different racial/ethnic categories are presented for students who were either eligible or not eligible for free/ reduced-price lunch, as well as for students for whom eligibility information was not available. By presenting the data in this manner, it is possible to examine the performance of students in different racial/ethnic subgroups, while controlling for one indicator of socioeconomic status—eligibility for free/reduced-price lunch.

The percentages of students who were eligible for free/reduced-price school lunch in 2003 were higher among Black and Hispanic students than among White and Asian/Pacific Islander students at grades 4 and 8 (see table B.5 in appendix B).

At both grades, White and Asian/Pacific Islander students outperformed Black, Hispanic, and American Indian/Alaska Native students, and average scores for Hispanic students were higher than those of Black students when students were eligible as well as not eligible for free/ reduced-price lunch. While overall results for racial/ethnic subgroups show no measurable difference between the average scores of American Indian/Alaska Native students and Hispanic students at either grade 4 or grade 8 in 2003, American Indian/Alaska Native students who were not eligible for free/reduced-price lunch scored higher on average than Hispanic students who were not eligible at both grades. While Asian/Pacific Islander students scored higher on average than White students overall at grade 8, there was no measurable difference detected between these two groups for students who were eligible.

Table 3.4 Average mathematics scale scores, by student eligibility for free/reduced-price school lunch and race/ethnicity, grades 4 and 8: 2003

	Eligible	Not eligible	Information not available
Grade 4			
White	231	247	247
Black	212	226	221
Hispanic	219	232	224
Asian/Pacific Islander	234	254	248
American Indian/Alaska Native	218	237	219
Grade 8			
White	272	291	293
Black	247	262	256
Hispanic	254	269	263
Asian/Pacific Islander	274	300	299
American Indian/Alaska Native	255	276	260

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

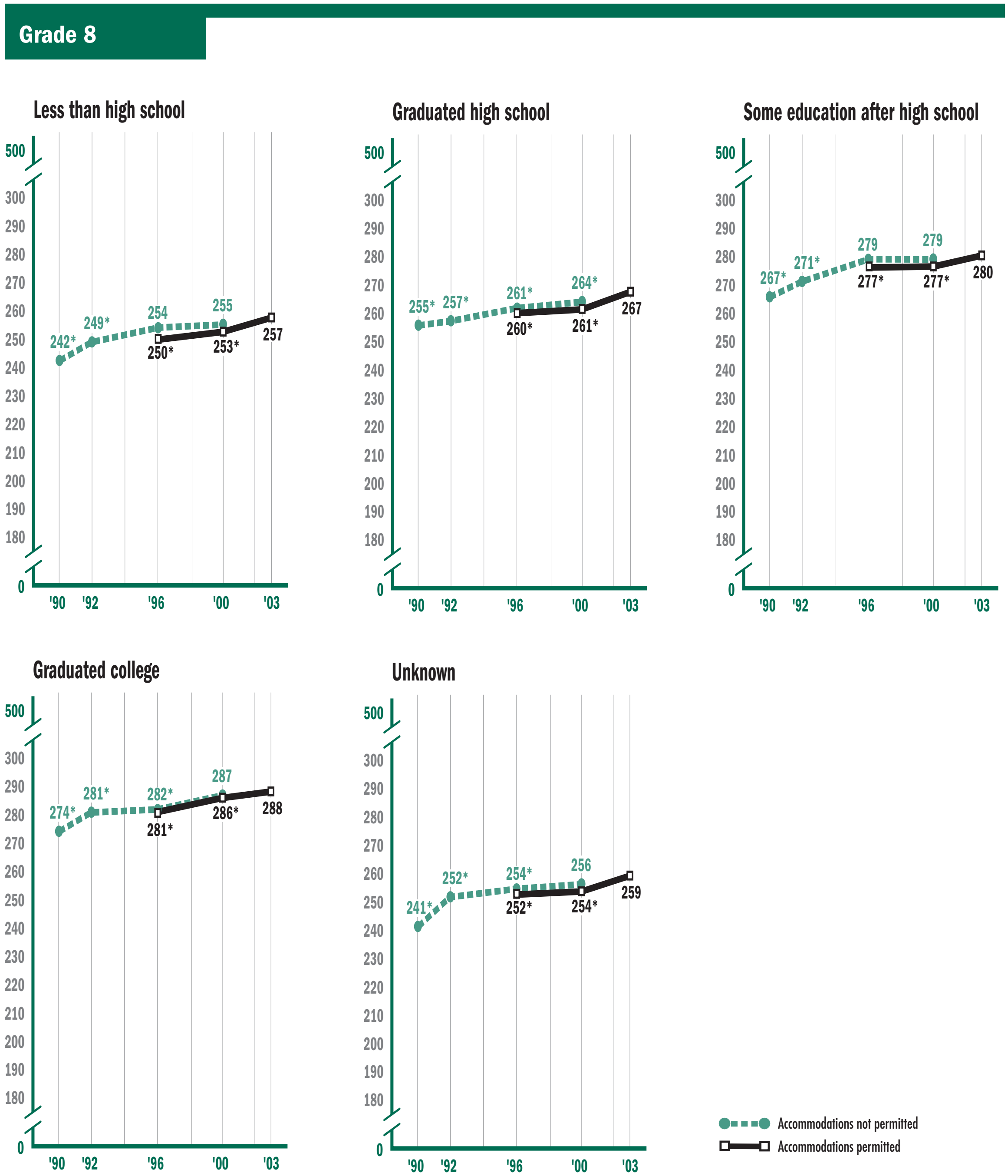
Parents' Highest Level of Education

Eighth-grade students who participated in the NAEP 2003 mathematics assessment were asked to indicate the highest level of education they thought their parents had completed. Five response options—did not finish high school, graduated from high school, some education after high school, graduated from college, or "I don't know"—were offered. The highest level of education reported for either parent was used in the analysis of this question. Fourth-graders' replies to this question are not reported because their responses in previous NAEP assessments were highly variable, and a large percentage of them chose the "I don't know" option.

Almost half (48 percent) of the eighth-graders who participated in the 2003 mathematics assessment reported that at least one of their parents had graduated from college, and 7 percent indicated that neither parent had graduated from high school. Eleven percent of the students indicated they did not know their parents' level of education (see table B.6 in appendix B).

Average eighth-grade scores for student-reported parental education levels are shown in figure 3.7. Overall, in 2003, there was a positive relationship between student-reported parental education and student achievement: The higher the parental education level, the higher the average mathematics score. Average scores for eighth-grade students increased from 2000 to 2003 and were higher in 2003 than in 1990 regardless of the level of parental education reported.

Figure 3.7 **Average mathematics scale scores, by student-reported parents' highest level of education, grade 8: 1990–2003**



* Significantly different from 2003.

NOTE: In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Achievement-level results by level of parental education are presented in table 3.5. The percentage of students performing at or above *Basic* was higher in 2003 than in 2000 for eighth-graders who reported that at least one parent had graduated from high school. The percentages of eighth-graders performing at or above *Basic* and *Proficient* in 2003 were higher than in 1990 regardless of the level of parental education students reported. The percentage of students performing at *Advanced* was higher in 2003 than in 1990 for students who reported that at least one parent had graduated from college.

Table 3.5 **Percentages of students, by mathematics achievement level and student-reported parents' highest level of education, grade 8: 1990–2003**

Grade 8		Below *Basic*	At *Basic*	At *Proficient*	At *Advanced*	At or above *Basic*	At or above *Proficient*
Less than high school							
Accommodations not permitted	1990	75 *	21 *	3 *	#	25 *	3 *
	1992	65 *	29 *	6	1	35 *	6
	1996	56	35	8	1	44	8
	2000	55	37	7	1	45	8
Accommodations permitted	1996	61 *	32	7	1	39 *	7
	2000	57	36	7	1	43	8
	2003	55	36	8	1	45	9
Graduated high school							
Accommodations not permitted	1990	58 *	33 *	8 *	#	42 *	9 *
	1992	54 *	36 *	9 *	1	46 *	10 *
	1996	48 *	39	12 *	1	52 *	13 *
	2000	46 *	38 *	14	1	54 *	16
Accommodations permitted	1996	51 *	36	12 *	1	49 *	13 *
	2000	49 *	37 *	14	1	51 *	15
	2003	41	42	15	2	59	17
Some education after high school							
Accommodations not permitted	1990	42 *	43	13 *	2	58 *	16 *
	1992	39 *	41 *	17 *	3	61 *	20 *
	1996	29	45	23	4	71	26
	2000	28	45	23	3	72	27
Accommodations permitted	1996	30	44	23	3	70	26
	2000	30	45	22	3	70	25
	2003	27	45	24	4	73	28
Graduated college							
Accommodations not permitted	1990	34 *	42 *	20 *	4 *	66 *	24 *
	1992	29 *	38	27 *	6 *	71 *	33 *
	1996	27 *	38	28 *	7	73 *	35 *
	2000	23	37	31	9	77	39
Accommodations permitted	1996	28 *	38	27 *	6 *	72 *	34 *
	2000	24	38	30	9	76	38
	2003	22	38	31	9	78	40
Unknown							
Accommodations not permitted	1990	70 *	25 *	5 *	#	30 *	5 *
	1992	61 *	30	8 *	1	39 *	9 *
	1996	58 *	32	9	1	42 *	10
	2000	55	34	10	1	45	11
Accommodations permitted	1996	59 *	32	9	1	41 *	10
	2000	58 *	33	9	1	42 *	10 *
	2003	52	35	11	1	48	12

The estimate rounds to zero.

* Significantly different from 2003.

NOTE: Detail may not sum to totals because of rounding. In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Type of School

The schools that participate in the NAEP assessment are classified as either public or nonpublic. A further distinction is then made between nonpublic schools that are Catholic schools and those that are some other type of nonpublic school. Results for additional categories of nonpublic schools are available on the NAEP web site (http://nces.ed.gov/nationsreportcard/naepdata). In 2003, the great majority of students attended public schools (90 percent of fourth-graders, and 91 percent of eighth-graders). The remaining one-tenth of students was almost evenly split between Catholic schools and other nonpublic schools. (See table B.7 in appendix B.) Families who send children to private schools may differ from other families in ways that affect student achievement and may or may not be measured by NAEP.

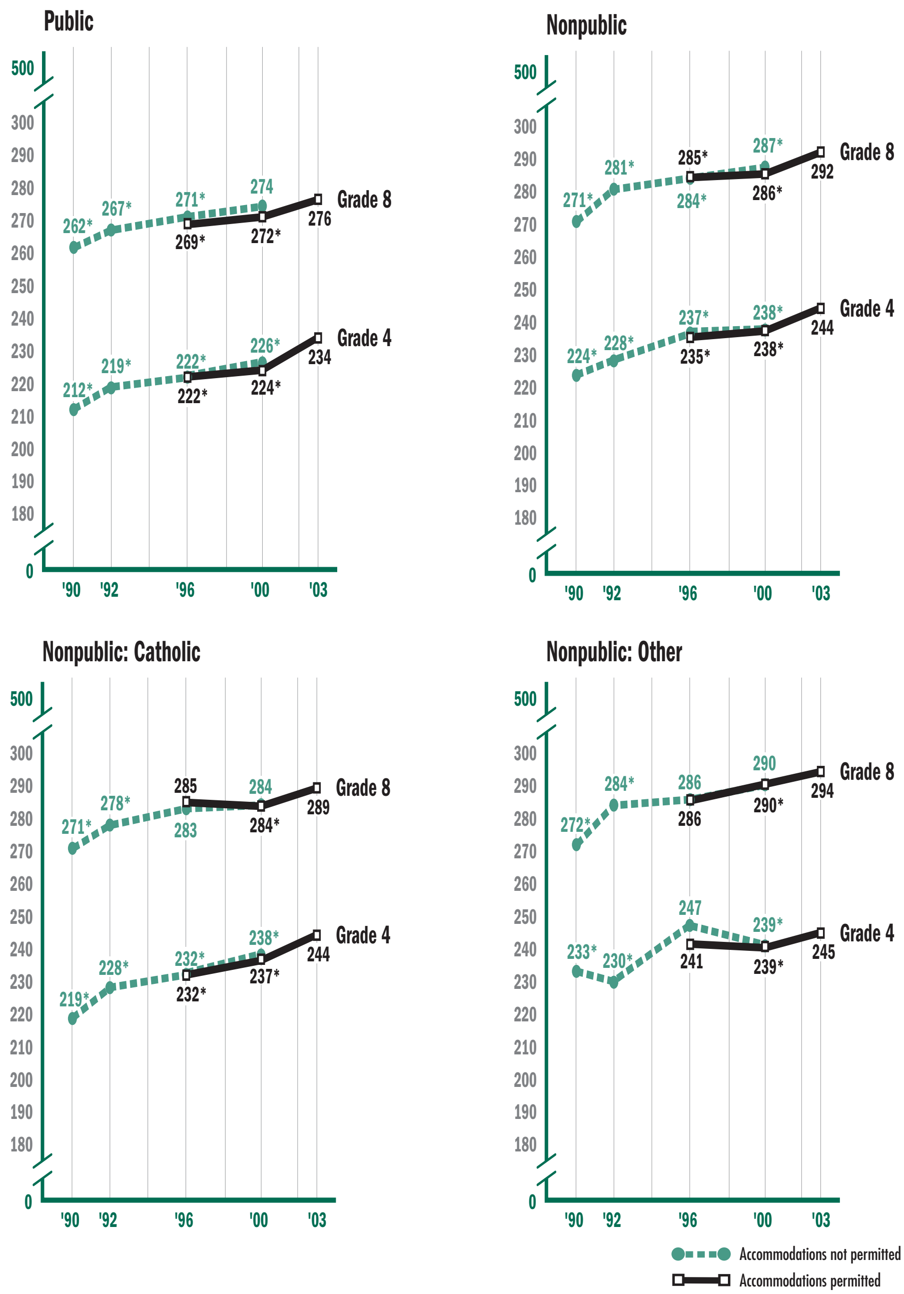
The average mathematics scores of fourth- and eighth-grade students by the type of school they attend are presented in figure 3.8. Performance results in 2003 show that, at grade 4, students who attended nonpublic schools had higher average scores than students who attended public schools.

In 2003, eighth-grade students in nonpublic schools had higher average scores than eighth-graders in public schools. Eighth-grade students in Catholic schools had lower average scores than eighth-graders in other nonpublic schools.

The average fourth-grade and eighth-grade mathematics scores for students in public and nonpublic schools increased from 2000 to 2003 and were higher in 2003 than in 1990. Average scores also increased from 2000 to 2003 for students in both Catholic and other nonpublic schools, and were higher in 2003 than in 1990.

Figure 3.8 **Average mathematics scale scores, by type of school, grades 4 and 8: 1990–2003**

Grades 4 and 8



* Significantly different from 2003.

NOTE: In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Achievement-level results by type of school are presented for grades 4 and 8 in table 3.6. In 2003, the percentages of students performing at or above *Basic* and *Proficient* and at *Advanced* were higher at grade 4 for students attending nonpublic schools than those in public schools.

The 2003 results for grade 8 show that public schools had lower percentages of students performing at or above *Basic* and *Proficient* and at *Advanced* than did nonpublic schools. The percentages of students performing at or above *Proficient* and at *Advanced* were lower in Catholic schools than in other nonpublic schools.

At grade 4, the percentages of public, nonpublic, and Catholic school students performing at or above *Basic* and *Proficient* increased between 2000 and 2003 and were higher in 2003 than in 1990. The percentages of other nonpublic school students performing at or above *Proficient* were higher in 2003 than in 2000 and 1990. The percentage of other nonpublic school students performing at or above *Basic* increased between 2000 and 2003.

At grade 8, the percentages of students performing at or above *Basic* and *Proficient* were higher in 2003 than in 1990 for students in public, nonpublic, Catholic, and other nonpublic schools. Since 2000, the percentages of students performing at or above *Basic* increased for public schools only, and the percentage of students performing at or above *Proficient* increased for public, nonpublic, and Catholic schools.

Table 3.6 Percentages of students, by mathematics achievement level and type of school, grades 4 and 8: 1990–2003

Grade 4		Below *Basic*	At *Basic*	At *Proficient*	At *Advanced*	At or above *Basic*	At or above *Proficient*
Public							
Accommodations not permitted	1990	52 *	36 *	11 *	1 *	48 *	12 *
	1992	43 *	40 *	16 *	2 *	57 *	17 *
	1996	38 *	42	18 *	2 *	62 *	20 *
	2000	33 *	42 *	22 *	2 *	67 *	25 *
Accommodations permitted	1996	39 *	42 *	17 *	2 *	61 *	19 *
	2000	36 *	41 *	20 *	2 *	64 *	22 *
	2003	24	45	28	4	76	31
Nonpublic							
Accommodations not permitted	1990	35 *	45	18 *	2 *	65 *	20 *
	1992	29 *	48 *	21 *	2 *	71 *	22 *
	1996	20 *	47	29 *	4	80 *	33 *
	2000	17 *	47 *	32 *	4 *	83 *	36 *
Accommodations permitted	1996	21 *	48 *	28 *	3 *	79 *	31 *
	2000	18 *	46 *	31 *	4 *	82 *	35 *
	2003	12	43	38	6	88	44
Nonpublic: Catholic							
Accommodations not permitted	1990	41 *	44	14 *	1 *	59 *	15 *
	1992	30 *	48	20 *	2 *	70 *	22 *
	1996	24 *	50	24 *	2 *	76 *	26 *
	2000	17 *	48 *	31 *	3 *	83 *	34 *
Accommodations permitted	1996	23 *	49	26 *	2 *	77 *	28 *
	2000	19 *	48	30 *	3 *	81 *	33 *
	2003	12	44	38	5	88	43
Nonpublic: Other							
Accommodations not permitted	1990	26	46	26 *	3	74	29 *
	1992	28 *	48	21 *	3 *	72 *	24 *
	1996	11	42	38	8	89	47
	2000	17 *	45	33 *	5	83 *	38 *
Accommodations permitted	1996	15	45	34	6	85	40
	2000	18 *	45	32 *	5	82 *	37 *
	2003	13	42	39	7	87	45

See notes at end of table. ▶

Table 3.6 Percentages of students, by mathematics achievement level and type of school, grades 4 and 8: 1990–2003—Continued

Grade 8		Below *Basic*	At *Basic*	At *Proficient*	At *Advanced*	At or above *Basic*	At or above *Proficient*
Public							
Accommodations not permitted	1990	49 *	36 *	13 *	2 *	51 *	15 *
	1992	44 *	36 *	17 *	3 *	56 *	20 *
	1996	39 *	38	19 *	4	61 *	23 *
	2000	35 *	38	21	5	65 *	26
Accommodations permitted	1996	41 *	37 *	19 *	4 *	59 *	22 *
	2000	38 *	37 *	20 *	5	62 *	25 *
	2003	33	39	22	5	67	27
Nonpublic							
Accommodations not permitted	1990	37 *	46	16 *	1 *	63 *	17 *
	1992	29 *	41	26 *	5 *	71 *	31 *
	1996	25 *	42	28 *	6 *	75 *	33 *
	2000	21	42	31	6 *	79	37 *
Accommodations permitted	1996	22	44 *	29	5 *	78	34 *
	2000	21	43 *	30 *	6 *	79	36 *
	2003	18	39	33	10	82	43
Nonpublic: Catholic							
Accommodations not permitted	1990	37 *	47	14 *	1 *	63 *	16 *
	1992	30 *	43	24 *	3 *	70 *	27 *
	1996	25	43	28	4 *	75	32
	2000	23	44	28	5 *	77	33
Accommodations permitted	1996	22	45	29	4 *	78	33
	2000	23	45	27	5 *	77	32 *
	2003	19	42	31	8	81	39
Nonpublic: Other							
Accommodations not permitted	1990	36 *	45	17 *	1	64 *	19 *
	1992	27 *	37	30	7 *	73 *	37
	1996	25	39	27	8	75	36
	2000	19	40	33	8 *	81	42
Accommodations permitted	1996	21	43	29	7	79	36
	2000	19	40	33	8 *	81	41
	2003	17	36	35	12	83	47

* Significantly different from 2003.

NOTE: Detail may not sum to totals because of rounding. In addition to allowing for accommodations, the accommodations-permitted results (1996–2003) differ slightly from previous years' results, and from previously reported results for 1996 and 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

The results presented for students in public and nonpublic schools and by highest level of parent's education are explored in more detail in table 3.7. Average scores of eighth-graders in public and nonpublic schools are presented for each level of parental education. By presenting the data in this manner, it is possible to examine the performance of students in the two types of schools, while controlling for parental education.

At grade 8, nearly three-quarters (71 percent) of the students attending nonpublic schools reported that at least one parent had graduated from college, while less than one-half (45 percent) of the students attending public schools reported that at least one parent graduated from college. Students who reported each of the other levels of parental education were more likely to attend public than nonpublic schools (see table B.8 in appendix B). The average mathematics score for eighth-grade public school students was lower than the average score for nonpublic school students, regardless of the reported level of parents' education.

Table 3.7 **Average mathematics scale scores, by student-reported parents' highest level of education and type of school, grade 8: 2003**

Grade 8	Less than high school	Graduated high school	Some education after high school	Graduated college	Unknown
Public	256	267	280	287	258
Nonpublic	270	277	285	297	269

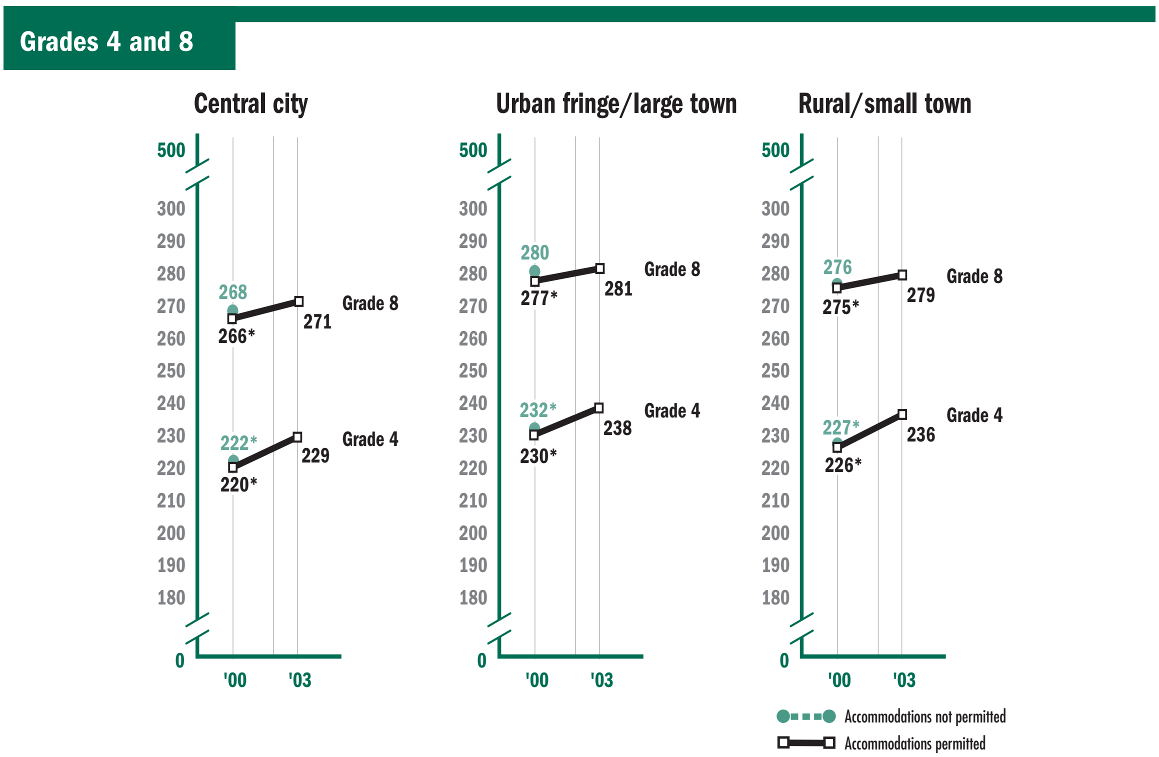
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Type of Location

The schools from which NAEP draws its samples of students are classified according to their type of location. Based on U.S. Census Bureau definitions of metropolitan statistical areas, including population size and density, the three mutually exclusive categories are central city, urban fringe/large town, and rural/small town. The methods used to identify the type of school location for the 2000 and 2003 assessments were different from those used for prior assessments; therefore, only the data from the 2000 and 2003 assessments are reported. More information on the definitions of location type is given in appendix A.

The average mathematics scores for fourth- and eighth-grade students, by type of location, are presented in figure 3.9. In 2003, at both grades 4 and 8, students in schools in urban fringe/large town and rural/small town locations had higher average mathematics scores than those in central city locations. Students in urban fringe/large town schools had higher average scores than students in rural/small town schools at both grades. Average mathematics scores in all three location types—central city, urban fringe/large town, and rural/small town—were higher in 2003 than in 2000 for both grades 4 and 8.

Figure 3.9 Average mathematics scale scores, by type of location, grades 4 and 8: 2000 and 2003



* Significantly different from 2003.

NOTE: In addition to allowing for accommodations, the accommodations-permitted results (2000–2003) differ slightly from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 and 2003 Mathematics Assessments.

Achievement-level results by type of location are presented in table 3.8. In 2003, at grade 4, higher percentages of students performed at or above *Basic* and *Proficient* in urban fringe/large town and rural/small town locations than in central city locations. Also, higher percentages of students performed at or above *Proficient* and at *Advanced* in urban fringe/large town locations than in rural locations. At grade 8, higher percentages of students performed at or above the *Basic* and *Proficient* levels in urban fringe/large town and rural/small town schools than in central city schools; in urban fringe areas, higher percentages of students performed at or above *Proficient* and at the *Advanced* level than in rural/small town areas.

At grade 4, the percentages of students at or above *Basic* and *Proficient* and at *Advanced* were higher in 2003 than in 2000 in central city, urban fringe/large town, and rural/small town locations. At grade 8, the percentage of students at or above *Basic* was higher in 2003 than in 2000 in central city, urban fringe/large town, and rural/small town locations.

Table 3.8 Percentages of students, by mathematics achievement level and type of location, grades 4 and 8: 2000 and 2003

Grade 4		Below ***Basic***	At ***Basic***	At ***Proficient***	At ***Advanced***	At or above ***Basic***	At or above ***Proficient***
Central city							
Accommodations not permitted	2000	39 *	40	19 *	2 *	61 *	21 *
Accommodations permitted	2000	42 *	39 *	17 *	2 *	58 *	19 *
	2003	30	44	23	3	70	26
Urban fringe/large town							
Accommodations not permitted	2000	26 *	42	28 *	4 *	74 *	31 *
Accommodations permitted	2000	30 *	42	25 *	3 *	70 *	28 *
	2003	19	44	32	5	81	37
Rural/small town							
Accommodations not permitted	2000	30 *	47	21 *	2 *	70 *	23 *
Accommodations permitted	2000	33 *	45	20 *	2 *	67 *	21 *
	2003	20	47	29	3	80	33
Grade 8							
Central city							
Accommodations not permitted	2000	44	33	18	5	56	23
Accommodations permitted	2000	46 *	33 *	17	4	54 *	21
	2003	40	36	19	5	60	24
Urban fringe/large town							
Accommodations not permitted	2000	29	40	25	6	71	31
Accommodations permitted	2000	31 *	40	23	5	69 *	29
	2003	28	39	26	6	72	32
Rural/small town							
Accommodations not permitted	2000	33	41	22	4	67	26
Accommodations permitted	2000	34 *	40	22	4	66 *	26
	2003	29	42	24	4	71	29

* Significantly different from 2003.

NOTE: Detail may not sum to totals because of rounding. In addition to allowing for accommodations, the accommodations-permitted results (2000–2003) differ slightly from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 and 2003 Mathematics Assessments.

Performance of Selected Subgroups by State

Results for public school students in participating states and jurisdictions are presented in this section by gender, race/ethnicity, and eligibility for free/reduced-price lunch. Additional data for participating jurisdictions by subgroup (including percentages at or above *Basic* and average scale score gaps by gender and race/ethnicity) are included in appendix C. Since results for each jurisdiction are based on the performance of public school students only, the results for the nation that appear in the tables along with data for participating jurisdictions are based on public school students only (unlike the national results presented earlier in the chapter, which reflect the performance of both public and nonpublic school students combined).

In addition to results from the 2003 assessment, results from earlier assessment years in which data are available are presented by these subgroups for participating jurisdictions.

Gender

Tables 3.9 and 3.10 present the average mathematics scores for male and female students in participating jurisdictions at grades 4 and 8, respectively. In 2003, male fourth-graders scored higher on average than female fourth-graders in 24 jurisdictions. At grade 8, average scores were higher for male students than female students in Massachusetts, South Carolina and Department of Defense Overseas Schools.

Between 2000 and 2003, average scores increased for both male and female fourth-graders in all 43 of the jurisdictions that participated in both assessments.

For those jurisdictions that participated in both the 1992 and 2003 fourth-grade mathematics assessments, all 42 showed score increases for both male and female students.

For the 42 jurisdictions that participated in both the 2000 and 2003 eighth-grade assessments, 17 showed increases for both male and female students, 6 showed increases only for male students, and 5 showed increases only for female students. For the 38 jurisdictions that participated at grade 8 in both the 1990 and 2003 assessments, scores increased for both male and female students in 36 of the jurisdictions and increased for female students only in Montana and North Dakota.

Table 3.9 **Average mathematics scale scores, by gender, grade 4 public schools: By state, 1992–2003**

Grade 4	Male					Female				
	Accommodations not permitted			Accommodations permitted		Accommodations not permitted			Accommodations permitted	
	1992	1996	2000	2000	2003	1992	1996	2000	2000	2003
Nation (public) [1]	220 *	224 *	227 *	225 *	235	218 *	221 *	225 *	223 *	233
Alabama	208 *,**	212 *,**	217 *,**	216 *,**	223	208 *,**	212 *,**	219 *,**	219 *,**	223
Alaska	—	224 *,**	—	—	235	—	224 *,**	—	—	231
Arizona	215 *,**	218 *,**	220 *,**	219 *,**	231	216 *,**	217 *,**	218 *,**	219 *,**	227
Arkansas	211 *,**	216 *,**	217 *,**	216 *,**	228	210 *,**	216 *,**	217 *,**	216 *,**	230
California	209 *,**	211 *,**	213 *,**	212 *,**	229	208 *,**	207 *,**	214 *,**	213 *,**	225
Colorado	222 *,**	227 *,**	—	—	237	220 *,**	224 *,**	—	—	233
Connecticut	228 *,**	234 *,**	235 *,**	235 *,**	243	225 *,**	230 *,**	233 *,**	233 *,**	238
Delaware	219 *,**	216 *,**	—	—	237	217 *,**	215 *,**	—	—	235
Florida	215 *,**	215 *,**	—	—	235	212 *,**	217 *,**	—	—	233
Georgia	215 *,**	216 *,**	220 *,**	220 *,**	231	216 *,**	215 *,**	219 *,**	218 *,**	229
Hawaii	213 *,**	215 *,**	214 *,**	215 *,**	227	215 *,**	215 *,**	217 *,**	217 *,**	226
Idaho	223 *,**	—	227 *,**	224 *,**	237	220 *,**	—	227 *,**	225 *,**	233
Illinois	—	—	227 *,**	224 *,**	234	—	—	222 *,**	222 *,**	232
Indiana	222 *,**	231 *,**	235 *,**	234 *,**	239	220 *,**	228 *,**	233 *,**	232 *,**	237
Iowa	230 *,**	230 *,**	235 *,**	233 *,**	240	229 *,**	228 *,**	231 *,**	230 *,**	236
Kansas	—	—	232 *,**	233 *,**	244	—	—	232 *,**	231 *,**	240
Kentucky	215 *,**	220 *,**	222 *,**	220 *,**	230	215 *,**	220 *,**	220 *,**	219 *,**	227
Louisiana	205 *,**	209 *,**	218 *,**	219 *,**	227	204 *,**	210 *,**	218 *,**	217 *,**	226
Maine	232 *,**	234 *,**	232 *,**	232 *,**	239	231 *,**	231 *,**	229 *,**	227 *,**	236
Maryland	219 *,**	222 *,**	223 *,**	223 *,**	235	216 *,**	220 *,**	221 *,**	220 *,**	232
Massachusetts	228 *,**	230 *,**	237 *,**	235 *,**	244	225 *,**	228 *,**	233 *,**	232 *,**	239
Michigan	222 *,**	227 *,**	232 *,**	230 *,**	238	217 *,**	225 *,**	230	228 *,**	233
Minnesota	229 *,**	234 *,**	237 *,**	236 *,**	244	228 *,**	231 *,**	233 *,**	232 *,**	240
Mississippi	201 *,**	208 *,**	210 *,**	210 *,**	223	203 *,**	209 *,**	211 *,**	211 *,**	223
Missouri	222 *,**	225 *,**	229 *,**	228 *,**	235	223 *,**	224 *,**	228 *,**	228 *,**	235
Montana	—	229 *,**	232	231 *,**	236	—	226 *,**	228 *,**	226 *,**	235
Nebraska	227 *,**	228 *,**	227 *,**	225 *,**	238	224 *,**	227 *,**	225 *,**	225 *,**	235
Nevada	—	220 *,**	222 *,**	221 *,**	229	—	216 *,**	218 *,**	218 *,**	226
New Hampshire	230 *,**	—	—	—	246	229 *,**	—	—	—	240
New Jersey	228 *,**	231 *,**	—	—	240	226 *,**	223 *,**	—	—	237
New Mexico	213 *,**	215 *,**	216 *,**	216 *,**	224	213 *,**	213 *,**	212 *,**	211 *,**	221
New York	222 *,**	224 *,**	228 *,**	227 *,**	237	215 *,**	222 *,**	225 *,**	224 *,**	235
North Carolina	213 *,**	224 *,**	234 *,**	230 *,**	243	213 *,**	224 *,**	231 *,**	230 *,**	241
North Dakota	230 *,**	232 *,**	233 *,**	231 *,**	240	227 *,**	230 *,**	229 *,**	229 *,**	235
Ohio	220 *,**	—	233 *,**	232 *,**	239	217 *,**	—	228 *,**	228 *,**	237
Oklahoma	221 *,**	—	226	225 *,**	230	219 *,**	—	224 *,**	223 *,**	228
Oregon	—	224 *,**	229 *,**	225 *,**	237	—	223 *,**	224 *,**	222 *,**	235
Pennsylvania	225 *,**	227 *,**	—	—	238	223 *,**	226 *,**	—	—	234
Rhode Island	216 *,**	223 *,**	225 *,**	225 *,**	231	215 *,**	218 *,**	224 *,**	223 *,**	229
South Carolina	213 *,**	214 *,**	221 *,**	221 *,**	237	212 *,**	213 *,**	220 *,**	219 *,**	234
South Dakota	—	—	—	—	239	—	—	—	—	235
Tennessee	211 *,**	220 *,**	222 *,**	221 *,**	228	211 *,**	218 *,**	218 *,**	219 *,**	228
Texas	219 *,**	229 *,**	235 *,**	233 *,**	239	217 *,**	228 *,**	231 *,**	230 *,**	236
Utah	224 *,**	228 *,**	227 *,**	227 *,**	236	224 *,**	225 *,**	228 *,**	227 *,**	233
Vermont	—	226 *,**	232 *,**	232 *,**	244	—	224 *,**	231 *,**	231 *,**	240
Virginia	222 *,**	224 *,**	233 *,**	232 *,**	240	219 *,**	221 *,**	228 *,**	227 *,**	239
Washington	—	226 *,**	—	—	240	—	224 *,**	—	—	237
West Virginia	216 *,**	224 *,**	226 *,**	224 *,**	232	214 *,**	223 *,**	223 *,**	223 *,**	230
Wisconsin	230 *,**	233 *,**	—	—	238	227 *,**	230 *,**	—	—	235
Wyoming	227 *,**	224 *,**	230 *,**	230 *,**	242	224 *,**	223 *,**	228 *,**	227 *,**	240
Other jurisdictions										
District of Columbia	193 *,**	187 *,**	193 *,**	191 *,**	204	192 *,**	187 *,**	194 *,**	192 *,**	206
DDESS [2]	—	226 *,**	230 *,**	229 *,**	239	—	222 *,**	226 *,**	226 *,**	235
DoDDS [3]	—	224 *,**	230 *,**	228 *,**	239	—	222 *,**	226 *,**	224 *,**	236

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

* Significantly different from 2003 when only one jurisdiction or the nation is being examined.

** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.

[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.

[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.

[3] Department of Defense Dependents Schools (Overseas).

NOTE: State-level data were not collected in 1990. Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1996, 2000, and 2003 Mathematics Assessments.

Table 3.10 Average mathematics scale scores, by gender, grade 8 public schools: By state, 1990–2003

Grade 8	Male						Female					
	Accommodations not permitted				Accommodations permitted		Accommodations not permitted				Accommodations permitted	
	1990	1992	1996	2000	2000	2003	1990	1992	1996	2000	2000	2003
Nation (public) [1]	262 *	266 *	270 *	276	273 *	277	261 *	267 *	271 *	273 *	271 *	275
Alabama	254 *,**	253 *,**	257	262	265	263	252 *,**	251 *,**	256	262	263	261
Alaska	—	—	277	—	—	280	—	—	278	—	—	278
Arizona	262 *,**	266 *,**	271	274	271	271	257 *,**	265 *,**	265 **	268	266	271
Arkansas	257 *,**	257 *,**	261	262	256 *,**	265	255 *,**	256 *,**	262	261 *	259 *,**	267
California	258 *,**	260 *,**	264	262	259 *,**	268	255 *,**	262	261	262	260 *,**	266
Colorado	269 *,**	274 *,**	278 *,**	—	—	284	266 *,**	271 *,**	274 *,**	—	—	283
Connecticut	271 *,**	275 *,**	280 *,**	284	283	285	269 *,**	273 *,**	279	279	278 *,**	283
Delaware	260 *,**	264 *,**	269 *,**	—	—	278	262 *,**	262 *,**	265 *,**	—	—	276
Florida	257 *,**	260 *,**	265 *,**	—	—	273	254 *,**	260 *,**	262 *,**	—	—	269
Georgia	259 *,**	261 *,**	262 *,**	268	265 *,**	270	258 *,**	258 *,**	263 *,**	265	265 *	269
Hawaii	248 *,**	254 *,**	259 *,**	261	260 *,**	265	254 *,**	261 *,**	266	264	265	266
Idaho	272 *,**	277 *,**	—	278	277	281	270 *,**	273 *,**	—	278	277	279
Illinois	261 *,**	—	—	276	272 *,**	278	260 *,**	—	—	278	278	276
Indiana	270 *,**	272 *,**	276 *,**	285	282	282	264 *,**	268 *,**	275 *,**	281	281	280
Iowa	281 *,**	284	283	—	—	285	275 *,**	282	285	—	—	283
Kansas	—	—	—	285	283	284	—	—	—	283	283	284
Kentucky	259 *,**	263 *,**	267 *,**	274	271	275	256 *,**	261 *,**	266 *,**	270	269 *,**	274
Louisiana	248 *,**	252 *,**	252 *,**	261 *	260 *,**	267	245 *,**	248 *,**	253 *,**	258 *,**	257 *,**	266
Maine	—	279 *,**	285	285	282	283	—	279	283	282	281	281
Maryland	261 *,**	266 *,**	271 *,**	276	272 *,**	279	261 *,**	264 *,**	269 *,**	276	272	276
Massachusetts	—	274 *,**	278 *,**	285 *	279 *,**	289	—	272 *,**	277 *,**	281	278 *,**	284
Michigan	265 *,**	270 *,**	279	279	278	277	264 *,**	265 *,**	275	278	277	276
Minnesota	276 *,**	282 *,**	285	288	287	289	275 *,**	283 *,**	283 *,**	288	287	292
Mississippi	—	248 *,**	251 *,**	255 *,**	255 *,**	262	—	245 *,**	250 *,**	253 *,**	253 *,**	260
Missouri	—	272 *,**	274 *,**	276 *	272 *,**	280	—	270 *,**	273 *,**	271 *,**	270 *,**	278
Montana	283	—	283	287	284	286	278 *,**	—	283	286	287	286
Nebraska	277 *,**	278 *,**	283	283	282	284	275 *,**	277 *,**	282	278	277	281
Nevada	—	—	—	269	266	268	—	—	—	267	264 *,**	268
New Hampshire	273 *,**	279 *,**	—	—	—	287	274 *,**	278 *,**	—	—	—	286
New Jersey	271 *,**	275 *,**	—	—	—	282	268 *,**	269 *,**	—	—	—	281
New Mexico	259 *,**	261	262	259	259 *,**	264	254 *,**	258 *,**	262	260	260	263
New York	262 *,**	267 *,**	272 *,**	280	273 *,**	281	259 *,**	266 *,**	269 *,**	273	270 *,**	279
North Carolina	250 *,**	259 *,**	270 *,**	282	277	281	251 *,**	257 *,**	266 *,**	278	275 *,**	282
North Dakota	284	285	285	283 *	282 *,**	287	278 *,**	282 *,**	284	284	282 *,**	287
Ohio	266 *,**	270 *,**	—	283	281	283	261 *,**	267 *,**	—	282	280	281
Oklahoma	266 *,**	269	—	273	271	272	261 *,**	267 *,**	—	270	269	272
Oregon	272 *,**	—	276 *,**	281	282	282	270 *,**	—	277	280	278	280
Pennsylvania	269 *,**	274 *,**	—	—	—	280	263 *,**	269 *,**	—	—	—	277
Rhode Island	262 *,**	266 *,**	271	274	268 **	273	259 *,**	266 *,**	267 *,**	273	270	271
South Carolina	—	261 *,**	262 *,**	266 *,**	264 *,**	280	—	260 *,**	259 *,**	267 *,**	265 *,**	274
South Dakota	—	—	—	—	—	286	—	—	—	—	—	284
Tennessee	—	261 *,**	263	265	263	268	—	257 *,**	263 *,**	261 *	260 *,**	268
Texas	260 *,**	267 *,**	273 *,**	274	272	278	256 *,**	262 *,**	268 *,**	276	275	276
Utah	—	276 *,**	278	275 *	275 *,**	282	—	273 *,**	275 *,**	276 *	272 *,**	280
Vermont	—	—	281 *,**	283	279 *,**	286	—	—	278 *,**	283	282 *	286
Virginia	266 *,**	268 *,**	273 *,**	278 *	276 *,**	283	263 *,**	267 *,**	267 *,**	276	274 *,**	280
Washington	—	—	276 *,**	—	—	282	—	—	277 *,**	—	—	281
West Virginia	256 *,**	260 *,**	264 *,**	270	265 *,**	271	255 *,**	259 *,**	266 *,**	271	268	271
Wisconsin	275 *,**	278 *,**	283	—	—	284	274 *,**	277 *,**	282	—	—	284
Wyoming	274 *,**	275 *,**	276 *,**	277 *,**	276 *,**	284	270 *,**	275 *,**	274 *,**	276 *,**	276 *,**	283
Other jurisdictions												
District of Columbia	230 *,**	234 *,**	231 *,**	234 *,**	235 *,**	242	233 *,**	236 *,**	235 *,**	235 *,**	234 *,**	244
DDESS [2]	—	—	271 *,**	279	275 *,**	284	—	—	267 *,**	275	272 *,**	280
DoDDS [3]	—	—	276 *,**	280 *,**	279 *,**	287	—	—	274 *,**	277 *,**	277 *,**	284

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.
[3] Department of Defense Dependents Schools (Overseas).
NOTE: Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Tables 3.11 and 3.12 present the percentages of male and female students who performed at or above the *Proficient* level for the participating jurisdictions at grades 4 and 8, respectively. In 2003, higher percentages of male students than female students performed at or above *Proficient* in 31 of the jurisdictions that participated at grade 4, and 10 of the jurisdictions that participated at grade 8.

At grade 4, increases in the percentage of students performing at or above *Proficient* were detected between 2000 and 2003 for both male and female students in 38 jurisdictions, only for male students in Michigan, New Mexico, and Department of Defense domestic schools, and only for female students in Montana. The percentage of students performing at or above *Proficient* in 2003 was higher than in 1992 for both male and female students in 39 of the jurisdictions that participated in both years and for male students only in Maine and New Mexico.

Between 2000 and 2003, 12 jurisdictions showed increases in the percentages of both male and female eighth-graders at or above *Proficient*; Illinois, Maryland, and Rhode Island showed increases only for male students; and North Carolina and Tennessee showed increases only for female students at this performance level. At grade 8, the percentages of both males and females performing at or above *Proficient* increased between 1990 and 2003 in 36 jurisdictions, increased for male students in the District of Columbia, and increased for female students only in Montana.

Table 3.11 Percentage of students at or above *Proficient* in mathematics, by gender, grade 4 public schools: By state, 1992–2003

Grade 4	Male					Female				
	Accommodations not permitted			Accommodations permitted		Accommodations not permitted			Accommodations permitted	
	1992	1996	2000	2000	2003	1992	1996	2000	2000	2003
Nation (public) [1]	19 *	22 *	27 *	25 *	34	16 *	17 *	22 *	20 *	29
Alabama	10 *,**	11 *,**	15	14 *,**	19	10 *,**	10 *,**	13 **	13 *,**	18
Alaska	—	22 *,**	—	—	33	—	20 *,**	—	—	27
Arizona	13 *,**	17 *,**	18 *,**	16 *,**	28	13 *,**	13 *,**	16 *,**	15 *,**	23
Arkansas	10 *,**	14 *,**	14 *,**	14 *,**	27	9 *,**	12 *,**	13 *,**	13 *,**	25
California	13 *,**	12 *,**	14 *,**	13 *,**	28	12 *,**	9 *,**	15 *,**	13 *,**	22
Colorado	19 *,**	24 *,**	—	—	37	16 *,**	20 *,**	—	—	31
Connecticut	26 *,**	34 *,**	34 *,**	33 *,**	45	23 *,**	27 *,**	29 *,**	29 *,**	37
Delaware	18 *,**	17 *,**	—	—	34	15 *,**	15 *,**	—	—	29
Florida	15 *,**	15 *,**	—	—	33	12 *,**	14 *,**	—	—	29
Georgia	16 *,**	15 *,**	19 *,**	19 *,**	29	14 *,**	11 *,**	17 *,**	16 *,**	25
Hawaii	16 *,**	18 *,**	14 *,**	15 *,**	24	14 *,**	15 *,**	14 *,**	14 *,**	22
Idaho	17 *,**	—	23 *,**	20 *,**	34	14 *,**	—	20 *,**	19 *,**	27
Illinois	—	—	25 *,**	23 *,**	34	—	—	17 *,**	17 *,**	29
Indiana	17 *,**	26 *,**	33	31 *,**	37	15 *,**	21 *,**	29	28 *,**	34
Iowa	27 *,**	24 *,**	31 *,**	28 *,**	39	25 *,**	20 *,**	24 *,**	24 *,**	32
Kansas	—	—	32 *,**	31 *,**	44	—	—	28 *,**	26 *,**	39
Kentucky	14 *,**	17 *,**	19 *,**	19 *,**	24	12 *,**	14 *,**	16 *	15 *,**	20
Louisiana	8 *,**	8 *,**	14 *,**	14 *,**	22	7 *,**	7 *,**	14 *,**	13 *,**	20
Maine	28 *,**	29 *,**	27 *,**	25 *,**	37	27	26 *,**	22 *,**	20 *,**	31
Maryland	20 *,**	22 *,**	24 *,**	23 *,**	33	17 *,**	21 *,**	20 *,**	20 *,**	29
Massachusetts	25 *,**	27 *,**	36 *,**	33 *,**	44	21 *,**	22 *,**	31 *,**	29 *,**	38
Michigan	21 *,**	25 *,**	31 *,**	30 *,**	38	15 *,**	21 *,**	28	26	30
Minnesota	28 *,**	32 *,**	38 *,**	36 *,**	45	24 *,**	27 *,**	30 *,**	29 *,**	38
Mississippi	6 *,**	9 *,**	10 *,**	10 *,**	18	6 *,**	7 *,**	8 *,**	8 *,**	16
Missouri	19 *,**	22 *,**	24 *,**	24 *,**	30	18 *,**	18 *,**	23 *,**	22 *,**	29
Montana	—	25 *,**	29	27	33	—	19 *,**	20 *,**	21 *,**	29
Nebraska	24 *,**	26 *,**	25 *,**	25 *,**	36	20 *,**	22 *,**	23 *,**	23 *,**	31
Nevada	—	16 *,**	19 *,**	18 *,**	25	—	12 *,**	13 *,**	13 *,**	21
New Hampshire	27 *,**	—	—	—	46	23 *,**	—	—	—	39
New Jersey	26 *,**	30 *,**	—	—	41	23 *,**	20 *,**	—	—	36
New Mexico	11 *,**	14 *,**	14 *,**	14 *,**	21	11	11	10	10	14
New York	20 *,**	21 *,**	24 *,**	23 *,**	35	13 *,**	18 *,**	20 *,**	18 *,**	31
North Carolina	13 *,**	22 *,**	30 *,**	26 *,**	42	12 *,**	20 *,**	26 *,**	24 *,**	40
North Dakota	24 *,**	26 *,**	29 *,**	27 *,**	38	20 *,**	22 *,**	22 *,**	23 *,**	30
Ohio	18 *,**	—	30	28 *,**	37	14 *,**	—	22 *,**	21 *,**	34
Oklahoma	15 *,**	—	18 *,**	17 *,**	25	13 *,**	—	14 *,**	14 *,**	20
Oregon	—	22 *,**	27 *,**	25 *,**	35	—	20 *,**	20 *,**	20 *,**	31
Pennsylvania	23 *,**	21 *,**	—	—	39	21 *,**	20 *,**	—	—	32
Rhode Island	15 *,**	20 *,**	26	25 *	29	12 *,**	14 *,**	20 *,**	19 *,**	27
South Carolina	14 *,**	13 *,**	20 *,**	20 *,**	34	12 *,**	11 *,**	15 *,**	15 *,**	29
South Dakota	—	—	—	—	37	—	—	—	—	31
Tennessee	10 *,**	18 *,**	20	20 *,**	25	10 *,**	15 *,**	16 *,**	16 *,**	22
Texas	17 *,**	27 *,**	31	28 *,**	35	13 *,**	24 *,**	24 *,**	23 *,**	31
Utah	19 *,**	26 *,**	25 *,**	24 *,**	34	19 *,**	20 *,**	23 *,**	21 *,**	28
Vermont	—	24 *,**	31 *,**	29 *,**	44	—	21 *,**	28 *,**	29 *,**	39
Virginia	20 *,**	21 *,**	29 *,**	26 *,**	38	17 *,**	17 *,**	22 *,**	22 *,**	35
Washington	—	23 *,**	—	—	39	—	18 *,**	—	—	33
West Virginia	14 *,**	20 *,**	21	19 *,**	26	11 *,**	18	15 *,**	15 *,**	22
Wisconsin	26 *,**	30 *,**	—	—	38	23 *,**	25 *,**	—	—	32
Wyoming	21 *,**	20 *,**	27 *,**	27 *,**	41	17 *,**	18 *,**	23 *,**	22 *,**	36
Other jurisdictions										
District of Columbia	6	6	6	6	8	5	4 *,**	5	5	7
DDESS [2]	—	24 *,**	26 *,**	25 *,**	34	—	17 *,**	22	20	27
DoDDS [3]	—	21 *,**	26 *,**	24 *,**	34	—	17 *,**	19 *,**	17 *,**	29

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.
[3] Department of Defense Dependents Schools (Overseas).
NOTE: State-level data were not collected in 1990. Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1996, 2000, and 2003 Mathematics Assessments.

Table 3.12 Percentage of students at or above *Proficient* in mathematics, by gender, grade 8 public schools: By state, 1990–2003

Grade 8	Male						Female					
	Accommodations not permitted				Accommodations permitted		Accommodations not permitted				Accommodations permitted	
	1990	1992	1996	2000	2000	2003	1990	1992	1996	2000	2000	2003
Nation (public) [1]	17 *	20 *	24 *	29	26 *	29	14 *	20 *	21 *	24	23 *	26
Alabama	10 *,**	11 *,**	14	17	17	18	8 *,**	9 *,**	11	15	15	14
Alaska	—	—	29	—	—	32	—	—	30	—	—	28
Arizona	15 *,**	16 *,**	20	24	22	21	10 *,**	14 *,**	16 *,**	18	18	21
Arkansas	11 *,**	11 *,**	14 *,**	15 *	14 *,**	19	8 *,**	9 *,**	12 *,**	13 *	13 *	18
California	14 *,**	16 *,**	19	19	17	23	11 *,**	17	15 *,**	16	16	21
Colorado	18 *,**	23 *,**	28 *,**	—	—	35	16 *,**	20 *,**	23 *,**	—	—	34
Connecticut	23 *,**	27 *,**	30 *,**	36	36	37	20 *,**	24 *,**	31	31	30	33
Delaware	15 *,**	16 *,**	21 *,**	—	—	27	13 *,**	15 *,**	17 *,**	—	—	25
Florida	14 *,**	15 *,**	18 *,**	—	—	26	10 *,**	14 *,**	16 *	—	—	21
Georgia	15 *,**	14 *,**	17 *,**	20	19	24	13 *,**	11 *,**	14 *	17	18	20
Hawaii	11 *,**	12 *,**	15	17	16	17	12 *,**	15	17	16	16	16
Idaho	20 *,**	24 *,**	—	28	27	30	16 *,**	19 *,**	—	26	25	27
Illinois	15 *,**	—	—	26	24 *	31	14 *,**	—	—	28	28	28
Indiana	19 *,**	22 *,**	24 *,**	35	33	33	14 *,**	18 *,**	23 *	27	26	29
Iowa	29 *,**	33	31	—	—	35	22 *,**	30	32	—	—	31
Kansas	—	—	—	37	35	34	—	—	—	32	32	34
Kentucky	11 *,**	15 *,**	17 *,**	23	22	25	9 *,**	13 *,**	15 *,**	18	18	23
Louisiana	7 *,**	7 *,**	8 *,**	14 *	12 *,**	19	4 *,**	7 *,**	7 *,**	10 *	10 *	15
Maine	—	27	33	34	32	31	—	24	29	30	29	28
Maryland	17 *,**	21 *,**	26	29	27 *	33	16 *,**	19 *,**	23	29	27	27
Massachusetts	—	26 *,**	29 *,**	34 *,**	31 *,**	42	—	21 *,**	26 *,**	30	29 *	35
Michigan	17 *,**	21 *,**	30	30	29	30	15 *,**	17 *,**	27	27	28	26
Minnesota	25 *,**	32 *,**	36 *	40	39	43	22 *,**	31 *,**	33 *,**	39	38	44
Mississippi	—	7 *,**	7 *,**	10 *	10 *	14	—	6 *,**	7 *,**	7 *	7 *	11
Missouri	—	21 *,**	23 *,**	24 *	23 *,**	30	—	18 *,**	21 *,**	20 *	19 *	26
Montana	31	—	33	38	37	36	22 *,**	—	31	37	36	34
Nebraska	26 *,**	28 *,**	32	34	33	35	23 *,**	25	30	27	27	30
Nevada	—	—	—	21	20	21	—	—	—	18	17	19
New Hampshire	20 *,**	26 *,**	—	—	—	36	21 *,**	24 *,**	—	—	—	33
New Jersey	23 *,**	26 *,**	—	—	—	34	20 *,**	21 *,**	—	—	—	33
New Mexico	12 *,**	13	15	14	13	16	8 *,**	9 *,**	14	12	12	15
New York	17 *,**	21 *,**	24 *,**	29	27 *	33	14 *,**	19 *,**	20 *,**	23 *	22 *,**	31
North Carolina	9 *,**	14 *,**	23 *,**	31	28	32	8 *,**	10 *,**	18 *,**	29	26 *	32
North Dakota	30 *,**	31 *,**	34	32	31 *,**	37	24 *,**	28 *,**	32	31	30 *	36
Ohio	17 *,**	19 *,**	—	33	32	32	13 *,**	17 *,**	—	29	29	29
Oklahoma	16 *,**	18	—	21	20	22	11 *,**	15	—	17	17	18
Oregon	23 *,**	—	26 *,**	34	34	33	18 *,**	—	26	29	28	30
Pennsylvania	20 *,**	24 *,**	—	—	—	33	14 *,**	19 *,**	—	—	—	27
Rhode Island	16 *,**	17 *,**	22	24	21 *,**	26	13 *,**	15 *,**	19	23	22	22
South Carolina	—	16 *,**	16 *,**	18 *,**	17 *,**	29	—	14 *,**	12 *,**	18 *	17 *,**	23
South Dakota	—	—	—	—	—	35	—	—	—	—	—	34
Tennessee	—	14 *,**	16 *,**	20	19	22	—	9 *,**	14 *,**	14 *	14 *	20
Texas	14 *,**	21 *,**	23	24	23	27	11 *,**	16 *,**	19	25	25	23
Utah	—	24 *,**	27 *,**	27 *	26 *,**	33	—	21 *,**	22 *,**	25	23 *	29
Vermont	—	—	28 *,**	33	31	35	—	—	26 *,**	32	30	35
Virginia	19 *,**	20 *,**	24 *,**	28 *	28 *	33	15 *,**	18 *,**	18 *,**	23 *	22 *	30
Washington	—	—	27 *,**	—	—	33	—	—	26 *,**	—	—	31
West Virginia	10 *,**	11 *,**	14 *,**	19	17	21	8 *,**	9 *,**	14 *	17	17	18
Wisconsin	24 *,**	28 *,**	33	—	—	36	22 *,**	26 *,**	31	—	—	34
Wyoming	21 *,**	21 *,**	24 *,**	26 *,**	24 *,**	34	16 *,**	21 *,**	20 *,**	24 *	23 *,**	30
Other jurisdictions												
District of Columbia	2 *,**	4	6	6	6	7	4	5	5	6	5	5
DDESS [2]	—	—	24	30	26	31	—	—	18	23	22	22
DoDDS [3]	—	—	25 *,**	28 *,**	28 *,**	37	—	—	21 *,**	25 *	25 *	32

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.
[3] Department of Defense Dependents Schools (Overseas).
NOTE: Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Race/Ethnicity

The average mathematics scores of the racial/ethnic groups in each participating jurisdiction are presented in table 3.13 for grade 4 and in table 3.14 for grade 8. At grade 4, average scores were higher in 2003 than in 2000 in all 43 jurisdictions with valid data for White students, 29 out of 35 jurisdictions for Black students, 21 out of 24 jurisdictions for Hispanic students, 9 out of 14 jurisdictions for Asian/Pacific Islander students, 1 out of 5 jurisdictions for American Indian/Alaska Native students, and 2 out of 2 jurisdictions for students identified as "Other."

At grade 4, average scores were higher in 2003 than in 1992 for White students in all 42 jurisdictions with valid data, for Black students in all 35 jurisdictions with valid data, for Hispanic students in 20 out of 21 jurisdictions, for Asian/Pacific Islander students in all 11 jurisdictions with valid data, for American Indian/Alaska Native students in 3 out of 5 jurisdictions, and for students identified as "Other" in the 1 jurisdiction with valid data.

Between 2000 and 2003 at grade 8, average scores increased for White students in 25 out of 42 jurisdictions, for Black students in 13 out of 31 jurisdictions, for Hispanic students in 4 out of 22 jurisdictions, for Asian/Pacific Islander students in 2 out of 12 jurisdictions, and for students identified as "Other" in 1 out of 2 jurisdictions.

Between 1990 and 2003 at grade 8, average scores increased for White students in all 37 jurisdictions with valid data, for Black students in 25 out of 29 jurisdictions, for Hispanic students in 12 out of 15 jurisdictions, for Asian/Pacific Islander students in 7 out of 10 jurisdictions, for American Indian/Alaska Native students in 5 out of 7 jurisdictions, and for "Other" students in the 1 jurisdiction with valid data in both years.

Table 3.13 **Average mathematics scale scores, by race/ethnicity, grade 4 public schools: By state, 1992–2003**

Grade 4	White					Black				
	Accommodations not permitted			Accommodations permitted		Accommodations not permitted			Accommodations permitted	
	1992	1996	2000	2000	2003	1992	1996	2000	2000	2003
Nation (public) [1]	227 *	230 *	234 *	233 *	243	192 *	199 *	204 *	203 *	216
Alabama	218 *,**	221 *,**	228 *	227 *,**	232	188 *,**	193 *,**	203 *,**	203 *,**	208
Alaska	—	232 *,**	—	—	242	—	206 *,**	—	—	221
Arizona	225 *,**	228 *,**	230 *,**	230 *,**	241	199 *,**	197 *,**	207	207	215
Arkansas	217 *,**	223 *,**	225 *,**	225 *,**	237	188 *,**	193 *,**	197 *,**	194 *,**	206
California	221 *,**	223 *,**	229 *,**	228 *,**	243	182 *,**	188 *,**	191 *,**	194 *,**	213
Colorado	227 *,**	232 *,**	—	—	243	199 *,**	196 *,**	—	—	217
Connecticut	235 *,**	240 *,**	242 *,**	242 *,**	250	195 *,**	205 *,**	211 *,**	210 *,**	217
Delaware	226 *,**	225 *,**	—	—	244	197 *,**	194 *,**	—	—	223
Florida	224 *,**	227 *,**	—	—	243	189 *,**	193 *,**	—	—	215
Georgia	228 *,**	224 *,**	231 *,**	230 *,**	241	196 *,**	201 *,**	205 *,**	204 *,**	217
Hawaii	222 *,**	226 *,**	228 *,**	227 *,**	238	204 *,**	208 *,**	207 *,**	211	221
Idaho	223 *,**	—	230 *,**	227 *,**	238	‡	—	‡	‡	‡
Illinois	—	—	236 *,**	235 *,**	244	—	—	203 *,**	202 *,**	210
Indiana	224 *,**	232 *,**	237 *,**	235 *,**	242	196 *,**	205 *,**	211	211	215
Iowa	231 *,**	230 *,**	235 *,**	233 *,**	241	‡	205 *,**	213	216	215
Kansas	—	—	237 *,**	237 *,**	246	—	—	204 *,**	208 *	217
Kentucky	217 *,**	222 *,**	224 *,**	223 *,**	231	200 *,**	203 *,**	199 *,**	196 *,**	214
Louisiana	218 *,**	221 *,**	230 *,**	230 *,**	242	187 *,**	194 *,**	204 *,**	205 *,**	213
Maine	232 *,**	232 *,**	231 *,**	230 *,**	238	‡	‡	‡	‡	‡
Maryland	228 *,**	234 *,**	237 *,**	236 *,**	244	195 *,**	198 *,**	202 *,**	202 *,**	216
Massachusetts	231 *,**	232 *,**	241 *,**	239 *,**	247	195 *,**	206 *,**	210 *,**	213 *,**	222
Michigan	227 *,**	232 *,**	239 *,**	237 *,**	244	185 *,**	198 *,**	199 *,**	199 *,**	209
Minnesota	231 *,**	235 *,**	239 *,**	238 *,**	246	193 *,**	196 *,**	209	208 *	219
Mississippi	219 *,**	221 *,**	224 *,**	222 *,**	236	189 *,**	196 *,**	198 *,**	198 *,**	212
Missouri	227 *,**	230 *,**	235 *,**	233 *,**	240	195 *,**	200 *,**	201 *,**	202 *,**	216
Montana	—	231 *,**	233 *,**	231 *,**	238	—	‡	‡	‡	‡
Nebraska	228 *,**	231 *,**	231 *,**	230 *,**	241	191 *,**	197 *,**	196 *,**	193 *,**	211
Nevada	—	224 *,**	227 *,**	226 *,**	236	—	195 *,**	207 *,**	203 *,**	215
New Hampshire	230 *,**	—	—	—	244	‡	—	—	—	‡
New Jersey	236 *,**	239 *,**	—	—	248	198 *,**	204 *,**	—	—	217
New Mexico	224 *,**	227 *,**	227 *,**	227 *,**	237	202 *,**	‡	‡	‡	216
New York	228 *,**	233 *,**	238 *,**	238 *,**	246	197 *,**	202 *,**	212 *,**	210 *,**	219
North Carolina	223 *,**	233 *,**	240 *,**	238 *,**	251	193 *,**	204 *,**	217 *,**	215 *,**	225
North Dakota	230 *,**	232 *,**	233 *,**	232 *,**	240	‡	‡	‡	‡	‡
Ohio	222 *,**	—	235 *,**	235 *,**	243	194 *,**	—	207 *,**	206 *,**	217
Oklahoma	224 *,**	—	229 *,**	229 *,**	235	201 *,**	—	205	205	211
Oregon	—	226 *,**	230 *,**	227 *,**	240	—	‡	‡	196	223
Pennsylvania	230 *,**	231 *,**	—	—	243	194 *,**	197 *,**	—	—	212
Rhode Island	221 *,**	225 *,**	233 *,**	232 *,**	239	191 *,**	194 *,**	200 *,**	200 *,**	210
South Carolina	225 *,**	224 *,**	233 *,**	233 *,**	246	194 *,**	198 *,**	203 *,**	203 *,**	222
South Dakota	—	—	—	—	241	—	—	—	—	‡
Tennessee	217 *,**	226 *,**	227 *,**	227 *,**	235	191 *,**	197 *,**	198 *,**	198 *,**	208
Texas	230 *,**	240 *,**	243 *,**	241 *,**	248	199 *,**	212 *,**	220 *,**	220 *,**	226
Utah	225 *,**	228 *,**	230 *,**	230 *,**	238	‡	‡	‡	‡	‡
Vermont	—	225 *,**	232 *,**	232 *,**	242	—	‡	‡	‡	‡
Virginia	228 *,**	230 *,**	239 *,**	237 *,**	246	199 *,**	203 *,**	211 *,**	211 *,**	223
Washington	—	229 *,**	—	—	242	—	202 *,**	—	—	222
West Virginia	216 *,**	224 *,**	226 *,**	224 *,**	231	201 *,**	205 *,**	203 *,**	205 *,**	221
Wisconsin	233 *,**	236 *,**	—	—	243	195 *,**	198 *,**	—	—	209
Wyoming	227 *,**	225 *,**	231 *,**	231 *,**	243	‡	‡	‡	‡	‡
Other jurisdictions										
District of Columbia	251 *,**	248 *,**	252 *,**	254 *	262	189 *,**	183 *,**	189 *,**	188 *,**	202
DDESS [2]	—	234 *,**	236 *,**	238 *,**	243	—	210 *,**	216 *,**	216 *,**	225
DoDDS [3]	—	230 *,**	233 *,**	231 *,**	241	—	208 *,**	212 *,**	212 *,**	227

See notes at end of table. ▶

Table 3.13 Average mathematics scale scores, by race/ethnicity, grade 4 public schools: By state, 1992–2003—Continued

Grade 4	Hispanic					Asian/Pacific Islander				
	Accommodations not permitted			Accommodations permitted		Accommodations not permitted			Accommodations permitted	
	1992	1996	2000	2000	2003	1992	1996	2000	2000	2003
Nation (public)[1]	201 *	204 *	209 *	207 *	221	231 *	225 *	‡	‡	246
Alabama	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Alaska	—	‡	—	—	228	—	220 *,**	—	—	230
Arizona	203 *,**	202 *,**	205 *,**	204 *,**	217	‡	‡	231 *,**	‡	244
Arkansas	‡	‡	‡	‡	221	‡	‡	‡	‡	‡
California	190 *,**	196 *,**	200 *,**	201 *,**	216	218 *,**	213 *,**	225 *,**	221 *,**	246
Colorado	204 *,**	208 *,**	—	—	217	223 *,**	224 *,**	—	—	242
Connecticut	200 *,**	201 *,**	210 *,**	210 *,**	223	‡	240	242	239 *,**	249
Delaware	‡	193 *,**	—	—	226	‡	‡	—	—	250
Florida	208 *,**	208 *,**	—	—	232	‡	‡	—	—	249
Georgia	‡	205 *,**	212	217	219	‡	‡	‡	‡	248
Hawaii	206 *,**	210	‡	‡	219	212 *,**	213 *,**	213 *,**	214 *,**	225
Idaho	199 *,**	—	208	207 *,**	217	‡	—	‡	‡	‡
Illinois	—	—	215	211	218	—	—	‡	‡	252
Indiana	‡	‡	‡	‡	226	‡	‡	‡	‡	‡
Iowa	‡	‡	‡	‡	222	‡	‡	‡	‡	‡
Kansas	—	—	215 *,**	213 *,**	230	—	—	‡	‡	‡
Kentucky	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Louisiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maine	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maryland	207 *,**	216	216 *,**	216 *,**	227	237 *,**	248	234 *,**	230 *,**	254
Massachusetts	197 *,**	206 *,**	208 *,**	203 *,**	222	229 *,**	236	237	237	248
Michigan	‡	205 *,**	‡	‡	223	‡	‡	‡	‡	248
Minnesota	‡	‡	‡	‡	220	208 *,**	219	232	213 *,**	229
Mississippi	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Missouri	‡	‡	‡	‡	220	‡	‡	‡	‡	‡
Montana	—	‡	‡	‡	236	—	‡	‡	‡	‡
Nebraska	203	198 *,**	203 *,**	205 *	213	‡	‡	‡	‡	‡
Nevada	—	204 *,**	208 *,**	207 *,**	216	—	221 *,**	225 *,**	227 *,**	237
New Hampshire	‡	—	—	—	225	‡	—	—	—	‡
New Jersey	204 *,**	206 *,**	—	—	224	241 *,**	243 *,**	—	—	256
New Mexico	203 *,**	204 *,**	208 *,**	207 *,**	217	‡	‡	‡	‡	‡
New York	197 *,**	201 *,**	209 *,**	207 *,**	221	236 *,**	230 *,**	242 *,**	241 *	250
North Carolina	‡	‡	‡	220 *,**	235	‡	‡	‡	‡	255
North Dakota	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Ohio	‡	—	‡	‡	225	‡	—	‡	‡	‡
Oklahoma	207 *,**	—	215	211 *,**	220	‡	—	‡	‡	247
Oregon	—	197 *,**	207 *,**	202 *,**	218	—	226 *,**	237	236	245
Pennsylvania	201 *,**	202 *,**	—	—	216	‡	‡	—	—	‡
Rhode Island	186 *,**	191 *,**	194 *,**	197 *,**	207	185 *,**	206 *,**	‡	217	225
South Carolina	‡	‡	‡	‡	232	‡	‡	‡	‡	‡
South Dakota	—	—	—	—	223	—	—	—	—	‡
Tennessee	‡	‡	‡	‡	218	‡	‡	‡	‡	‡
Texas	208 *,**	216 *,**	224 *,**	223 *,**	230	234 *,**	‡	247 *,**	248 *,**	258
Utah	206 *,**	204 *,**	204 *,**	205 *,**	216	‡	‡	217	219	224
Vermont	—	‡	‡	‡	‡	—	‡	‡	‡	‡
Virginia	‡	214 *,**	225	224	230	235 *,**	236 *,**	244	247	255
Washington	—	204 *,**	—	—	223	—	226 *,**	—	—	244
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	208 *,**	211	—	—	221	‡	‡	—	—	230
Wyoming	216 *,**	207 *,**	212 *,**	214 *,**	229	‡	‡	‡	‡	‡
Other jurisdictions										
District of Columbia	195 *,**	196	201	190 *,**	205	‡	‡	‡	‡	‡
DDESS[2]	—	215 *,**	221 *,**	218 *,**	236	—	‡	‡	‡	‡
DoDDS[3]	—	214 *,**	224 *,**	219 *,**	233	—	226 *,**	232 *,**	231 *,**	240

See notes at end of table. ▶

Table 3.13 Average mathematics scale scores, by race/ethnicity, grade 4 public schools: By state, 1992–2003—Continued

Grade 4	American Indian/Alaska Native					Other[4]				
	Accommodations not permitted			Accommodations permitted		Accommodations not permitted			Accommodations permitted	
	1992	1996	2000	2000	2003	1992	1996	2000	2000	2003
Nation (public)[1]	‡	‡	‡	207 *	224	‡	‡	‡	‡	236
Alabama	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Alaska	—	206 *,**	—	—	218	—	‡	—	—	‡
Arizona	190 *,**	197 *,**	192 *,**	203	210	‡	‡	‡	‡	‡
Arkansas	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
California	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Colorado	‡	‡	—	—	‡	‡	‡	—	—	‡
Connecticut	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Delaware	‡	‡	—	—	‡	‡	‡	—	—	‡
Florida	‡	‡	—	—	‡	‡	‡	—	—	247
Georgia	‡	‡	‡	‡	‡	‡	‡	‡	‡	231
Hawaii	‡	‡	‡	‡	‡	212 *,**	213 *,**	216 *,**	217 *,**	227
Idaho	‡	—	‡	‡	‡	‡	—	‡	‡	‡
Illinois	—	—	‡	‡	‡	—	—	‡	‡	‡
Indiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	235
Iowa	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Kansas	—	—	‡	‡	‡	—	—	‡	‡	‡
Kentucky	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Louisiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maine	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maryland	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Massachusetts	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Michigan	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Minnesota	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Mississippi	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Missouri	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Montana	—	206 *,**	210	208	217	—	‡	‡	‡	‡
Nebraska	‡	‡	‡	‡	219	‡	‡	‡	‡	‡
Nevada	—	208	‡	‡	215	—	‡	‡	‡	‡
New Hampshire	‡	—	—	—	‡	‡	—	—	—	‡
New Jersey	‡	‡	—	—	‡	‡	‡	—	—	‡
New Mexico	206	194 *,**	193 *,**	197 *,**	210	‡	‡	‡	‡	‡
New York	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
North Carolina	‡	‡	‡	‡	‡	‡	‡	‡	‡	246
North Dakota	210	205	206	205	215	‡	‡	‡	‡	‡
Ohio	‡	—	‡	‡	‡	‡	—	‡	‡	239
Oklahoma	212 *,**	—	223	221	225	‡	—	‡	‡	‡
Oregon	—	‡	‡	‡	‡	—	‡	‡	‡	‡
Pennsylvania	‡	‡	—	—	‡	‡	‡	—	—	‡
Rhode Island	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
South Carolina	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
South Dakota	—	—	—	—	217	—	—	—	—	‡
Tennessee	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Texas	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Utah	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Vermont	—	‡	‡	‡	‡	—	‡	‡	‡	‡
Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Washington	—	215 *,**	—	—	229	—	‡	—	—	‡
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	‡	‡	—	—	224	‡	‡	—	—	‡
Wyoming	205 *,**	‡	‡	‡	221	‡	‡	‡	‡	‡
Other jurisdictions										
District of Columbia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
DDESS[2]	—	‡	‡	‡	‡	—	‡	228	226	‡
DoDDS[3]	—	‡	‡	‡	‡	—	224 *,**	227 *,**	226 *,**	242

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
1 National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
2 Department of Defense Domestic Dependent Elementary and Secondary Schools.
3 Department of Defense Dependents Schools (Overseas).
4 "Other" comprises students whose race based on school records was "other race" or, if school data were missing, who self-reported their race as "multiracial" but not "Hispanic," or did not self-report racial/ethnic information.
NOTE: State-level data were not collected in 1990. Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1996, 2000, and 2003 Mathematics Assessments.

Table 3.14 Average mathematics scale scores, by race/ethnicity, grade 8 public schools: By state, 1990–2003

Grade 8	White						Black					
	Accommodations not permitted				Accommodations permitted		Accommodations not permitted				Accommodations permitted	
	1990	1992	1996	2000	2000	2003	1990	1992	1996	2000	2000	2003
Nation (public) [1]	269 *	276 *	280 *	284 *	283 *	287	236 *	236 *	241 *	245 *	243 *	252
Alabama	262 *,**	264 *,**	270	274	275	274	232 *,**	230 *,**	232 *,**	238	240	240
Alaska	—	—	285 *,**	—	—	290	—	—	‡	—	—	263
Arizona	270 *,**	274 *,**	277 *,**	283	281	284	245 *,**	253	256	247	244	256
Arkansas	264 *,**	264 *,**	269 *,**	271 *	268 *,**	275	231 *,**	229 *,**	235	233 *	227 *,**	239
California	270 *,**	275 *,**	277 *,**	278	277	283	231 *,**	233 *,**	244	241	235	246
Colorado	273 *,**	278 *,**	282 *,**	—	—	292	238 *,**	242 *,**	255	—	—	255
Connecticut	277 *,**	283 *,**	287 *,**	292	291	293	240 *,**	242 *,**	244 *,**	246 *,**	247 *,**	255
Delaware	268 *,**	272 *,**	275 *,**	—	—	287	241 *,**	241 *,**	244 *,**	—	—	260
Florida	265 *,**	272 *,**	277 *,**	—	—	286	231 *,**	236 *,**	235 *,**	—	—	249
Georgia	270 *,**	270 *,**	276 *,**	279	279 *,**	284	239 *,**	241 *,**	240 *,**	246	244 *,**	250
Hawaii	259 *,**	263 *,**	276	274	274	273	‡	‡	‡	‡	‡	‡
Idaho	273 *,**	277 *,**	—	281	280 *,**	284	‡	‡	—	‡	‡	‡
Illinois	270 *,**	—	—	287	285	289	232 *,**	—	—	256	252	249
Indiana	270 *,**	273 *,**	280 *,**	286	285	286	242	241 *,**	247	260	256	251
Iowa	279 *,**	284	285	—	—	287	‡	‡	256	—	—	257
Kansas	—	—	—	287	287	290	—	—	—	259	245	252
Kentucky	259 *,**	264 *,**	269 *,**	274	272 *,**	277	240 *,**	241 *,**	247	251	250	250
Louisiana	259 *,**	263 *,**	266 *,**	275 *,**	275 *,**	281	229 *,**	232 *,**	235 *,**	239 *,**	239 *,**	250
Maine	—	279 *,**	284	284	281	282	—	270	‡	‡	‡	‡
Maryland	272 *,**	278 *,**	284	290	286	289	236 *,**	239 *,**	241 *,**	249 *,**	244 *,**	256
Massachusetts	—	277 *,**	283 *,**	288 *,**	284 *,**	292	—	243 *,**	250	254	258	260
Michigan	270 *,**	276 *,**	284	286	285	286	231 *,**	233 *,**	245	242	239	245
Minnesota	277 *,**	284 *,**	287 *,**	290 *,**	290 *,**	295	236	‡	248	‡	‡	251
Mississippi	—	262 *,**	265 *,**	268 *,**	268 *,**	275	—	230 *,**	234 *,**	236 *,**	237 *,**	246
Missouri	—	275 *,**	278 *,**	279 *,**	277 *,**	284	—	242 *,**	244	242	238 *,**	250
Montana	282 *,**	—	286 *,**	290	288	289	‡	—	‡	‡	‡	‡
Nebraska	279 *,**	281 *,**	285	285	285	287	234	237	254	246	247	247
Nevada	—	—	—	276	273 *,**	278	—	—	—	250	244	248
New Hampshire	273 *,**	278 *,**	—	—	—	287	‡	‡	—	—	—	‡
New Jersey	279 *,**	283 *,**	—	—	—	292	241 *,**	242 *,**	—	—	—	253
New Mexico	271 *,**	272 *,**	277 *,**	276 *,**	274 *,**	282	‡	‡	‡	‡	‡	254
New York	273 *,**	280 *,**	283 *,**	289	284 *,**	293	234 *,**	233 *,**	243 *,**	255	251	255
North Carolina	261 *,**	266 *,**	277 *,**	290	287 *,**	294	231 *,**	238 *,**	247 *,**	257	252 *,**	260
North Dakota	284 *,**	284 *,**	286 *,**	285 *,**	285 *,**	290	‡	‡	‡	‡	‡	‡
Ohio	268 *,**	274 *,**	—	287	285	287	233 *,**	234 *,**	—	255	251	257
Oklahoma	268 *,**	272 *,**	—	277	274 *,**	278	236 *,**	238 *,**	—	248	245	249
Oregon	273 *,**	—	278 *,**	283	284	284	‡	—	‡	‡	‡	265
Pennsylvania	272 *,**	276 *,**	—	—	—	285	236 *,**	238	—	—	—	247
Rhode Island	265 *,**	271 *,**	275 *,**	279	275 *,**	280	228 *,**	240	237	244	240	244
South Carolina	—	273 *,**	273 *,**	279 *,**	277 *,**	291	—	241 *,**	244 *,**	248 *,**	247 *,**	258
South Dakota	—	—	—	—	—	288	—	—	—	—	—	‡
Tennessee	—	266 *,**	270 *,**	271 *,**	269 *,**	277	—	234 *,**	234	236	235	242
Texas	272 *,**	278 *,**	284 *,**	287	286	290	234 *,**	243 *,**	249 *,**	252	250	260
Utah	—	276 *,**	278 *,**	278 *,**	277 *,**	285	—	‡	‡	‡	‡	‡
Vermont	—	—	280 *,**	284	281 *,**	286	—	—	‡	‡	‡	‡
Virginia	271 *,**	275 *,**	279 *,**	285	283 *,**	290	242 *,**	245 *,**	244 *,**	253 *,**	253 *,**	262
Washington	—	—	281 *,**	—	—	285	—	—	243 *,**	—	—	262
West Virginia	256 *,**	260 *,**	265 *,**	271	267 *	271	234 *,**	242	245	251	247	253
Wisconsin	279 *,**	282 *,**	288	—	—	290	236	245	240	—	—	241
Wyoming	274 *,**	277 *,**	277 *,**	279 *,**	278 *,**	286	‡	‡	‡	‡	‡	‡
Other jurisdictions												
District of Columbia	‡	‡	‡	306	300	‡	229 *,**	232 *,**	230 *,**	231 *,**	231 *,**	240
DDESS [2]	—	—	282 *,**	287	286 *,**	294	—	—	253 *,**	265	258 *	268
DoDDS [3]	—	—	283 *,**	286 *,**	286 *,**	292	—	—	255 *,**	260 *,**	260 *,**	270

See notes at end of table. ▶

Table 3.14 **Average mathematics scale scores, by race/ethnicity, grade 8 public schools: By state, 1990–2003—Continued**

Grade 8	Hispanic						Asian/Pacific Islander					
	Accommodations not permitted				Accommodations permitted		Accommodations not permitted				Accommodations permitted	
	1990	1992	1996	2000	2000	2003	1990	1992	1996	2000	2000	2003
Nation (public) [1]	245 *	247 *	250 *	252 *	252 *	258	275 *	290	‡	286	287	289
Alabama	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Alaska	—	—	‡	—	—	263	—	—	‡	—	—	280
Arizona	241 *,**	247 *,**	248 *,**	250 *	248 *,**	258	‡	‡	‡	‡	‡	‡
Arkansas	‡	‡	‡	‡	‡	248	‡	‡	‡	‡	‡	‡
California	236 *,**	239 *,**	245	245	242	250	267 *,**	277	278	282	283	287
Colorado	247 *,**	252 *,**	255	—	—	259	‡	‡	283	—	—	290
Connecticut	235 *,**	239 *,**	251 *,**	251	249 *	259	‡	‡	281	‡	‡	296
Delaware	‡	‡	‡	—	—	257	‡	‡	‡	—	—	‡
Florida	246 *,**	246 *,**	254 *,**	—	—	264	‡	‡	‡	—	—	287
Georgia	‡	‡	‡	‡	‡	262	‡	‡	‡	‡	‡	286
Hawaii	‡	‡	253	‡	‡	263	250 *,**	257 *,**	260 *,**	260 *	260	265
Idaho	250	255	—	249	250	251	‡	‡	—	‡	‡	‡
Illinois	238 *,**	—	—	259	258	259	279 *,**	—	—	‡	‡	302
Indiana	‡	‡	‡	‡	‡	261	‡	‡	‡	‡	‡	‡
Iowa	‡	‡	‡	—	—	255	‡	‡	‡	—	—	‡
Kansas	—	—	—	259	263	263	—	—	—	‡	‡	284
Kentucky	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Louisiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maine	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Maryland	254	‡	‡	272	263	262	290	284 *,**	309	299	297	302
Massachusetts	—	239 *,**	239 *,**	253	246	255	—	‡	277 *,**	295	292	304
Michigan	‡	252	‡	‡	‡	267	‡	‡	‡	‡	‡	‡
Minnesota	‡	‡	‡	‡	‡	262	267 *,**	‡	277	‡	‡	284
Mississippi	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Missouri	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Montana	‡	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡
Nebraska	‡	256	260	247	242	255	‡	‡	‡	‡	‡	‡
Nevada	—	—	—	250	249	250	—	—	—	278	273	280
New Hampshire	‡	‡	—	—	—	‡	‡	‡	—	—	—	‡
New Jersey	242 *,**	245 *,**	—	—	—	262	296	299	—	—	—	306
New Mexico	247 *,**	248 *,**	252	251	251	254	‡	‡	‡	‡	‡	‡
New York	238 *,**	241 *,**	244 *,**	257	251 *	262	274 *,**	281	276	287	280	290
North Carolina	‡	‡	‡	‡	‡	263	‡	‡	‡	‡	‡	297
North Dakota	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Ohio	‡	‡	—	‡	‡	270	‡	‡	—	‡	‡	‡
Oklahoma	‡	‡	—	255	260	258	‡	‡	—	‡	‡	‡
Oregon	256	—	257	257	248	258	276 *,**	—	288	279	285	292
Pennsylvania	‡	‡	—	—	—	253	‡	‡	—	—	—	‡
Rhode Island	227 *,**	227 *,**	238	245	240	245	‡	‡	263	272	267	265
South Carolina	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
South Dakota	—	—	—	—	—	‡	—	—	—	—	—	‡
Tennessee	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Texas	245 *,**	249 *,**	255 *,**	265	262	267	286 *,**	301	281	292	292	303
Utah	—	253	257	246	244	249	—	‡	‡	‡	262 *	275
Vermont	—	—	‡	‡	‡	‡	—	—	‡	‡	‡	‡
Virginia	‡	‡	‡	274	263	268	294	280 *,**	279 *,**	301	293	297
Washington	—	—	248 *,**	—	—	263	—	—	272	—	—	285
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	‡	‡	‡	—	—	262	‡	‡	‡	—	—	273
Wyoming	257 *,**	262	256 *	254 *	257	265	‡	‡	‡	‡	‡	‡
Other jurisdictions												
District of Columbia	‡	250	226 *,**	228	236	246	‡	‡	‡	‡	‡	‡
DDESS [2]	—	—	264	270	265	276	—	—	‡	‡	‡	‡
DoDDS [3]	—	—	268 *,**	271 *	270 *	280	—	—	279 *	280 *	278 *,**	288

See notes at end of table. ▶

Table 3.14 Average mathematics scale scores, by race/ethnicity, grade 8 public schools: By state, 1990–2003—Continued

Grade 8	American Indian/Alaska Native						Other[4]					
	Accommodations not permitted				Accommodations permitted		Accommodations not permitted				Accommodations permitted	
	1990	1992	1996	2000	2000	2003	1990	1992	1996	2000	2000	2003
Nation (public)[1]	‡	‡	‡	264	263	265	‡	258 *	‡	‡	‡	276
Alabama	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Alaska	—	—	255	—	—	259	—	—	‡	—	—	‡
Arizona	235 *,**	251	252	‡	‡	254	‡	‡	‡	‡	‡	‡
Arkansas	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
California	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Colorado	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Connecticut	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Delaware	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Florida	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Georgia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Hawaii	‡	‡	‡	‡	‡	‡	250 *,**	258	257	264	262	264
Idaho	‡	‡	—	‡	‡	‡	‡	‡	—	‡	‡	‡
Illinois	‡	—	—	‡	‡	‡	‡	—	—	‡	‡	‡
Indiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Iowa	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Kansas	—	—	—	‡	‡	‡	—	—	—	‡	‡	‡
Kentucky	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Louisiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maine	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Maryland	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Massachusetts	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Michigan	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Minnesota	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Mississippi	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Missouri	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Montana	259	—	264	257	257	260	‡	—	‡	‡	‡	‡
Nebraska	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Nevada	—	—	—	‡	252	‡	—	—	—	‡	‡	‡
New Hampshire	‡	‡	—	—	—	‡	‡	‡	—	—	—	‡
New Jersey	‡	‡	—	—	—	‡	‡	‡	—	—	—	‡
New Mexico	237 *,**	246	252	241	244	245	‡	‡	‡	‡	‡	‡
New York	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
North Carolina	229 *,**	‡	‡	‡	‡	259	‡	‡	‡	‡	‡	‡
North Dakota	241 *,**	263	253	257	243	261	‡	‡	‡	‡	‡	‡
Ohio	‡	‡	—	‡	‡	‡	‡	‡	—	‡	‡	‡
Oklahoma	253 *,**	262	—	267	267	265	‡	‡	—	‡	‡	279
Oregon	‡	—	‡	‡	‡	263	‡	—	‡	‡	‡	‡
Pennsylvania	‡	‡	—	—	—	‡	‡	‡	—	—	—	‡
Rhode Island	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
South Carolina	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
South Dakota	—	—	—	—	—	255	—	—	—	—	—	‡
Tennessee	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Texas	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Utah	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Vermont	—	—	‡	‡	‡	‡	—	—	‡	‡	‡	‡
Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Washington	—	—	257	—	—	264	—	—	‡	—	—	‡
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Wyoming	256	‡	246 *	‡	245	261	275	‡	‡	‡	‡	‡
Other jurisdictions												
District of Columbia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
DDESS[2]	—	—	‡	‡	‡	‡	—	—	‡	‡	‡	‡
DoDDS[3]	—	—	‡	‡	‡	‡	—	—	279 *,**	281 *	280 *,**	289

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.
[3] Department of Defense Dependents Schools (Overseas).
[4] "Other" comprises students whose race based on school records was "other race" or, if school data were missing, who self-reported their race as "multiracial" but not "Hispanic," or did not self-report racial/ethnic information.
NOTE: Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

The percentages of students who performed at or above *Proficient* in the different racial/ethnic subgroups across jurisdictions are presented in tables 3.15 (grade 4) and 3.16 (grade 8). The percentage of fourth-graders performing at or above *Proficient* increased since 2000 for White students in 41 out of 43 jurisdictions, for Black students in 16 out of 35 jurisdictions, for Hispanic students in 12 out of 24 jurisdictions, for Asian/Pacific Islander students in 6 out of 14 jurisdictions, and for students identified as "Other" in the 2 jurisdictions with valid data.

The percentage of fourth-graders performing at or above *Proficient* increased between 1992 and 2003 for White students in 41 of 42 jurisdictions, for Black students in 28 of 35 jurisdictions, for Hispanic students in 14 of 21 jurisdictions, for Asian/Pacific Islander students in 10 of 11 jurisdictions, for American Indian/Alaska Native students in 2 out of 5 jurisdictions, and for students identified as "Other" in the 1 jurisdiction with valid data.

The percentage of eighth-graders performing at or above *Proficient* increased between 2000 and 2003 for White students in 17 out of 42 jurisdictions, for Black students in 5 out of 31 jurisdictions, for Asian/Pacific Islander students in 1 out of 12 jurisdictions, and those classified as "Other" in 1 out of 2 jurisdictions.

The percentage of eighth-grade students performing at or above *Proficient* increased between 1990 and 2003 for White students in all 37 jurisdictions with valid data, for Black students in 14 out of 29 jurisdictions, for Hispanic students in 11 out of 15 jurisdictions, for Asian/Pacific Islander students in 5 out of 10 jurisdictions, and for American Indian/Alaska Native students in 2 out of 7 jurisdictions.

Table 3.15 Percentage of students at or above *Proficient* in mathematics, by race/ethnicity, grade 4 public schools: By state, 1992–2003

Grade 4	White					Black				
	Accommodations not permitted			Accommodations permitted		Accommodations not permitted			Accommodations permitted	
	1992	1996	2000	2000	2003	1992	1996	2000	2000	2003
Nation (public) [1]	22 *	25 *	32 *	30 *	42	2 *	4 *	5 *	4 *	10
Alabama	15 *,**	15 *,**	21	20 *,**	27	1 *,**	2 *,**	4	4	5
Alaska	—	27 *,**	—	—	41	—	4 *,**	—	—	15
Arizona	19 *,**	21 *,**	25 *,**	24 *,**	39	4	5	6	6	11
Arkansas	13 *,**	17 *,**	17 *,**	18 *,**	34	1 *,**	2 *,**	2 *	2 *,**	5
California	18 *,**	17 *,**	25 *,**	24 *,**	42	2 *,**	2 *,**	2 *,**	3 *,**	9
Colorado	21 *,**	27 *,**	—	—	44	3 *,**	3 *,**	—	—	12
Connecticut	30 *,**	38 *,**	40 *,**	39 *,**	53	2 *,**	5 *,**	8	7	10
Delaware	22 *,**	21 *,**	—	—	43	3 *,**	4 *,**	—	—	12
Florida	18 *,**	21 *,**	—	—	43	2 *,**	3 *,**	—	—	8
Georgia	23 *,**	19 *,**	28 *,**	27 *,**	40	3 *,**	3 *,**	6 *,**	5 *,**	11
Hawaii	21 *,**	24 *,**	23 *,**	25 *,**	35	5	10	5	6	16
Idaho	17 *,**	—	24 *,**	21 *,**	34	‡	—	‡	‡	‡
Illinois	—	—	32 *,**	30 *,**	44	—	—	4 *	4	7
Indiana	17 *,**	26 *,**	33 *,**	32 *,**	40	1 *,**	4	11	10	7
Iowa	27 *,**	23 *,**	29 *,**	27 *,**	39	‡	5	10	11	9
Kansas	—	—	35 *,**	34 *,**	47	—	—	4 *,**	4 *,**	13
Kentucky	13 *,**	17 *,**	19 *,**	19 *,**	24	3	4	2 *,**	2 *,**	8
Louisiana	13 *,**	13 *,**	22 *,**	22 *,**	39	2 *,**	1 *,**	4	4	6
Maine	27 *,**	28 *,**	25 *,**	23 *,**	34	‡	‡	‡	‡	‡
Maryland	26 *,**	32 *,**	35 *,**	34 *,**	44	3 *,**	4 *,**	6 *,**	6 *,**	11
Massachusetts	26 *,**	27 *,**	39 *,**	36 *,**	49	1 **	6	7	7	13
Michigan	22 *,**	27 *,**	36 *,**	34 *,**	43	2 *,**	3	4	3	7
Minnesota	28 *,**	32 *,**	37 *,**	36 *,**	47	4 *,**	3 *,**	9	12	16
Mississippi	13 *,**	14 *,**	16 *,**	15 *,**	30	1 *,**	2 *,**	2 *,**	2 *,**	6
Missouri	22 *,**	23 *,**	28 *,**	27 *,**	35	1 *,**	2 *,**	4 *,**	4 *,**	9
Montana	—	25 *,**	27	26 *,**	34	—	‡	‡	‡	‡
Nebraska	24 *,**	27 *,**	27 *,**	27 *,**	39	3	5	5	5	7
Nevada	—	18 *,**	21 *,**	21 *,**	32	—	2 *,**	6	4 *,**	10
New Hampshire	25 *,**	—	—	—	43	‡	—	—	—	‡
New Jersey	31 *,**	35 *,**	—	—	51	3 *,**	3 *,**	—	—	11
New Mexico	18 *,**	22 *,**	22 *,**	22 *,**	33	3	‡	‡	‡	10
New York	23 *,**	27 *,**	34 *,**	32 *,**	45	3 *,**	5 *,**	6 *,**	5 *,**	12
North Carolina	18 *,**	29 *,**	37 *,**	34 *,**	55	2 *,**	4 *,**	9 *,**	9 *,**	14
North Dakota	23 *,**	25 *,**	27 *,**	26 *,**	37	‡	‡	‡	‡	‡
Ohio	18 *,**	—	31 *,**	29 *,**	42	3 *,**	—	2 *,**	2 *,**	10
Oklahoma	16 *,**	—	21 *,**	20 *,**	29	2	—	3	4	6
Oregon	—	22 *,**	25 *,**	24 *,**	36	—	‡	‡	6	20
Pennsylvania	26 *,**	24 *,**	—	—	44	2 *,**	2 *,**	—	—	8
Rhode Island	16 *,**	20 *,**	29 *,**	28 *,**	37	2	3	4	3	7
South Carolina	20 *,**	19 *,**	28 *,**	28 *,**	46	2 *,**	2 *,**	4 *,**	4 *,**	13
South Dakota	—	—	—	—	38	—	—	—	—	‡
Tennessee	13 *,**	20 *,**	23 *,**	23 *,**	30	1 *,**	3 *,**	4	4	6
Texas	24 *,**	38 *,**	41	39 *,**	49	3 *,**	7 *,**	11	10	15
Utah	20 *,**	24 *,**	26 *,**	25 *,**	35	‡	‡	‡	‡	‡
Vermont	—	23 *,**	30 *,**	29 *,**	42	—	‡	‡	‡	‡
Virginia	24 *,**	25 *,**	34 *,**	32 *,**	46	4 *,**	4 *,**	5 *,**	5 *,**	13
Washington	—	23 *,**	—	—	40	—	5 *,**	—	—	17
West Virginia	13 *,**	19 *,**	19 *,**	18 *,**	24	1 **	6	5	5	13
Wisconsin	27 *,**	31 *,**	—	—	43	2 *,**	4	—	—	8
Wyoming	20 *,**	20 *,**	27 *,**	27 *,**	42	‡	‡	‡	‡	‡
Other jurisdictions										
District of Columbia	59	55 *,**	57	62	71	2 *,**	2 *,**	2	2 *,**	4
DDESS [2]	—	29 *,**	33	33	40	—	7	11	10	13
DoDDS [3]	—	25 *,**	29 *,**	27 *,**	38	—	6 *,**	7 *,**	7 *,**	15

See notes at end of table. ▶

Table 3.15 Percentage of students at or above *Proficient* in mathematics, by race/ethnicity, grade 4 public schools: By state, 1992–2003—Continued

Grade 4	Hispanic					Asian/Pacific Islander				
	Accommodations not permitted			Accommodations permitted		Accommodations not permitted			Accommodations permitted	
	1992	1996	2000	2000	2003	1992	1996	2000	2000	2003
Nation (public)[1]	5 *	7 *	8 *	7 *	15	27 *	20 *	‡	‡	48
Alabama	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Alaska	—	‡	—	—	24	—	15 *,**	—	—	27
Arizona	4 *,**	5 *,**	6 *,**	5 *,**	11	‡	‡	26	‡	41
Arkansas	‡	‡	‡	‡	15	‡	‡	‡	‡	‡
California	4 *,**	3 *,**	4 *,**	4 *,**	11	18 *,**	16 *,**	23 *,**	19 *,**	49
Colorado	5 *,**	6 *,**	—	—	13	23 *,**	19 *,**	—	—	44
Connecticut	5 *,**	5 *,**	6 *,**	6 *,**	15	‡	42	41	36	52
Delaware	‡	6	—	—	17	‡	‡	—	—	59
Florida	7 *,**	7 *,**	—	—	27	‡	‡	—	—	53
Georgia	‡	3 **	11	12	13	‡	‡	‡	‡	53
Hawaii	6	11	‡	‡	17	13 *,**	15 *,**	12 *,**	12 *,**	21
Idaho	3 *,**	—	6	6	11	‡	—	‡	‡	‡
Illinois	—	—	7 *	6 *,**	13	—	—	‡	‡	58
Indiana	‡	‡	‡	‡	18	‡	‡	‡	‡	‡
Iowa	‡	‡	‡	‡	14	‡	‡	‡	‡	‡
Kansas	—	—	11	13	19	—	—	‡	‡	‡
Kentucky	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Louisiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maine	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maryland	7 *,**	16	11	11 *	21	34 *,**	50	31 *,**	27 *,**	58
Massachusetts	4 **	5 **	7	7	13	30	32	39	36	49
Michigan	‡	7	‡	‡	17	‡	‡	‡	‡	47
Minnesota	‡	‡	‡	‡	14	11 *,**	17	30	12 *,**	27
Mississippi	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Missouri	‡	‡	‡	‡	14	‡	‡	‡	‡	‡
Montana	—	‡	‡	‡	25	—	‡	‡	‡	‡
Nebraska	6	6	5	4	9	‡	‡	‡	‡	‡
Nevada	—	6 *,**	7	7	10	—	17 *,**	21 *,**	22 *,**	34
New Hampshire	‡	—	—	—	19	‡	—	—	—	‡
New Jersey	5 *,**	5 *,**	—	—	18	40 *,**	41 *,**	—	—	61
New Mexico	5 *,**	5 *,**	6 *,**	6 *,**	10	‡	‡	‡	‡	‡
New York	4 *,**	7 *,**	4 *,**	6 *,**	15	36 *,**	28 *,**	36 *	36	51
North Carolina	‡	‡	‡	12 *,**	30	‡	‡	‡	‡	60
North Dakota	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Ohio	‡	—	‡	‡	16	‡	—	‡	‡	‡
Oklahoma	5	—	6	5	11	‡	—	‡	‡	45
Oregon	—	3 *,**	9	10	15	—	22 *,**	34	35	46
Pennsylvania	3	# **	—	—	12	‡	‡	—	—	‡
Rhode Island	1 **	2 **	3 *	3 *,**	6	1 **	11	‡	18	22
South Carolina	‡	‡	‡	‡	26	‡	‡	‡	‡	‡
South Dakota	—	—	—	—	20	—	—	—	—	‡
Tennessee	‡	‡	‡	‡	14	‡	‡	‡	‡	‡
Texas	6 *,**	11 *,**	14 *,**	14 *,**	21	30 *,**	‡	50	47	62
Utah	7	7	7	6	11	‡	‡	13	18	16
Vermont	—	‡	‡	‡	‡	—	‡	‡	‡	‡
Virginia	‡	9 *	17	16	20	26 *,**	34 *,**	46	46	60
Washington	—	8 *,**	—	—	18	—	20 *,**	—	—	44
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	7	5	—	—	13	‡	‡	—	—	26
Wyoming	10 *,**	5 *,**	9 *,**	9 *,**	20	‡	‡	‡	‡	‡
Other jurisdictions										
District of Columbia	3	7	7	6	7	‡	‡	‡	‡	‡
DDESS[2]	—	11 *,**	16	17	27	—	‡	‡	‡	‡
DoDDS[3]	—	10 *,**	15 *	12 *,**	25	—	22 *,**	27 *	26 *,**	38

See notes at end of table. ▶

Table 3.15 Percentage of students at or above *Proficient* in mathematics, by race/ethnicity, grade 4 public schools: By state, 1992–2003—Continued

Grade 4	American Indian/Alaska Native					Other[4]				
	Accommodations not permitted			Accommodations permitted		Accommodations not permitted			Accommodations permitted	
	1992	1996	2000	2000	2003	1992	1996	2000	2000	2003
Nation (public)[1]	‡	‡	‡	8 *	18	‡	‡	‡	‡	32
Alabama	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Alaska	—	8	—	—	13	—	‡	—	—	‡
Arizona	3	4	2	3	8	‡	‡	‡	‡	‡
Arkansas	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
California	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Colorado	‡	‡	—	—	‡	‡	‡	—	—	‡
Connecticut	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Delaware	‡	‡	—	—	‡	‡	‡	—	—	‡
Florida	‡	‡	—	—	‡	‡	‡	—	—	51
Georgia	‡	‡	‡	‡	‡	‡	‡	‡	‡	19
Hawaii	‡	‡	‡	‡	‡	13 *,**	15 *,**	14 *,**	14 *,**	25
Idaho	‡	—	‡	‡	‡	‡	—	‡	‡	‡
Illinois	—	—	‡	‡	‡	—	—	‡	‡	‡
Indiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	29
Iowa	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Kansas	—	—	‡	‡	‡	—	—	‡	‡	‡
Kentucky	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Louisiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maine	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maryland	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Massachusetts	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Michigan	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Minnesota	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Mississippi	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Missouri	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Montana	—	8	7	5	11	—	‡	‡	‡	‡
Nebraska	‡	‡	‡	‡	11	‡	‡	‡	‡	‡
Nevada	—	6	‡	‡	10	—	‡	‡	‡	‡
New Hampshire	‡	—	—	—	‡	‡	—	—	—	‡
New Jersey	‡	‡	—	—	‡	‡	‡	—	—	‡
New Mexico	3	2	3	3	7	‡	‡	‡	‡	‡
New York	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
North Carolina	‡	‡	‡	‡	‡	‡	‡	‡	‡	48
North Dakota	6	5	9	6	9	‡	‡	‡	‡	‡
Ohio	‡	—	‡	‡	‡	‡	—	‡	‡	34
Oklahoma	7 *,**	—	10	10	16	‡	—	‡	‡	‡
Oregon	—	‡	‡	‡	‡	—	‡	‡	‡	‡
Pennsylvania	‡	‡	—	—	‡	‡	‡	—	—	‡
Rhode Island	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
South Carolina	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
South Dakota	—	—	—	—	9	—	—	—	—	‡
Tennessee	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Texas	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Utah	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Vermont	—	‡	‡	‡	‡	—	‡	‡	‡	‡
Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Washington	—	12	—	—	24	—	‡	—	—	‡
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	‡	‡	—	—	17	‡	‡	—	—	‡
Wyoming	3 *,**	‡	‡	‡	16	‡	‡	‡	‡	‡
Other jurisdictions										
District of Columbia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
DDESS[2]	—	‡	‡	‡	‡	—	‡	21	19	‡
DoDDS[3]	—	‡	‡	‡	‡	—	19 *,**	21 *,**	19 *,**	37

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
The estimate rounds to zero.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
1 National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
2 Department of Defense Domestic Dependent Elementary and Secondary Schools.
3 Department of Defense Dependents Schools (Overseas).
4 "Other" comprises students whose race based on school records was "other race" or, if school data were missing, who self-reported their race as "multiracial" but not "Hispanic," or did not self-report racial/ethnic information.
NOTE: State-level data were not collected in 1990. Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1996, 2000, and 2003 Mathematics Assessments.

Table 3.16 **Percentage of students at or above *Proficient* in mathematics, by race/ethnicity, grade 8 public schools: By state, 1990–2003**

Grade 8	White						Black					
	Accommodations not permitted				Accommodations permitted		Accommodations not permitted				Accommodations permitted	
	1990	1992	1996	2000	2000	2003	1990	1992	1996	2000	2000	2003
Nation (public) [1]	18 *	25 *	29 *	33	33 *	36	5	2 *	4 *	5 *	5 *	7
Alabama	12 *,**	15 *,**	18	22	23	23	2	1 *,**	2	3	3	3
Alaska	—	—	36	—	—	41	—	—	‡	—	—	11
Arizona	18 *,**	20 *,**	24 *,**	29	28	32	4	5	6	7	7	7
Arkansas	12 *,**	13 *,**	16 *,**	18 *	18 *,**	24	1 *	2	2	2	2	3
California	18 *,**	23 *,**	26 *,**	26 *	26	34	2	2	7	4	4	6
Colorado	20 *,**	26 *,**	30 *,**	—	—	43	2	4	8	—	—	9
Connecticut	26 *,**	32 *,**	37 *,**	43	42	44	4	3	4	4	4	7
Delaware	18 *,**	20 *,**	24 *,**	—	—	35	4 *,**	3 *,**	3 *,**	—	—	8
Florida	16 *,**	21 *,**	25 *,**	—	—	34	2 *,**	3 *,**	2 *,**	—	—	7
Georgia	19 *,**	18 *,**	24 *,**	28	27	32	3 *,**	3 *,**	3 *,**	4	4	7
Hawaii	16 *,**	16 *,**	24	25	22	25	‡	‡	‡	‡	‡	‡
Idaho	19 *,**	23 *,**	—	29	28	31	‡	‡	—	‡	‡	‡
Illinois	18 *,**	—	—	37	35	40	3	—	—	7	8	6
Indiana	18 *,**	22 *,**	27 *,**	34	32	35	2	3	3	7	7	7
Iowa	26 *,**	32 *	32	—	—	35	‡	‡	11	—	—	11
Kansas	—	—	—	37	36	39	—	—	—	12	10	8
Kentucky	11 *,**	15 *,**	17 *,**	22	22	25	2	4	2	7	6	5
Louisiana	8 *,**	12 *,**	12 *,**	19 *,**	18 *,**	28	1 *,**	1 *,**	2 *,**	2 *	2 *	5
Maine	—	26	31	32	31	30	—	14	‡	‡	‡	‡
Maryland	22 *,**	28 *,**	34	40	38	40	3 *,**	3 *,**	4 *,**	7	6	9
Massachusetts	—	26 *,**	31 *,**	36 *,**	34 *,**	44	—	6	8	9	9	10
Michigan	18 *,**	23 *,**	34	34	34	35	1 *,**	2	5	2	3	4
Minnesota	24 *,**	32 *,**	36 *,**	41 *,**	41 *,**	49	7	‡	5	‡	‡	9
Mississippi	—	12 *,**	13 *,**	14 *,**	14 *,**	22	—	1 *,**	1 *,**	1 *	1 *	3
Missouri	—	22 *,**	24 *,**	25 *,**	25 *,**	32	—	3 *	4	4	3	6
Montana	28 *,**	—	35	40	39	37	‡	—	‡	‡	‡	‡
Nebraska	26 *,**	28 *,**	33	34	33	36	2	2	6	6	6	7
Nevada	—	—	—	25	24	27	—	—	—	6	5	9
New Hampshire	20 *,**	25 *,**	—	—	—	35	‡	‡	—	—	—	‡
New Jersey	26 *,**	30 *,**	—	—	—	42	4	3	—	—	—	7
New Mexico	19 *,**	18 *,**	26	24 *	23 *,**	31	‡	‡	‡	‡	‡	5
New York	21 *,**	27 *,**	30 *,**	35 *,**	33 *,**	44	3 *,**	4 *,**	4 *,**	9	8	10
North Carolina	12 *,**	16 *,**	27 *,**	40 *	37 *,**	44	2 *,**	3 *,**	5 *,**	7 *	7 *	11
North Dakota	29 *,**	30 *,**	35 *	33 *,**	33 *,**	39	‡	‡	‡	‡	‡	‡
Ohio	16 *,**	21 *,**	—	34	34	35	2 *,**	2 *,**	—	7	7	8
Oklahoma	16 *,**	19 *,**	—	22	22	25	# **	2	—	5	5	5
Oregon	21 *,**	—	28 *,**	34	34	35	‡	—	‡	‡	‡	17
Pennsylvania	20 *,**	24 *,**	—	—	—	35	3	4	—	—	—	4
Rhode Island	16 *,**	18 *,**	23 *,**	28	26	29	2	2	6	6	4	5
South Carolina	—	22 *,**	21 *,**	27 *,**	27 *,**	39	—	3 *,**	3 *,**	4 *,**	4 *,**	8
South Dakota	—	—	—	—	—	37	—	—	—	—	—	‡
Tennessee	—	14 *,**	18 *,**	21 *	20 *	26	—	2 *,**	3	3	3	5
Texas	20 *,**	27 *,**	32 *,**	35	35	38	2 *,**	5	4	7	7	8
Utah	—	23 *,**	26 *,**	27 *,**	27 *,**	34	—	‡	‡	‡	‡	‡
Vermont	—	—	28 *,**	33	31 *	35	—	—	‡	‡	‡	‡
Virginia	21 *,**	23 *,**	27 *,**	32 *	32 *	40	4 *,**	5 *,**	3 *,**	6 *	6 *	11
Washington	—	—	29 *,**	—	—	36	—	—	4 *,**	—	—	13
West Virginia	9 *,**	10 *,**	14 *,**	18	18	20	3	3	2	7	7	6
Wisconsin	25 *,**	29 *,**	36	—	—	40	3	7	2	—	—	5
Wyoming	20 *,**	22 *,**	23 *,**	26 *,**	25 *,**	35	‡	‡	‡	‡	‡	‡
Other jurisdictions												
District of Columbia	‡	‡	‡	64	56	‡	1 *,**	2	3	3	3	3
DDESS [2]	—	—	31	36	36	42	—	—	8	15	12	10
DoDDS [3]	—	—	30 *,**	34 *,**	34 *	42	—	—	7 *,**	9 *	10	15

See notes at end of table. ▶

Table 3.16 Percentage of students at or above *Proficient* in mathematics, by race/ethnicity, grade 8 public schools: By state, 1990–2003—Continued

Grade 8	Hispanic						Asian/Pacific Islander					
	Accommodations not permitted				Accommodations permitted		Accommodations not permitted				Accommodations permitted	
	1990	1992	1996	2000	2000	2003	1990	1992	1996	2000	2000	2003
Nation (public) [1]	7	6 *	8	8	8 *	11	30	43	‡	40	40	42
Alabama	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Alaska	—	—	‡	—	—	11	—	—	‡	—	—	29
Arizona	3 *,**	5	5 *,**	7	6	9	‡	‡	‡	‡	‡	‡
Arkansas	‡	‡	‡	‡	‡	7	‡	‡	‡	‡	‡	‡
California	3 *,**	3 *,**	4 *,**	7	6	8	19 *,**	30	31	34	34	39
Colorado	4 *,**	6 *,**	8	—	—	12	‡	‡	36	—	—	38
Connecticut	2 *,**	3 *,**	7	7	7	11	‡	‡	33	‡	‡	51
Delaware	‡	‡	‡	—	—	11	‡	‡	‡	—	—	‡
Florida	7 *,**	5 *,**	8 *,**	—	—	16	‡	‡	‡	—	—	41
Georgia	‡	‡	‡	‡	‡	14	‡	‡	‡	‡	‡	40
Hawaii	‡	‡	10	‡	‡	16	11 *,**	14	15	15	15	15
Idaho	8	8	—	8	7	7	‡	‡	—	‡	‡	‡
Illinois	3 *,**	—	—	9	11	9	31 *,**	—	—	‡	‡	58
Indiana	‡	‡	‡	‡	‡	9	‡	‡	‡	‡	‡	‡
Iowa	‡	‡	‡	—	—	10	‡	‡	‡	—	—	‡
Kansas	—	—	—	13	12	16	—	—	—	‡	‡	34
Kentucky	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Louisiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maine	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Maryland	11	‡	‡	22	20	15	45	37 *	65	52	49	56
Massachusetts	—	3 *,**	3 *	10	8	9	—	‡	28 *,**	50	44	57
Michigan	‡	10	‡	‡	‡	14	‡	‡	‡	‡	‡	‡
Minnesota	‡	‡	‡	‡	‡	16	19	‡	31	‡	‡	32
Mississippi	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Missouri	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Montana	‡	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡
Nebraska	‡	10	10	5	5	10	‡	‡	‡	‡	‡	‡
Nevada	—	—	—	8	8	7	—	—	—	29	25	31
New Hampshire	‡	‡	—	—	—	‡	‡	‡	—	—	—	‡
New Jersey	4 *,**	4 *,**	—	—	—	14	53	52	—	—	—	61
New Mexico	4 *,**	4 *,**	6	6	5	7	‡	‡	‡	‡	‡	‡
New York	5 *,**	4 *,**	5 *,**	11	10	16	26 *	35	31	39	37	41
North Carolina	‡	‡	‡	‡	‡	16	‡	‡	‡	‡	‡	48
North Dakota	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Ohio	‡	‡	—	‡	‡	18	‡	‡	—	‡	‡	‡
Oklahoma	‡	‡	—	11	13	9	‡	‡	—	‡	‡	‡
Oregon	12	—	10	11	6	12	29	—	38	34	38	41
Pennsylvania	‡	‡	—	—	—	6	‡	‡	—	—	—	‡
Rhode Island	1 *,**	2 *	3	3	3	5	‡	‡	16	20	20	20
South Carolina	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
South Dakota	—	—	—	—	—	‡	—	—	—	—	—	‡
Tennessee	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Texas	4 *,**	6 *,**	7 *,**	13	13	14	34 *,**	58	40	43	44	58
Utah	—	7	8	6	6	7	—	‡	‡	‡	20	25
Vermont	—	—	‡	‡	‡	‡	—	—	‡	‡	‡	‡
Virginia	‡	‡	‡	21	16	17	43	32 *	35	49	44	48
Washington	—	—	7 *,**	—	—	17	—	—	27	—	—	37
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	‡	‡	‡	—	—	16	‡	‡	‡	—	—	17
Wyoming	8	11	7	8	8	13	‡	‡	‡	‡	‡	‡
Other jurisdictions												
District of Columbia	‡	11	4	6	5	3	‡	‡	‡	‡	‡	‡
DDESS [2]	—	—	18	18	13	19	—	—	‡	‡	‡	‡
DoDDS [3]	—	—	13 *,**	21	20	29	—	—	24 *,**	27 *	25 *	38

See notes at end of table. ▶

Table 3.16 Percentage of students at or above *Proficient* in mathematics, by race/ethnicity, grade 8 public schools: By state, 1990–2003—Continued

Grade 8	American Indian/Alaska Native						Other[4]					
	Accommodations not permitted				Accommodations permitted		Accommodations not permitted				Accommodations permitted	
	1990	1992	1996	2000	2000	2003	1990	1992	1996	2000	2000	2003
Nation (public) [1]	‡	‡	‡	14	13	16	‡	8 *	‡	‡	‡	24
Alabama	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Alaska	—	—	11	—	—	12	—	—	‡	—	—	‡
Arizona	#	6	7	‡	‡	7	‡	‡	‡	‡	‡	‡
Arkansas	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
California	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Colorado	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Connecticut	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Delaware	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Florida	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Georgia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Hawaii	‡	‡	‡	‡	‡	‡	10	13	10	15	14	15
Idaho	‡	‡	—	‡	‡	‡	‡	‡	—	‡	‡	‡
Illinois	‡	—	—	‡	‡	‡	‡	—	—	‡	‡	‡
Indiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Iowa	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Kansas	—	—	—	‡	‡	‡	—	—	—	‡	‡	‡
Kentucky	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Louisiana	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Maine	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Maryland	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Massachusetts	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Michigan	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Minnesota	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Mississippi	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Missouri	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Montana	9	—	17	11	11	15	‡	—	‡	‡	‡	‡
Nebraska	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Nevada	—	—	—	‡	11	‡	—	—	—	‡	‡	‡
New Hampshire	‡	‡	—	—	—	‡	‡	‡	—	—	—	‡
New Jersey	‡	‡	—	—	—	‡	‡	‡	—	—	—	‡
New Mexico	2	1	7	5	7	3	‡	‡	‡	‡	‡	‡
New York	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
North Carolina	2 **	‡	‡	‡	‡	13	‡	‡	‡	‡	‡	‡
North Dakota	3	10	7	6	5	11	‡	‡	‡	‡	‡	‡
Ohio	‡	‡	—	‡	‡	‡	‡	‡	—	‡	‡	‡
Oklahoma	5 *,**	12	—	11	12	14	‡	‡	—	‡	‡	21
Oregon	‡	—	‡	‡	‡	14	‡	—	‡	‡	‡	‡
Pennsylvania	‡	‡	—	—	—	‡	‡	‡	—	—	—	‡
Rhode Island	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
South Carolina	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
South Dakota	—	—	—	—	—	9	—	—	—	—	—	‡
Tennessee	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Texas	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Utah	—	‡	‡	‡	‡	‡	—	‡	‡	‡	‡	‡
Vermont	—	—	‡	‡	‡	‡	—	—	‡	‡	‡	‡
Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Washington	—	—	8	—	—	17	—	—	‡	—	—	‡
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	‡	‡	‡	—	—	‡	‡	‡	‡	—	—	‡
Wyoming	7	‡	5	‡	3	14	19	‡	‡	‡	‡	‡
Other jurisdictions												
District of Columbia	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
DDESS [2]	—	—	‡	‡	‡	‡	—	—	‡	‡	‡	‡
DoDDS [3]	—	—	‡	‡	‡	‡	—	—	27 *,**	30 *	29 *	42

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
The estimate rounds to zero.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.
[3] Department of Defense Dependents Schools (Overseas).
[4] "Other" comprises students whose race based on school records was "other race" or, if school data were missing, who self-reported their race as "multiracial" but not "Hispanic," or did not self-report racial/ethnic information.
NOTE: Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, and 2003 Mathematics Assessments.

Student Eligibility for Free/Reduced-Price School Lunch

NAEP collects data on students' eligibility for federally funded free/reduced-price school lunch as an indicator of family economic status at both the national and jurisdictional levels. Students in Department of Defense overseas schools did not participate in the free/reduced-price lunch program in 2003; therefore, data for that jurisdiction are not available. Tables 3.17 (grade 4) and 3.18 (grade 8) present the 1996–2003 average mathematics score results for participating jurisdictions by students' eligibility for free/reduced-price school lunch.

In 2003, students eligible for free/reduced-price lunch had lower average scores than did students who were not eligible in all 52 jurisdictions for which data are available at grade 4 and in 51 of the 52 jurisdictions for which data are available at grade 8.

Since 2000, fourth-grade average scores increased for both those students who were eligible for free/reduced-price lunch and those who were not eligible in 40 out of 42 jurisdictions with valid data. Average scores increased for eligible students in the District of Columbia and for students who were not eligible in Connecticut over the same time period. At grade 4, average scores increased between 1996 and 2003 for both eligible students and students who were not eligible in 44 out of 45 jurisdictions, and for students who were not eligible in North Dakota.

Eighth-grade average scores increased since 2000 for both eligible students and students who were not eligible in 13 out of 41 jurisdictions, for eligible students in 9 jurisdictions, and for students who were not eligible in 8 jurisdictions. At grade 8, average scores were higher in 2003 than in 1996 for eligible students and for students who were not eligible in 22 out of 42 jurisdictions, higher for eligible students in Montana, and higher for students who were not eligible in 10 jurisdictions.

Table 3.17 **Average mathematics scale scores, by eligibility for free/reduced-price school lunch, grade 4 public schools: By state, 1996–2003**

Grade 4	Eligible				Not eligible				Information not available			
	Accommodations not permitted		Accommodations permitted		Accommodations not permitted		Accommodations permitted		Accommodations not permitted		Accommodations permitted	
	1996	2000	2000	2003	1996	2000	2000	2003	1996	2000	2000	2003
Nation (public) [1]	207 *	210 *	208 *	222	231 *	236 *	235 *	244	230	235	236	235
Alabama	199 *,**	206 *,**	206 *,**	213	224 *,**	230 *,**	230 *,**	237	214	227	224	‡
Alaska	207 *,**	—	—	220	233 *,**	—	—	241	227	—	—	232
Arizona	202 *,**	205 *,**	206 *,**	217	230 *,**	231 *,**	232 *,**	241	218 *,**	214 *,**	211 *,**	232
Arkansas	204 *,**	206 *,**	205 *,**	221	227 *,**	229 *,**	228 *,**	239	‡	‡	‡	226
California	194 *,**	200 *,**	202 *,**	216	222 *,**	229 *,**	227 *,**	241	216	217	213	224
Colorado	210 *,**	—	—	219	233 *,**	—	—	243	227	—	—	‡
Connecticut	207 *,**	216	216	220	240 *,**	242 *,**	241 *,**	250	‡	225	224 *,**	243
Delaware	199 *,**	—	—	225	227 *,**	—	—	243	211 *,**	—	—	239
Florida	204 *,**	—	—	222	227 *,**	—	—	245	224	—	—	230
Georgia	201 *,**	204 *,**	204 *,**	219	226 *,**	233 *,**	233 *,**	241	226	223 *,**	222 *,**	239
Hawaii	202 *,**	205 *,**	205 *,**	216	224 *,**	226 *,**	227 *,**	237	212	212	216	‡
Idaho	—	217 *,**	214 *,**	227	—	234 *,**	232 *,**	241	—	228 *,**	232	243
Illinois	—	209 *,**	208 *,**	216	—	235 *,**	234 *,**	246	—	231	224	220
Indiana	213 *,**	222	219 *,**	225	236 *,**	240 *,**	240 *,**	245	‡	231	231	‡
Iowa	219 *,**	224	222 *,**	227	234 *,**	236 *,**	235 *,**	244	226	232	230	‡
Kansas	—	217 *,**	218 *,**	231	—	241 *,**	240 *,**	249	—	211	222	‡
Kentucky	209 *,**	210 *,**	207 *,**	220	230 *,**	231 *,**	230 *,**	237	218	226	226	‡
Louisiana	200 *,**	210 *,**	211 *,**	220	224 *,**	233 *,**	232 *,**	242	214	212	215	210
Maine	221 *,**	222 *,**	221 *,**	228	238 *,**	234 *,**	233 *,**	243	239	235	234	‡
Maryland	199 *,**	204 *,**	204 *,**	216	233 *,**	233 *,**	233 *,**	244	204 *,**	214 *,**	215 *,**	230
Massachusetts	213 *,**	213 *,**	210 *,**	226	235 *,**	243 *,**	242 *,**	249	229 *,**	236	234	242
Michigan	210 *,**	211 *,**	210 *,**	220	234 *,**	240 *,**	238 *,**	245	228	218	219	225
Minnesota	218 *,**	220 *	217 *,**	226	238 *,**	240 *,**	240 *,**	248	227	250	240	‡
Mississippi	200 *,**	202 *,**	202 *,**	216	224 *,**	226 *,**	225 *,**	238	‡	213 *,**	214 *,**	233
Missouri	210 *,**	213 *,**	213 *,**	224	233 *,**	237 *,**	236 *,**	243	‡	233	233	239
Montana	217 *,**	217 *,**	216 *,**	227	234 *,**	236 *,**	234 *,**	242	223	233	233	230
Nebraska	213 *,**	210 *,**	210 *,**	222	235 *,**	235 *,**	235 *,**	244	235	231	225	239
Nevada	202 *,**	208 *,**	206 *,**	216	223 *,**	228 *,**	228 *,**	237	219 *,**	218	217 *	230
New Hampshire	—	—	—	229	—	—	—	247	—	—	—	240
New Jersey	206 *,**	—	—	221	238 *,**	—	—	247	‡	—	—	242
New Mexico	203 *,**	205 *,**	206 *,**	217	227 *,**	227 *,**	228 *,**	236	221	217	209 *,**	226
New York	206 *,**	214 *,**	212 *,**	225	236 *,**	239 *,**	238 *,**	247	233	236	229 *,**	247
North Carolina	209 *,**	220 *,**	218 *,**	229	234 *,**	241 *,**	239 *,**	252	217 *,**	237	234 *,**	247
North Dakota	223	221 *,**	219 *,**	228	234 *,**	235 *,**	236 *,**	242	230	230	228	‡
Ohio	—	217 *,**	216 *,**	224	—	239 *,**	238 *,**	246	—	231	231	241
Oklahoma	—	217 *,**	215 *,**	223	—	234 *,**	233 *,**	239	—	225	225	224
Oregon	210 *,**	213 *,**	211 *,**	226	231 *,**	234 *,**	233 *,**	242	222 *,**	232	218 *,**	245
Pennsylvania	211 *,**	—	—	220	235 *,**	—	—	246	226	—	—	239
Rhode Island	204 *,**	206 *,**	207 *,**	217	229 *,**	236 *,**	236 *,**	242	‡	219	212	220
South Carolina	201 *,**	208 *,**	207 *,**	226	226 *,**	235 *,**	234 *,**	247	‡	205	‡	‡
South Dakota	—	—	—	227	—	—	—	244	—	—	—	‡
Tennessee	204 *,**	204 *,**	204 *,**	216	229 *,**	231 *,**	231 *,**	236	217	226	230	234
Texas	215 *,**	222 *,**	222 *,**	229	240 *,**	242 *,**	241 *,**	247	228	232	229 *	246
Utah	216 *,**	215 *,**	214 *,**	225	231 *,**	233 *,**	233 *,**	240	226	233	230	‡
Vermont	210 *,**	216 *,**	216 *,**	229	231 *,**	237 *,**	238 *,**	248	226	237	236	‡
Virginia	206 *,**	214 *,**	215 *,**	225	230 *,**	237 *,**	236 *,**	246	228	239	236	245
Washington	212 *,**	—	—	226	232 *,**	—	—	247	230 *,**	—	—	239
West Virginia	213 *,**	217 *,**	216 *,**	225	232 *,**	232 *,**	231 *,**	237	231	225	223	‡
Wisconsin	215 *,**	—	—	221	237 *,**	—	—	244	234	—	—	242
Wyoming	213 *,**	220 *,**	219 *,**	233	228 *,**	234 *,**	234 *,**	246	224	227	227	227
Other jurisdictions												
District of Columbia	178 *,**	188 *,**	186 *,**	200	213 *,**	219	219	221	206	198 *,**	196 *,**	206
DDESS [2]	218 *,**	224 *,**	225 *,**	233	229 *,**	231 *,**	230 *,**	240	225 *,**	229	226 *	236
DoDDS [3]	220	222	222	—	225	229	227	—	222	229	227	—

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.
[3] Department of Defense Dependents Schools (Overseas).
NOTE: Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996, 2000, and 2003 Mathematics Assessments.

Table 3.18 **Average mathematics scale scores, by eligibility for free/reduced-price school lunch, grade 8 public schools: By state, 1996–2003**

Grade 8	Eligible				Not eligible				Information not available			
	Accommodations not permitted		Accommodations permitted		Accommodations not permitted		Accommodations permitted		Accommodations not permitted		Accommodations permitted	
	1996	2000	2000	2003	1996	2000	2000	2003	1996	2000	2000	2003
Nation (public) [1]	252 *	255 *	253 *	258	279 *	285	283 *	287	278	273	271 *	278
Alabama	237 *,**	243	246	246	270 *	275	275	276	254	270	272	‡
Alaska	257	—	—	260	282	—	—	285	281	—	—	281
Arizona	254	252	251 **	258	277 *,**	280	279	282	264	276	271	274
Arkansas	246 *,**	249 *,**	242 *,**	256	270 *,**	269 *,**	267 *,**	276	262	269	269	248
California	246	242 *,**	240 *,**	251	276	273	269 *,**	281	261	273	275	271
Colorado	259	—	—	262	282 *,**	—	—	292	270	—	—	‡
Connecticut	254	251	250 *,**	260	287 *,**	292	291	292	275	275	273	287
Delaware	247 *,**	—	—	261	274 *,**	—	—	285	265 *,**	—	—	291
Florida	248 *,**	—	—	256	275 *,**	—	—	284	263	—	—	277
Georgia	242 *,**	248 *	246 *,**	253	273 *,**	278 *,**	278 *,**	284	271	265	264	262
Hawaii	249 *,**	251	252	254	269 *,**	270 *	268 *,**	275	253	270	266	‡
Idaho	—	264	265	267	—	284	283 *,**	287	—	282	276	286
Illinois	—	259	255	256	—	285	284 *,**	290	—	278	278	269
Indiana	256 *,**	267	269	266	282 *,**	288	286	288	‡	278	272	285
Iowa	272	—	—	266	287	—	—	290	284	—	—	291
Kansas	—	267	265	270	—	290	289	291	—	285	288	‡
Kentucky	252 *,**	257	255 *,**	261	276 *,**	281	280	284	261	‡	‡	‡
Louisiana	241 *,**	246 *,**	247 *,**	256	265 *,**	276	276	280	250	260	256	267
Maine	272	273	270	268	288	287	285	287	284	283	279	‡
Maryland	243 *,**	251	245 *,**	255	279 *	286	283	285	274 *	270 *	267 *,**	295
Massachusetts	254 *,**	261	257	261	284 *,**	289 *,**	286 *,**	295	269	286	274	291
Michigan	257	256	256	257	284	286	284	285	272	274	274	272
Minnesota	270	274	272	271	288 *,**	291 *,**	291 *,**	297	286	294	295	‡
Mississippi	239 *,**	241 *,**	242 *,**	251	265 *,**	267 *,**	267 *,**	275	248 *	256	254	274
Missouri	259	256 *	250 *,**	263	280 *,**	280 *,**	279 *,**	286	264	277	275	281
Montana	266 **	275	271	273	290	292	290	292	286	287	289	289
Nebraska	269	262	260	265	288	288	287	290	288	‡	‡	275
Nevada	—	248	246 *,**	254	—	275	272	274	—	275	262	274
New Hampshire	—	—	—	268	—	—	—	289	—	—	—	286
New Jersey	—	—	—	256	—	—	—	290	—	—	—	284
New Mexico	251	250	248	252	272	272	271	275	265	258	264	276
New York	253 *,**	261	255	262	282 *,**	286 *,**	284 *,**	293	271 *	281	276	290
North Carolina	250 *,**	261	257 *,**	263	277 *,**	289	286 *,**	291	263 *,**	272 *,**	270 *,**	293
North Dakota	274	271	272	274	288 *,**	287 *,**	288 *,**	292	282	284	275	‡
Ohio	—	262	257	263	—	289	287	289	—	273	277	277
Oklahoma	—	259	258	260	—	280	277 *,**	282	—	275	276	‡
Oregon	262	263	263	266	282	287	286	286	273	285	284	285
Pennsylvania	—	—	—	257	—	—	—	288	—	—	—	278
Rhode Island	250	252	247 *,**	253	277 *,**	283	280 *	284	249	269 *,**	262	248
South Carolina	246 *,**	252 *,**	249 *,**	263	272 *,**	278 *,**	278 *,**	289	‡	‡	‡	‡
South Dakota	—	—	—	272	—	—	—	291	—	—	—	‡
Tennessee	246	244	242 *,**	250	271 *,**	274 *	273 *,**	279	262	262	258	280
Texas	252 *,**	261	260	264	282 *,**	285	284	288	271	276	270	‡
Utah	268	262	255 *,**	266	280 *,**	281 *,**	280 *,**	286	276	269	275	280
Vermont	266	266	261 *	268	283 *,**	288	286 *,**	291	278	283	278	‡
Virginia	246 *,**	258	256 *,**	261	277 *,**	282 *,**	281 *,**	289	277	276	274	281
Washington	258 *,**	—	—	265	282 *,**	—	—	288	276	—	—	283
West Virginia	254 *,**	259	252 *,**	261	271 *,**	278	276	280	274	276	274	‡
Wisconsin	262	—	—	259	289	—	—	292	285	—	—	285
Wyoming	262 *,**	265 *,**	262 *,**	271	277 *,**	281 *,**	281 *,**	288	285	274	269	‡
Other jurisdictions												
District of Columbia	226 *,**	227 *,**	226 *,**	235	245 *,**	261	258	254	234 *,**	230 *,**	234 *,**	252
DDESS [2]	260 *,**	268 *,**	263 *,**	281	276 *	281	279	283	269 *,**	281	277	282
DoDDS [3]	267	271	271	—	276	280	278	—	275	279	281	—

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.
[3] Department of Defense Dependents Schools (Overseas).
NOTE: Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996, 2000, and 2003 Mathematics Assessments.

The percentages of students performing at or above the *Proficient* level by students' eligibility for free/reduced-price school lunch are presented for participating jurisdictions in tables 3.19 (grade 4) and 3.20 (grade 8). Since 2000, the percentage of fourth-graders performing at or above *Proficient* has increased both for eligible students and for students who were not eligible in 35 jurisdictions, for eligible students in Tennessee, and for students who were not eligible in 5 jurisdictions. The percentage of fourth-graders performing at or above *Proficient* increased since 1996 both for eligible students and for students who were not eligible in 43 jurisdictions, for eligible students in the District of Columbia, and for students who were not eligible in Wisconsin.

At grade 8, the percentages of students performing at or above *Proficient* increased between 2000 and 2003 both for eligible students and for students who were not eligible in 8 jurisdictions, for eligible students in Nevada, and for students who were not eligible in 7 jurisdictions. The percentage of eighth-graders performing at or above *Proficient* increased since 1996 both for eligible students and for students who were not eligible in 15 jurisdictions, for eligible students in Alabama and Texas, and for students who were not eligible in 10 jurisdictions.

Table 3.19 **Percentage of students at or above *Proficient* in mathematics, by eligibility for free/reduced-price school lunch, grade 4 public schools: By state, 1996–2003**

Grade 4	Eligible				Not eligible				Information not available			
	Accommodations not permitted		Accommodations permitted		Accommodations not permitted		Accommodations permitted		Accommodations not permitted		Accommodations permitted	
	1996	2000	2000	2003	1996	2000	2000	2003	1996	2000	2000	2003
Nation (public) [1]	8 *	9 *	7 *	15	25 *	33 *	32 *	45	28	35	35	34
Alabama	3 *,**	5 *,**	5 *,**	8	18 *,**	24 *,**	23 *,**	33	9	22	18	‡
Alaska	9 *,**	—	—	14	29 *,**	—	—	39	22	—	—	31
Arizona	5 *,**	7 *,**	7 *,**	12	24 *,**	26 *,**	25 *,**	39	14 *,**	12 *,**	9 *,**	29
Arkansas	6 *,**	5 *,**	6 *,**	18	20 *,**	21 *,**	22 *,**	37	‡	‡	‡	22
California	4 *,**	5 *,**	5 *,**	11	17 *,**	25 *,**	23 *,**	41	12	19	15	23
Colorado	9 *,**	—	—	14	28 *,**	—	—	43	21	—	—	‡
Connecticut	7 *,**	11	10	12	38 *,**	40 *,**	39 *,**	54	‡	24	24	41
Delaware	6 *,**	—	—	16	24 *,**	—	—	42	11 *,**	—	—	34
Florida	7 *,**	—	—	16	21 *,**	—	—	46	22	—	—	24
Georgia	3 *,**	5 *,**	5 *,**	12	20 *,**	29 *,**	29 *,**	40	24	21	20 *,**	41
Hawaii	7 *,**	6 *,**	5 *,**	11	23 *,**	22 *,**	23 *,**	34	13	11	12	‡
Idaho	—	13 *,**	12 *,**	20	—	28 *,**	26 *,**	38	—	20 *,**	22 *	43
Illinois	—	7 *,**	6 *,**	11	—	30 *,**	29 *,**	48	—	31	26	15
Indiana	8 *,**	14	13	17	30 *,**	37 *,**	38 *,**	45	‡	31	30	‡
Iowa	13 *,**	17	16	20	27 *,**	32 *,**	31 *,**	43	20	27	24	‡
Kansas	—	13 *,**	13 *,**	24	—	40 *,**	38 *,**	53	—	15	22	‡
Kentucky	7 *,**	7 *,**	6 *,**	12	24 *,**	26 *,**	26 *,**	32	9	28	28	‡
Louisiana	3 *,**	7 *,**	7 *,**	13	15 *,**	27 *,**	25 *,**	41	10	10	10	9
Maine	13 *,**	14 *,**	12 *,**	21	34 *,**	29 *,**	28 *,**	41	35	32	25	‡
Maryland	5 *,**	7	6 *,**	10	31 *,**	31 *,**	31 *,**	44	8 *,**	18	17	26
Massachusetts	8 *,**	9 *,**	8 *,**	17	30 *,**	42 *,**	39 *,**	52	26	41	35	44
Michigan	8 *,**	11	9 *,**	15	30 *,**	38 *,**	37 *,**	45	28	15	13	21
Minnesota	14 *,**	15	13 *,**	20	35 *,**	40 *,**	39 *,**	50	26	55	43	‡
Mississippi	3 *,**	4 *,**	3 *,**	9	17 *,**	18 *,**	19 *,**	34	‡	11 *,**	10 *,**	30
Missouri	7 *,**	9 *,**	10 *,**	15	27 *,**	31 *,**	30 *,**	41	‡	24	27	33
Montana	13 *,**	10 *,**	10 *,**	20	29 *,**	32	31 *,**	39	15	30	28	23
Nebraska	12 *,**	11 *,**	11	17	30 *,**	31 *,**	32 *,**	44	32	27	25	34
Nevada	4 *,**	6 *,**	6 *,**	11	17 *,**	22 *,**	22 *,**	33	15	14	14	22
New Hampshire	—	—	—	24	—	—	—	48	—	—	—	37
New Jersey	5 *,**	—	—	15	35 *,**	—	—	49	‡	—	—	44
New Mexico	5 *,**	5 *,**	5 *,**	11	21 *,**	22 *,**	23 *,**	31	20	14	12	21
New York	7 *,**	8 *,**	8 *,**	18	29 *,**	36 *,**	33 *,**	48	28	29	30	44
North Carolina	7 *,**	12 *,**	11 *,**	21	30 *,**	39 *,**	36 *,**	55	17 *,**	34	31 *	51
North Dakota	15 *,**	16	14 *,**	21	28 *,**	29 *,**	30 *,**	40	21	25	23	‡
Ohio	—	11 *,**	10 *,**	17	—	35 *,**	33 *,**	47	—	24	25	39
Oklahoma	—	8 *,**	8 *,**	14	—	25 *,**	24 *,**	34	—	15	16	20
Oregon	9 *,**	11 *,**	11 *,**	19	27 *,**	30 *,**	30 *,**	40	22 *,**	31	24 *	48
Pennsylvania	7 *,**	—	—	16	29 *,**	—	—	48	17	—	—	42
Rhode Island	5 *,**	7 *,**	7 *,**	13	24 *,**	33 *,**	32 *,**	41	‡	16	13	19
South Carolina	4 *,**	7 *,**	7 *,**	18	20 *,**	31 *,**	31 *,**	48	‡	11	‡	‡
South Dakota	—	—	—	21	—	—	—	42	—	—	—	‡
Tennessee	6 *,**	6 *,**	6 *,**	11	23 *,**	27	27	32	18	23	25	33
Texas	9 *,**	13 *,**	12 *,**	20	39 *,**	40	38 *,**	48	22	27	23	47
Utah	13 *,**	13 *,**	12 *,**	20	27 *,**	29 *,**	28 *,**	37	23	28	24	‡
Vermont	9 *,**	15 *,**	15 *,**	23	28 *,**	34 *,**	35 *,**	50	24	37	35	‡
Virginia	5 *,**	9 *,**	8 *,**	14	25 *,**	32 *,**	31 *,**	46	28	37	33	48
Washington	10 *,**	—	—	20	26 *,**	—	—	48	25	—	—	37
West Virginia	10 *,**	11 *,**	10 *,**	16	27 *,**	25 *,**	25 *,**	33	25	18	15	‡
Wisconsin	13	—	—	17	33 *,**	—	—	44	30	—	—	44
Wyoming	10 *,**	16 *,**	15 *,**	25	23 *,**	30 *,**	30 *,**	47	22	23	21	22
Other jurisdictions												
District of Columbia	1 *,**	2	2	3	19	22	22	20	11	11	11	7
DDESS [2]	14 *,**	18	19	24	26 *,**	28 **	26 *,**	35	21	25	21	27
DoDDS [3]	15	17	16	—	21	24	22	—	18	23	21	—

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.
[3] Department of Defense Dependents Schools (Overseas).
NOTE: Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996, 2000, and 2003 Mathematics Assessments.

Table 3.20 Percentage of students at or above *Proficient* in mathematics, by eligibility for free/reduced-price school lunch, grade 8 public schools: By state, 1996–2003

Grade 8	Eligible				Not eligible				Information not available			
	Accommodations not permitted		Accommodations permitted		Accommodations not permitted		Accommodations permitted		Accommodations not permitted		Accommodations permitted	
	1996	2000	2000	2003	1996	2000	2000	2003	1996	2000	2000	2003
Nation (public) [1]	8 *	10	10	11	29 *	35	34	37	29	26	24	29
Alabama	2 *,**	5	6	7	18	23	23	24	7	21	23	‡
Alaska	16	—	—	13	33	—	—	36	32	—	—	31
Arizona	8	9	8	9	24 *,**	27	27	31	16	24	20	22
Arkansas	5 *,**	7 *	6 *,**	12	18 *,**	18 *,**	18 *,**	25	12	20	21	9
California	5	4 *	4 *,**	9	26	24 *	23 *	33	15	26	28	25
Colorado	11	—	—	13	31 *,**	—	—	43	22	—	—	‡
Connecticut	9	7	7	12	36 *,**	42	41	44	34	29	26	38
Delaware	6 *	—	—	10	25 *,**	—	—	32	13 *,**	—	—	42
Florida	6 *,**	—	—	11	25 *,**	—	—	34	19	—	—	25
Georgia	3 *,**	5 *	5 *	8	22 *,**	27 *	27 *	34	22	17	18	12
Hawaii	7	8	8	8	21	21	20	24	8	22	18	‡
Idaho	—	17	16	17	—	32	31	35	—	29	27	32
Illinois	—	12	12	10	—	34	34	41	—	25	23	24
Indiana	8 *,**	13	14	16	28 *,**	36	35	37	‡	26	23	37
Iowa	20	—	—	15	35	—	—	39	31	—	—	39
Kansas	—	17	17	19	—	41	39	41	—	36	37	‡
Kentucky	4 *,**	8	8	11	23 *,**	29	29	33	12	‡	‡	‡
Louisiana	3 *,**	4 *	5 *	8	12 *,**	22	21 *	29	7	10	9	19
Maine	18	20	18	16	35	36	34	35	30	31	28	‡
Maryland	6	7	6	10	31	37	36	36	26	25	22	43
Massachusetts	7 *,**	11	10	13	33 *,**	38 *,**	37 *,**	46	24	35	27	43
Michigan	10	9	9	13	34	35	34	34	28	27	30	25
Minnesota	20	27	24	24	37 *,**	42 *,**	42 *,**	50	41	50	52	‡
Mississippi	2 *	3	3	5	13 *,**	14 *,**	15 *	23	7 *	9 *	8 *	26
Missouri	9	9	8 *	13	27 *,**	26 *,**	27 *,**	35	17	26	24	31
Montana	17	25	22	23	38	43	42	40	34	37	39	38
Nebraska	19	15	13	15	35	36	36	40	34	‡	‡	29
Nevada	—	6	6 *,**	10	—	24	23	25	—	25	17	30
New Hampshire	—	—	—	16	—	—	—	38	—	—	—	36
New Jersey	—	—	—	10	—	—	—	41	—	—	—	37
New Mexico	7	6	5	7	21	21	20	23	17	15	15	29
New York	10 *,**	12	12	16	29 *,**	34 *,**	32 *,**	45	28	32	30	41
North Carolina	6 *,**	13	10	14	28 *,**	38	36 *	42	14 *,**	21 *,**	18 *,**	45
North Dakota	22	21	21	23	38	35 *	35 *,**	41	33	31	27	‡
Ohio	—	10	9	11	—	36	36	38	—	24	26	24
Oklahoma	—	8	9	10	—	26	25	28	—	21	22	‡
Oregon	12	16	14	17	32	37	36	37	23	35	36	35
Pennsylvania	—	—	—	10	—	—	—	38	—	—	—	30
Rhode Island	8	7	6	8	26 *,**	31	30	33	10	18	17	9
South Carolina	5 *,**	6 *,**	6 *,**	12	21 *,**	27 *,**	26 *,**	38	‡	‡	‡	‡
South Dakota	—	—	—	22	—	—	—	41	—	—	—	‡
Tennessee	5	7	5	9	19 *,**	23	23	28	14	12	13	33
Texas	6 *,**	11	11	12	31	34	34	36	18	26	21	‡
Utah	17	15	12 *	18	27 *,**	29 *,**	29 *,**	36	24	24	27	27
Vermont	16	14	13	16	31 *,**	38	36	41	21	32	29	‡
Virginia	5 *,**	8	8	11	26 *,**	31 *,**	31 *,**	38	25	27	26	28
Washington	12	—	—	16	31 *,**	—	—	40	18	—	—	32
West Virginia	6 *	8	7	10	18 *,**	25	25	28	22	22	21	‡
Wisconsin	12	—	—	12	37	—	—	43	33	—	—	35
Wyoming	11 *,**	15	14 *	18	24 *,**	28 *,**	27 *,**	37	34	21	19	‡
Other jurisdictions												
District of Columbia	2	2	2	2	12	18	17	12	4	5	4	7
DDESS [2]	14	16	14	25	27	31	28	27	21	32	30	28
DoDDS [3]	17	18	20	—	23	27	26	—	24	29	31	—

— Not available. The jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from 2003 when only one jurisdiction or the nation is being examined.
** Significantly different from 2003 when using a multiple-comparison procedure based on all jurisdictions that participated in both years.
[1] National results for assessments prior to 2003 are based on the national sample, not on aggregated state samples.
[2] Department of Defense Domestic Dependent Elementary and Secondary Schools.
[3] Department of Defense Dependents Schools (Overseas).
NOTE: Comparative performance results may be affected by changes in exclusion rates for students with disabilities and limited-English-proficient students in the NAEP samples. In addition to allowing for accommodations, the accommodations-permitted results for national public schools (2000 and 2003) differ slightly from previous years' results, and from previously reported results for 2000, due to changes in sample weighting procedures. See appendix A for more details. Significance tests were performed using unrounded numbers. NAEP sample sizes have increased in 2003, compared to previous years, resulting in smaller detectable differences than in previous assessments.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996, 2000, and 2003 Mathematics Assessments.

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4 Average Mathematics Scale Scores and Achievement-Level Results for Districts Participating in the Trial Urban District Assessment

This chapter presents the results of the NAEP 2003 Trial Urban District Assessment (TUDA) in mathematics at grades 4 and 8. TUDA, a special project in NAEP, was instituted in 2002. After discussion among the National Center for Education Statistics (NCES), the National Assessment Governing Board (NAGB), and the leadership of the Council of the Great City Schools, Congress appropriated funds for this district-level assessment in 2001. NAGB passed a resolution approving the selection of five urban districts (Atlanta City School District, City of Chicago School District 299, Houston Independent School District, Los Angeles Unified School District, and New York City Public Schools), all of which voluntarily participated first in the NAEP 2002 reading and writing assessments at grades 4 and 8.[1]

In the second year of the TUDA project, the same five districts plus four more voluntarily participated in the NAEP 2003 reading and mathematics assessments at grades 4 and 8. The additional districts

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[1] Lutkus, A. D., Weiner, A. W., Daane, M. C., and Jin, Y. (2003). *The Nation's Report Card: Reading 2002, Trial Urban District Assessment* (NCES 2003–523). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.

Lutkus, A. D., Daane, M. C., Weiner, A. W., and Jin, Y. (2003). *The Nation's Report Card: Writing 2002, Trial Urban District Assessment* (NCES 2003–530). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.

were Boston School District, Charlotte-Mecklenburg Schools, Cleveland Municipal School District, and San Diego City Unified School District.[2] Results are also included for the District of Columbia, which has regularly participated in NAEP state-wide assessments and is also reported in the preceding chapters. All the districts met the minimum participation guidelines for reporting results in 2003.

The TUDA sampled only public school students in both years. This chapter displays results only from 2003, the first year that results of the NAEP mathematics assessment were reported by urban districts. In addition, tables in this chapter display results for public school students in the nation as a whole and for public school students in large central cities.

"Large central city" is a geographical term used by NCES for a central city with a population at or above 250,000. It is not synonymous with "inner city." The Charlotte and Los Angeles districts include schools in locations that do not fit the NCES definition of large central city areas (i.e., urban fringe and rural areas). In those two districts, one-quarter to one-third of the students sampled attended schools that were not in large central cities.[3]

Scale Score Results for Urban Districts

The NAEP mathematics assessment was the same for the districts in the TUDA as for the states. Average mathematics scores are reported on a 0–500 scale. The average scores for the districts that participated in the NAEP mathematics assessment in 2003 are displayed in figure 4.1 for grade 4 and figure 4.2 for grade 8. These figures also show the corresponding results for public school students in the nation and for public school students attending schools located in large central cities. Because the percentage of students excluded from the assessment may vary considerably across districts, comparisons of achievement results should be interpreted with caution. (See tables A.20 and A.21 in appendix A for district exclusion rates.)

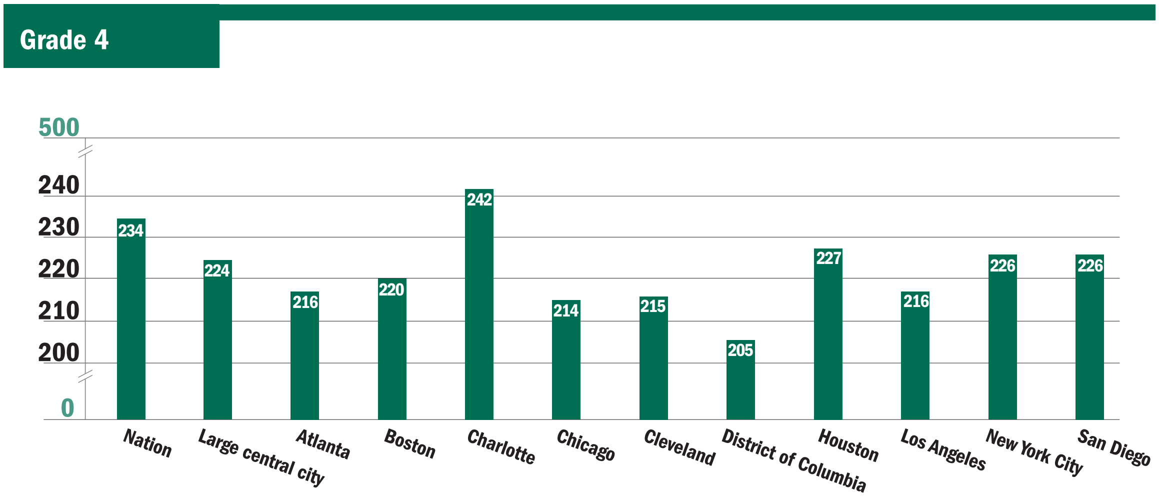
At grades 4 and 8, students in all participating districts except Charlotte scored lower on average than students in the nation. Students in Charlotte had higher average scores than those in the nation, large central cities, and the other participating districts at both grades 4 and 8.

At grade 8, students in Charlotte and New York City scored higher on average than students in large central city public schools.

[2] In the remainder of this chapter, the districts participating in the TUDA are referred to as Atlanta, Boston, Charlotte, Chicago, Cleveland, Houston, Los Angeles, New York City, and San Diego, and statements regarding "the districts" include the District of Columbia.

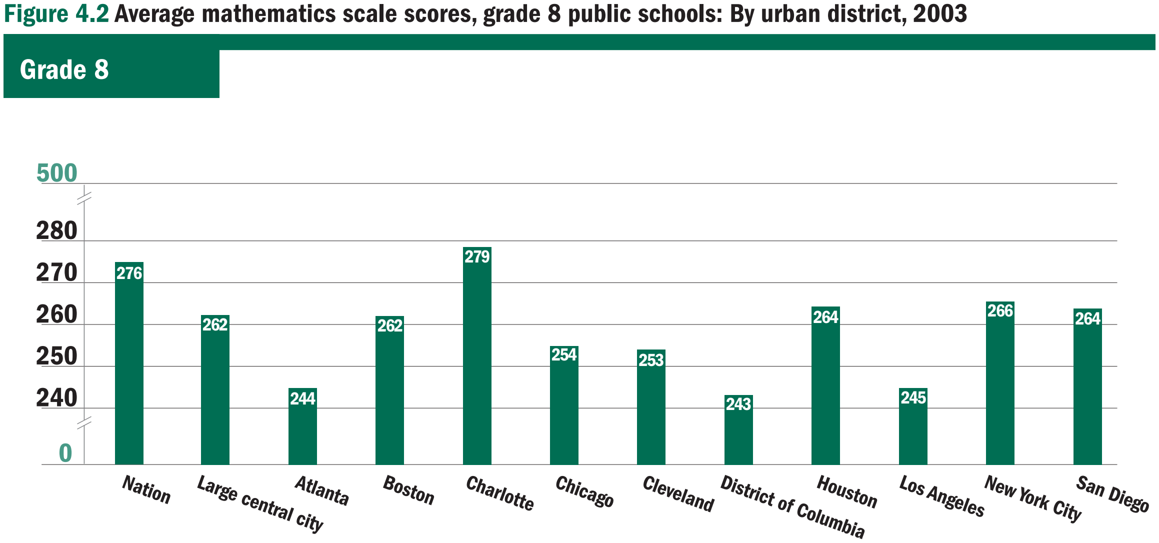
[3] Although "central city" data were reported in the 2002 Trial Urban District Assessment reports, the "central city" category is defined differently from "large central city" here.

Figure 4.1 Average mathematics scale scores, grade 4 public schools: By urban district, 2003



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Figure 4.2 Average mathematics scale scores, grade 8 public schools: By urban district, 2003



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Scale Scores by Percentiles for Urban Districts

An examination of the scores at different percentiles on the 0–500 mathematics scale for each grade can give more detail about the score distribution for districts that participated in 2003, reflecting the performance of lower-, middle-, and higher-performing students.

Table 4.1 shows the 2003 percentile results for participating urban districts at grades 4 and 8. At grade 4, the score in most districts was lower at the 10th percentile than that of public schools in the nation, except for Charlotte, where the score was higher than in the nation, and in Houston, where no measurable difference from the nation was detected. The scores for all of the districts except Charlotte were lower than those of public schools in the nation at the 25th, 50th, 75th, and 90th percentiles.

At grade 4, the scores at the 10th and 25th percentiles were higher in Charlotte, Houston, and New York City than in large central cities and lower in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles than in large central cities. The scores at the 50th, 75th, and 90th percentiles were higher in Charlotte than in large central cities and lower in Boston, Chicago, Cleveland, the District of Columbia, and Los Angeles than in large central cities.

At grade 8, the score at the 10th percentile for most urban districts was lower than in the nation, with the exception of Charlotte and Houston, where the score was not found to be measurably different from the nation. At the 25th, 50th, 75th, and 90th percentiles, the scores for all of the districts except Charlotte were lower than those of public schools in the nation.

At grade 8, the score at the 10th percentile in Charlotte and Houston was higher than in the large central cities; the score in Atlanta, the District of Columbia, and Los Angeles was lower than in the large central cities. The scores at the 75th and 90th percentiles were higher in Charlotte than in large central cities and lower in Atlanta, Chicago, Cleveland, the District of Columbia, Houston, and Los Angeles than in large central cities.

Table 4.1 Mathematics scale score percentiles, grades 4 and 8 public schools: By urban district, 2003

	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Grade 4					
Nation (public)	196	215	235	254	270
Large central city (public)	186 **	204 **	224 **	245 **	263 **
Atlanta	180 *,**	195 *,**	214 *,**	234 *,**	256 **
Boston	189 **	203 **	219 *,**	236 *,**	252 *,**
Charlotte	207 *,**	223 *,**	242 *,**	261 *,**	276 *,**
Chicago	179 *,**	196 *,**	214 *,**	232 *,**	248 *,**
Cleveland	182 *,**	197 *,**	215 *,**	232 *,**	248 *,**
District of Columbia	168 *,**	185 *,**	204 *,**	224 *,**	243 *,**
Houston	196 *	210 *,**	226 **	243 **	259 **
Los Angeles	180 *,**	196 *,**	215 *,**	235 *,**	253 *,**
New York City	191 *,**	207 *,**	226 **	246 **	262 **
San Diego	190 **	207 *,**	226 **	244 **	262 **
Grade 8					
Nation (public)	228	253	278	301	321
Large central city (public)	214 **	238 **	262 **	288 **	311 **
Atlanta	200 *,**	220 *,**	244 *,**	267 *,**	288 *,**
Boston	214 **	236 **	260 **	287 **	314 **
Charlotte	226 *	252 *	280 *	307 *,**	328 *,**
Chicago	210 **	233 *,**	255 *,**	277 *,**	297 *,**
Cleveland	216 **	233 *,**	252 *,**	272 *,**	290 *,**
District of Columbia	198 *,**	219 *,**	243 *,**	267 *,**	288 *,**
Houston	227 *	244 *,**	263 **	283 *,**	303 *,**
Los Angeles	198 *,**	219 *,**	245 *,**	270 *,**	292 *,**
New York City	215 **	241 **	266 **	293 **	316 **
San Diego	216 **	239 **	265 **	290 **	311 **

* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Achievement-Level Results for Urban Districts

Table 4.2 shows the percentages of students in each participating urban district performing within each achievement level and the percentages of students at or above *Basic* and at or above *Proficient* for grades 4 and 8.

At grade 4, the percentages of students in Charlotte performing at or above *Basic*, at or above *Proficient,* and at *Advanced* were higher than the corresponding percentages in both large central cities and the nation. The percentages of fourth-graders at or above *Basic* in Houston and New York City were higher than the percentages in large central cities.

At grade 8, the percentages of students in Charlotte at or above *Proficient* and at *Advanced* were higher than the corresponding percentages in both large central cities and the nation.

Table 4.2 Percentages of students, by mathematics achievement level, grades 4 and 8 public schools: By urban district, 2003

	Below ***Basic***	At ***Basic***	At ***Proficient***	At ***Advanced***	At or above ***Basic***	At or above ***Proficient***
Grade 4						
Nation (public)	24	45	28	4	76	31
Large central city (public)	37 **	43 **	18 **	2 **	63 **	21 **
Atlanta	50 *,**	37 *,**	11 *,**	2	50 *,**	13 *,**
Boston	41 **	46	11 *,**	1 *,**	59 **	12 *,**
Charlotte	16 *,**	43	35 *,**	6 *,**	84 *,**	41 *,**
Chicago	50 *,**	40 **	9 *,**	1 *,**	50 *,**	10 *,**
Cleveland	49 *,**	41	9 *,**	# *,**	51 *,**	10 *,**
District of Columbia	64 *,**	29 *,**	6 *,**	1 *,**	36 *,**	7 *,**
Houston	30 *,**	51 *,**	17 **	1 **	70 *,**	18 **
Los Angeles	48 *,**	39 *,**	12 *,**	1 *,**	52 *,**	13 *,**
New York City	33 *,**	46	19 **	2 **	67 *,**	21 **
San Diego	34 **	46 *	18 **	2 **	66 **	20 **
Grade 8						
Nation (public)	33	39	22	5	67	27
Large central city (public)	49 **	34 **	14 **	3 **	51 **	17 **
Atlanta	70 *,**	24 *,**	5 *,**	1 *,**	30 *,**	6 *,**
Boston	52 **	31 *,**	14 **	4	48 **	17 **
Charlotte	33 *	36	24 *	7 *,**	67 *	32 *,**
Chicago	58 *,**	33 **	8 *,**	1 *,**	42 *,**	9 *,**
Cleveland	62 *,**	31 **	6 *,**	#	38 *,**	6 *,**
District of Columbia	71 *,**	23 *,**	5 *,**	1 *,**	29 *,**	6 *,**
Houston	48 **	40 *	11 *,**	2 **	52 **	12 *,**
Los Angeles	68 *,**	25 *,**	6 *,**	1 *,**	32 *,**	7 *,**
New York City	46 **	34 **	17 **	4	54 **	20 *,**
San Diego	47 **	35 **	16 **	2 **	53 **	18 **

The estimate rounds to zero.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Detail may not sum to totals because of rounding. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Performance of Selected Subgroups for Urban Districts

Gender

Average mathematics scale scores for male and female fourth- and eighth-grade students in 2003 are displayed in table 4.3. Male students scored higher on average than female students nationally in both grades.

At grade 4, the average scores for both male and female students in Charlotte were higher than those of their counterparts in the nation and in large central cities. Male and female fourth-graders in Atlanta, Boston, Chicago, Cleveland, the District of Columbia, and Los Angeles had lower average scores than their counterparts in large central cities and in the nation.

At grade 8, the average score for both male and female students in Charlotte was higher than the corresponding average score for large central cities. Both male and female eighth-graders in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles had a lower average score than their counterparts in large central cities and in the nation.

Table 4.3 Average mathematics scale scores, by gender, grades 4 and 8 public schools: By urban district, 2003

	Male	Female
Grade 4		
Nation (public)	235	233
Large central city (public)	225 **	223 **
Atlanta	215 *,**	216 *,**
Boston	221 *,**	219 *,**
Charlotte	242 *,**	241 *,**
Chicago	214 *,**	214 *,**
Cleveland	215 *,**	215 *,**
District of Columbia	204 *,**	206 *,**
Houston	227 **	227 *,**
Los Angeles	219 *,**	213 *,**
New York City	228 **	225 **
San Diego	227 **	225 **
Grade 8		
Nation (public)	277	275
Large central city (public)	263 **	261 **
Atlanta	243 *,**	246 *,**
Boston	260 **	263 **
Charlotte	279 *	278 *
Chicago	255 *,**	253 *,**
Cleveland	254 *,**	252 *,**
District of Columbia	242 *,**	244 *,**
Houston	266 **	263 **
Los Angeles	245 *,**	245 *,**
New York City	266 **	265 **
San Diego	267 **	262 **

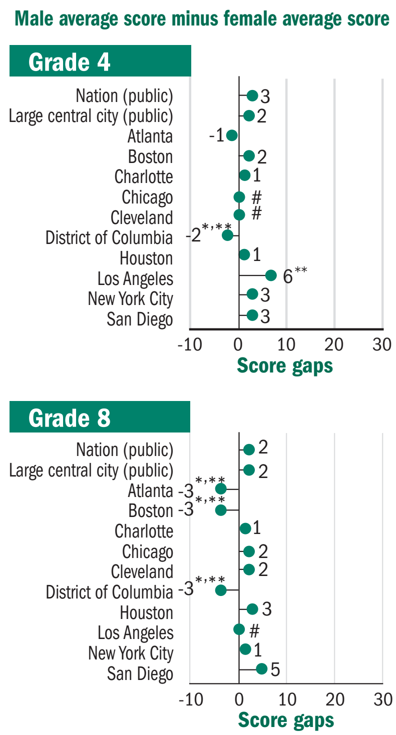
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

The scale score gaps between male and female fourth- and eighth-graders in the participating urban districts are presented in figure 4.3. Numbers marked with asterisks indicate statistically significant differences between the gap recorded in urban districts and those recorded in large central cities and the nation. Note that these marked numbers can represent a narrower or wider gap than those recorded for comparison groups.

In 2003, male public school students in the nation scored higher on average than female students by 3 points at grade 4 and

2 points at grade 8. At grade 4, the score gap between male and female students in the District of Columbia was the reverse of the gap in the nation and large central cities (i.e., female students' average score was apparently higher than that of male students). The score gap between male and female students in Los Angeles was wider than that in the nation. At grade 8, there was also an inversion of the score difference for male and female students in Atlanta, Boston, and the District of Columbia (i.e., female students' average scores were apparently higher than those of male students).

Figure 4.3 **Gaps in average mathematics scores, by gender, grades 4 and 8 public schools: By urban district, 2003**



The estimate rounds to zero.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Score gaps are calculated based on differences between unrounded average scale scores. Significance tests were performed using unrounded numbers. Negative numbers indicate that the average 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), 2003 Trial Urban District Mathematics Assessment.

The percentages of male and female students performing below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced* at grades 4 and 8 are presented in table 4.4. At grade 4, the percentages of male and female students performing at or above *Proficient* in public schools nationally were higher than the percentages for all districts except Charlotte, where the percentages of both male and female students at or above *Proficient* were higher than for the nation. Compared with male and female students in large central city public schools, higher percentages of male and female fourth-grade students in Charlotte performed at or above *Proficient*.

At grade 8, a higher percentage of male students in Charlotte performed at or above *Proficient* than in public schools nationally and in large central cities. A higher percentage of female eighth-grade students in Charlotte and New York City performed at or above *Proficient* than did students in large central city public schools. The percentages of male and female students at or above *Proficient* were lower in Atlanta, Chicago, Cleveland, the District of Columbia, Houston, and Los Angeles than in large central city public schools.

Table 4.4 Percentages of students, by mathematics achievement level and gender, grades 4 and 8 public schools: By urban district, 2003

	Male				Female			
	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Grade 4								
Nation (public)	23	77	34	5	25	75	29	3
Large central city (public)	36 **	64 **	22 **	3 **	38 **	62 **	19 **	2 **
Atlanta	51 *,**	49 *,**	13 *,**	3	49 *,**	51 *,**	13 *,**	2
Boston	40 **	60 **	14 *,**	1 *,**	42 **	58 **	11 *,**	1 **
Charlotte	16 *,**	84 *,**	42 *,**	7 *	15 *,**	85 *,**	40 *,**	5 *
Chicago	49 *,**	51 *,**	11 *,**	1 *,**	50 *,**	50 *,**	9 *,**	1 *,**
Cleveland	49 *,**	51 *,**	11 *,**	# *,**	49 *,**	51 *,**	8 *,**	#
District of Columbia	64 *,**	36 *,**	8 *,**	1 *,**	63 *,**	37 *,**	7 *,**	1 *,**
Houston	30 **	70 **	19 **	2 **	31 *,**	69 *,**	17 **	1 **
Los Angeles	43 *,**	57 *,**	15 *,**	1 *,**	53 *,**	47 *,**	11 *,**	1 *,**
New York City	31 *,**	69 *,**	23 **	3	35 **	65 **	19 **	2
San Diego	33 **	67 **	21 **	3	34 **	66 **	19 **	1 **
Grade 8								
Nation (public)	33	67	29	6	34	66	26	4
Large central city (public)	48 **	52 **	18 **	3 **	51 **	49 **	15 **	2 **
Atlanta	71 *,**	29 *,**	6 *,**	1 *,**	69 *,**	31 *,**	5 *,**	1 *,**
Boston	52 *,**	48 *,**	17 **	4	52 **	48 **	18 **	4
Charlotte	32 *	68 *	33 *,**	8 *,**	33 *	67 *	30 *	6 *
Chicago	57 *,**	43 *,**	10 *,**	1 *,**	60 *,**	40 *,**	8 *,**	1 *,**
Cleveland	61 *,**	39 *,**	7 *,**	#	64 *,**	36 *,**	5 *,**	#
District of Columbia	71 *,**	29 *,**	7 *,**	1 *,**	71 *,**	29 *,**	5 *,**	1 *,**
Houston	46 **	54 **	14 *,**	2 **	50 **	50 **	10 *,**	1 *,**
Los Angeles	67 *,**	33 *,**	8 *,**	1 *,**	68 *,**	32 *,**	7 *,**	1 *,**
New York City	46 **	54 **	20 **	4	46 **	54 **	20 *,**	4
San Diego	45 **	55 **	21 **	2 **	50 **	50 **	16 **	2 **

The estimate rounds to zero.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Detail may not sum to totals because of rounding. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Race/Ethnicity

Average scale scores by race/ethnicity for grades 4 and 8 in urban districts are displayed in table 4.5. In each of the urban districts assessed, Black students and/or Hispanic students constitute the majority or the largest racial/ethnic public school sample groups (see table B.17 in appendix B). This distribution differs from that for the national public school sample, in which White students constitute a majority—58 percent of the fourth-grade sample and 62 percent of the eighth-grade sample.

At grade 4, the average scale score for White students in Charlotte, the District of Columbia, and Houston; Black students in Charlotte and Houston; and Hispanic students in Charlotte and Houston was higher than the corresponding scores in large central cities and the nation. The average score for Black students in Boston and New York City was higher than that in large central cities. The average scores for fourth-grade White students in Boston, Chicago, and Cleveland; Black students in Chicago and the District of Columbia; and Hispanic students in Boston, the District of Columbia, Los Angeles, and San Diego were lower than the corresponding scores in large central cities and in the nation.

At grade 8, the average scale score was higher for White students in Charlotte and Houston; Black students in Charlotte and Houston; and Asian/Pacific Islander students in Boston than the corresponding scores in large central cities and the nation. The average score for eighth-grade White students in Cleveland; Black students in Atlanta, the District of Columbia, and Los Angeles; and Hispanic students in the District of Columbia, Los Angeles, and San Diego was lower than the corresponding scores in large central cities and the nation.

Table 4.5 Average mathematics scale scores, by race/ethnicity, grades 4 and 8 public schools: By urban district, 2003

	White	Black	Hispanic	Asian/ Pacific Islander
Grade 4				
Nation (public)	243	216	221	246
Large central city (public)	243	212 **	220 **	246
Atlanta	258	211 **	‡	‡
Boston	234 *,**	216 *	215 *,**	243
Charlotte	257 *,**	229 *,**	233 *,**	252
Chicago	235 *,**	207 *,**	217 **	‡
Cleveland	233 *,**	210 **	220	‡
District of Columbia	262 *,**	202 *,**	205 *,**	‡
Houston	254 *,**	221 *,**	226 *,**	‡
Los Angeles	241	208 **	211 *,**	241
New York City	244	219 *	220	247
San Diego	243	216	216 *,**	238 **
Grade 8				
Nation (public)	287	252	258	289
Large central city (public)	285	247 **	257	282 **
Atlanta	298 *	241 *,**	‡	‡
Boston	289	251	252 **	300 *,**
Charlotte	301 *,**	258 *,**	262	293 *
Chicago	276 **	245 **	259	286
Cleveland	269 *,**	249	249 **	‡
District of Columbia	‡	240 *,**	246 *,**	‡
Houston	293 *,**	259 *,**	261 *	‡
Los Angeles	277	234 *,**	240 *,**	275 **
New York City	289	253 *	260	286
San Diego	284	252	248 *,**	278 **

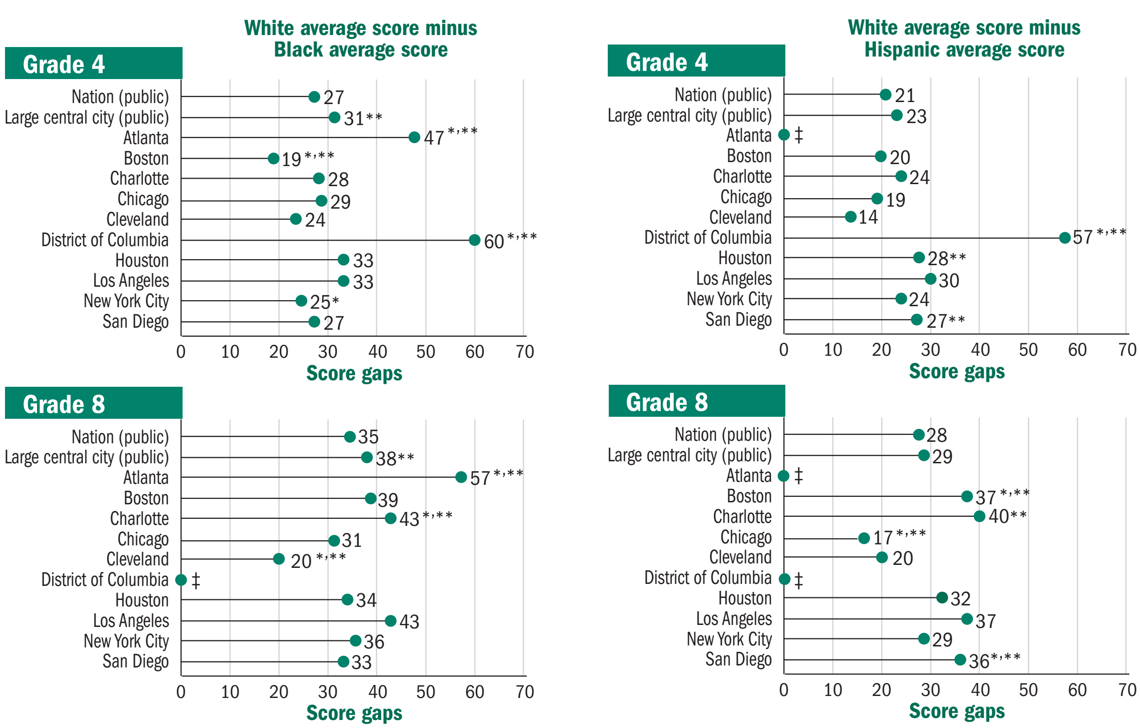
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Significance tests were performed using unrounded numbers. American Indian/Alaska Native and "Other" data are not shown because of insufficient sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

The average score gaps in 2003 between White students and Black students and between White students and Hispanic students are presented in figure 4.4. Numbers marked with asterisks indicate statistical differences between the gaps recorded in urban districts and those recorded in large central cities and the nation. Note that these marked numbers can represent narrower or wider gaps than those recorded for the comparison group.

At grade 4, the gap between White students and Black students in Boston and New York City was narrower than that in large central cities; the gap in Atlanta and the District of Columbia was wider than the gap between White students and Black students in large central cities. The gap between White students and Hispanic students was wider in the District of Columbia than the gap in large central cities.

At grade 8, the gap between White students and Black students in Cleveland was narrower than the gap in large central cities, and the gap in Atlanta and Charlotte was wider than the gap between White students and Black students in large central cities. The gap between White students and Hispanic students for eighth-graders was wider in Boston and San Diego than in large central cities. In Chicago, the gap between White students and Hispanic students was narrower than that in large central cities and the nation; this gap was wider in Charlotte than in the nation.

Figure 4.4 Gaps in average mathematics scores, by race/ethnicity, grades 4 and 8 public schools: By urban district, 2003



‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Score gaps are calculated based on differences between unrounded average scale scores. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Mathematics achievement-level results for racial/ethnic subgroups are presented in table 4.6. At grade 4, the percentage of students performing at or above *Proficient* was higher for White students in Atlanta, Charlotte, the District of Columbia, and Houston; Black students in Charlotte and New York City; and Hispanic students in Charlotte than the corresponding percentage in large central cities. The percentage of fourth-grade students performing at or above *Proficient* was lower for White students in Boston, Chicago, and Cleveland; Black students in Chicago, Cleveland, and the District of Columbia; and Hispanic students in Boston, the District of Columbia, Los Angeles, and San Diego than the corresponding percentage in large central cities.

At grade 8, the percentage of students at or above *Proficient* was higher for White students in Atlanta, Boston, Charlotte, and Houston and for Black students in Charlotte and New York City than that of their counterparts in large central cities. The percentage of eighth-grade students at or above *Proficient* for White students in Cleveland; Black students in Atlanta, the District of Columbia, and Los Angeles; and Hispanic students in Boston, the District of Columbia, Los Angeles, and San Diego was lower than the corresponding percentage in large central cities.

Table 4.6 Percentages of students, by mathematics achievement level and race/ethnicity, grades 4 and 8 public schools: By urban district, 2003

	White				Black			
	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Grade 4								
Nation (public)	13	87	42	5	46	54	10	#
Large central city (public)	15	85	42	6	53 **	47 **	8 **	#
Atlanta	11	89	70 *,**	20 *,**	55 **	45 **	7 **	#
Boston	23 **	77 **	32 *,**	5	45 *	55 *	6 **	#
Charlotte	4 *,**	96 *,**	66 *,**	12 *,**	27 *,**	73 *,**	20 *,**	1
Chicago	18	82	31 *,**	2 *	61 *,**	39 *,**	4 *,**	#
Cleveland	20	80	27 *,**	2 *,**	56 **	44 **	5 *,**	#
District of Columbia	3 *,**	97 *,**	71 *,**	21 *,**	67 *,**	33 *,**	4 *,**	#
Houston	4 *,**	96 *,**	63 *,**	7	38 *,**	62 *,**	12	#
Los Angeles	17	83	44	4	58	42	6	#
New York City	12	88	42	7	42 *	58 *	12 *	#
San Diego	13	87	41	6	46	54	8	#
Grade 8								
Nation (public)	21	79	36	7	61	39	7	#
Large central city (public)	23 **	77 **	36	7	66 **	34 **	5 **	#
Atlanta	17	83	54 *,**	15	74 *,**	26 *,**	3 *,**	#
Boston	23	77	48 *,**	11	64	36	6	#
Charlotte	9 *,**	91 *,**	55 *,**	15 *,**	53 *,**	47 *,**	11 *,**	1
Chicago	32 **	68 **	25	5	71 **	29 **	4	#
Cleveland	37 *,**	63 *,**	14 *,**	1	68 **	32 **	5 **	#
District of Columbia	‡	‡	‡	‡	74 *,**	26 *,**	3 *,**	#
Houston	20	80	47 *,**	11	53 *,**	47 *,**	7	1
Los Angeles	33 **	67 **	29	7	79 *,**	21 *,**	2 *,**	#
New York City	21	79	40	9	60 *	40 *	9 *	1
San Diego	24	76	35	5	61	39	7	#

See notes at end of table. ▶

Table 4.6 Percentages of students, by mathematics achievement level and race/ethnicity, grades 4 and 8 public schools: By urban district, 2003—Continued

	Hispanic				Asian/Pacific Islander			
	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Grade 4								
Nation (public)	38	62	15	1	13	87	48	10
Large central city (public)	40	60	13 **	# **	14	86	48	10
Atlanta	‡	‡	‡	‡	‡	‡	‡	‡
Boston	49 *,**	51 *,**	7 *,**	#	13	87	43	4
Charlotte	20 *,**	80 *,**	26 *	1	10	90	60	9
Chicago	45	55	10 **	1	‡	‡	‡	‡
Cleveland	42	58	14	#	‡	‡	‡	‡
District of Columbia	61 *,**	39 *,**	7 *,**	#	‡	‡	‡	‡
Houston	30 *,**	70 *,**	15	1	‡	‡	‡	‡
Los Angeles	54 *,**	46 *,**	7 *,**	# **	14	86	38	4 **
New York City	40	60	13	#	11	89	47	9
San Diego	47 *,**	53 *,**	9 *,**	#	16	84	32 **	4 **
Grade 8								
Nation (public)	53	47	11	1	23	77	42	12
Large central city (public)	56	44	10	1	29 **	71 **	33 **	6 **
Atlanta	‡	‡	‡	‡	‡	‡	‡	‡
Boston	62 **	38 **	7 *,**	#	13 *,**	87 *,**	57 *,**	18 *
Charlotte	54	46	18	1	19	81	43	14
Chicago	52	48	8	# *,**	22	78	36	8
Cleveland	65	35	2	#	‡	‡	‡	‡
District of Columbia	67 *,**	33 *,**	3 *,**	#	‡	‡	‡	‡
Houston	51	49	9 **	# *,**	‡	‡	‡	‡
Los Angeles	74 *,**	26 *,**	3 *,**	#	36 **	64 **	25 **	3 **
New York City	52	48	15	2	26	74	38	10
San Diego	66 *,**	34 *,**	6 *,**	#	31 **	69 **	28 **	3 **

The estimate rounds to zero.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years resulting in smaller detectable differences than in previous assessments. Detail may not sum to totals because of rounding. Significance tests were performed using unrounded numbers. American Indian/Alaska Native and "Other" data are not shown because of insufficient sample sizes.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Students' Eligibility for Free/Reduced-Price School Lunch

Table 4.7 displays the average scale scores for public school students in the nation, large central cities, and the participating urban districts by free/reduced-price lunch eligibility. Note that Cleveland chose to define all of its students as eligible for the lunch program. (See table B.18 in appendix B for the percentages of students by eligibility status.) At grade 4, the average score for students eligible for free/reduced-price lunch in Charlotte was higher than the average score for large central cities and the nation. The average score for eligible students in Houston and New York City was higher than in large central cities. The average score for eligible students in Atlanta, Chicago, the District of Columbia, and Los Angeles was lower than the average score for eligible students in large central cities and the nation.

At grade 8, the average score for students who were eligible for free/reduced-price lunch in Boston, Houston, and New York City was higher than the average score for large central cities. The average score for eligible students in Atlanta, the District of Columbia, and Los Angeles was lower than the average score in large central cities and the nation.

Table 4.7 Average mathematics scale scores, by eligibility for free/reduced-price school lunch, grades 4 and 8 public schools: By urban district, 2003

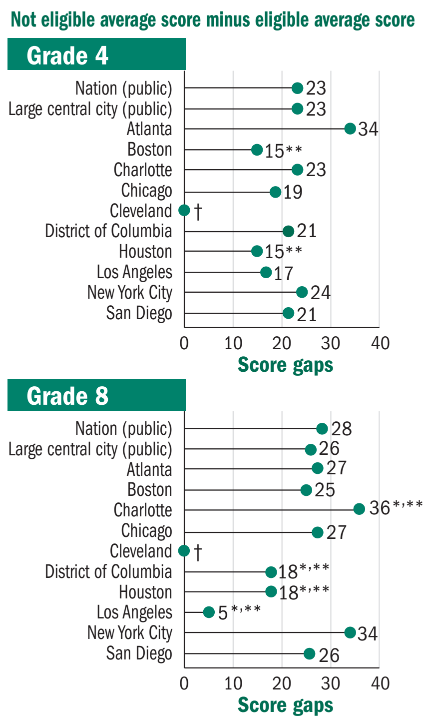
	Eligible	Not eligible	Information not available
Grade 4			
Nation (public)	222	244	235
Large central city (public)	217 **	240 **	233
Atlanta	209 *,**	244	‡
Boston	218 **	233 **	221 *,**
Charlotte	229 *,**	252 *,**	‡
Chicago	212 *,**	230 *,**	227
Cleveland	215 **	†	†
District of Columbia	200 *,**	221 *,**	206 *,**
Houston	223 *	239	‡
Los Angeles	212 *,**	229 *,**	239 *
New York City	224 *	248 *	243
San Diego	217 **	239 **	235
Grade 8			
Nation (public)	258	287	278
Large central city (public)	253 **	279 **	265 **
Atlanta	239 *,**	265 *,**	263 **
Boston	256 *	282	271 **
Charlotte	256	292 *,**	‡
Chicago	252 **	279	264 **
Cleveland	253 **	†	†
District of Columbia	235 *,**	254 *,**	252 *,**
Houston	259 *	276 **	‡
Los Angeles	240 *,**	245 *,**	255 *,**
New York City	261 *	295 *	277
San Diego	252 **	278 **	‡

† Not applicable. In Cleveland, all students were categorized as eligible for the school lunch program.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Figure 4.5 displays the gap in the average scores between students who were eligible for free/reduced-price lunch and those who were not eligible in the urban districts. In 2003, public school students in the nation who were not eligible for free/reduced-price lunch scored higher on average than eligible students by 23 points at grade 4, and by 28 points at grade 8.

At grade 4, the gaps in Boston and Houston were narrower than the nation's. At grade 8, the District of Columbia, Houston, and Los Angeles had narrower score gaps than large central cities and the nation, while Charlotte had a wider gap in the average score than the gaps found in large central cities and in the nation.

Figure 4.5 Gaps in average mathematics scores, by eligibility for free/reduced-price school lunch, grades 4 and 8 public schools: By urban district, 2003



† Not applicable. In Cleveland, all students were categorized as eligible for the school lunch program.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Score gaps are calculated based on differences between unrounded average scale scores. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Achievement-level results by eligibility for free/reduced-price lunch for grades 4 and 8 are shown in table 4.8. At grade 4, the percentage of students eligible for free/reduced-price school lunch who performed at or above *Proficient* was higher in Charlotte and New York City than in large central cities. The percentage of eligible students at or above *Proficient* was lower in Atlanta, Chicago, the District of Columbia, and Los Angeles than in large central cities and the nation.

At grade 8, the percentage of students eligible for free/reduced-price lunch who performed at or above *Proficient* was higher in Boston and New York City than in large central cities, and higher in New York City than in the nation. The percentage of eligible students at or above *Proficient* was lower in Atlanta, Cleveland, the District of Columbia, and Los Angeles than in large central cities and the nation.

Table 4.8 Percentages of students, by mathematics achievement level and eligibility for free/reduced-price school lunch, grades 4 and 8 public schools: By urban district, 2003

	Eligible				Not eligible			
	Below ***Basic***	At or above ***Basic***	At or above ***Proficient***	At ***Advanced***	Below ***Basic***	At or above ***Basic***	At or above ***Proficient***	At ***Advanced***
Grade 4								
Nation (public)	38	62	15	1	12	88	45	6
Large central city (public)	45 **	55 **	12 **	1	19 **	81 **	40	7
Atlanta	57 *,**	43 *,**	5 *,**	#	21	79	50	11
Boston	43 **	57 **	10 **	1	24 **	76 **	31 **	3
Charlotte	26 *,**	74 *,**	19 *	2	8 *,**	92 *,**	59 *,**	10
Chicago	53 *,**	47 *,**	8 *,**	# *,**	28 **	72 **	24 *,**	2
Cleveland	49 **	51 **	10 **	#	†	†	†	†
District of Columbia	71 *,**	29 *,**	3 *,**	#	43 *,**	57 *,**	20 *,**	4
Houston	34 *	66 *	13	1	18	82	37	4
Los Angeles	53 *,**	47 *,**	8 *,**	# **	30 *,**	70 *,**	25 *,**	2
New York City	36 *	64 *	18 *	2 *	11 *	89 *	49	9
San Diego	44 **	56 **	10 **	#	18	82	35 **	5
Grade 8								
Nation (public)	53	47	11	1	22	78	37	7
Large central city (public)	60 **	40 **	9 **	1	31 **	69 **	31 **	6 **
Atlanta	76 *,**	24 *,**	2 *,**	#	48 *,**	52 *,**	19 *,**	4
Boston	57 **	43 **	11 *	2	32 **	68 **	35	11
Charlotte	56	44	10	1	19 *	81 *	44 *,**	11 *,**
Chicago	61 **	39 **	7 **	1	30	70	30	5
Cleveland	62 **	38 **	6 *,**	#	†	†	†	†
District of Columbia	79 *,**	21 *,**	2 *,**	# *,**	60 *,**	40 *,**	12 *,**	3 *,**
Houston	54 *	46 *	7 **	# **	35 **	65 **	25 *,**	5
Los Angeles	72 *,**	28 *,**	4 *,**	# *,**	67 *,**	33 *,**	7 *,**	#
New York City	51 *	49 *	15 *,**	2	18 *	82 *	49 *	14 *
San Diego	61 **	39 **	9	#	31 **	69 **	29 **	4 **

See notes at end of table. ▶

Table 4.8 Percentages of students, by mathematics achievement level and eligibility for free/reduced-price school lunch, grades 4 and 8 public schools: By urban district, 2003—Continued

	Information not available			
	Below ***Basic***	At or above ***Basic***	At or above ***Proficient***	At ***Advanced***
Grade 4				
Nation (public)	23	77	34	4
Large central city (public)	26	74	31	3
Atlanta	‡	‡	‡	‡
Boston	42 *,**	58 *,**	14 *,**	2
Charlotte	‡	‡	‡	‡
Chicago	31	69	20 **	3
Cleveland	†	†	†	†
District of Columbia	61 *,**	39 *,**	7 *,**	#
Houston	‡	‡	‡	‡
Los Angeles	20	80	41 *	4
New York City	11 *	89 *	41	5
San Diego	20	80	30	4
Grade 8				
Nation (public)	32	68	29	6
Large central city (public)	48 **	52 **	19 **	4
Atlanta	52 **	48 **	22	6
Boston	43 **	57 **	31 *	8
Charlotte	‡	‡	‡	‡
Chicago	49 **	51 **	17 **	3
Cleveland	†	†	†	†
District of Columbia	59 *,**	41 *,**	7 *,**	1
Houston	‡	‡	‡	‡
Los Angeles	58 *,**	42 *,**	14 **	3 **
New York City	35	65	31	11
San Diego	‡	‡	‡	‡

† Not applicable. In Cleveland, all students were categorized as eligible for free/reduced-price school lunch.
# The estimate rounds to zero.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Detail may not sum to totals because of rounding. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Student-Reported Highest Level of Parents' Education

Eighth-grade students who participated in the NAEP 2003 mathematics assessment, including those in the TUDA, were asked to indicate, from among five options, the highest level of education completed by each parent. The percentage of eighth-grade public school students who reported at least one parent had graduated from college was 45 percent nationally, 38 percent in large central cities, and ranged from 24 to 55 percent in the participating districts. (See table B.19 in appendix B.)

Table 4.9 displays the average score for eighth-graders who chose each category as the highest level of education for either parent. In 2003, the average score for students who indicated that a parent graduated from college was lower in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles than the average score for students in the same parental education category in public schools in large central cities and the nation. The average score for students who reported that a parent graduated from college was higher in Charlotte and San Diego than for comparable students in large central cities across the nation.

Table 4.9 Average mathematics scale scores, by student-reported parents' highest level of education, grade 8 public schools: By urban district, 2003

Grade 8	Less than high school	Graduated high school	Some education after high school	Graduated college	Unknown
Nation (public)	256	267	280	287	258
Large central city (public)	253 **	255 **	268 **	272 **	252 **
Atlanta	240 *,**	238 *,**	253 *,**	250 *,**	231 *,**
Boston	253	256 **	268 **	273 **	251 **
Charlotte	‡	255 **	281 *	289 *	266 *,**
Chicago	256	250 *,**	262 *,**	257 *,**	249 **
Cleveland	255	252 **	260 *,**	251 *,**	248 **
District of Columbia	236 *,**	235 *,**	252 *,**	250 *,**	239 *,**
Houston	259 *	257 **	270 **	274 **	259 *
Los Angeles	242 *,**	240 *,**	253 *,**	257 *,**	238 *,**
New York City	260	260 **	272 **	275 **	253 **
San Diego	250 **	256 **	270 **	278 *,**	249 **

‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

Table 4.10 displays achievement-level results by the student's report of the highest level of education for either parent for eighth-grade students in the urban districts. In 2003, the percentage of students performing at or above *Proficient* who indicated that at least one parent had graduated from high school was not found to be significantly different for Charlotte and New York City than for the nation. The percentage of students at or above *Proficient* in this category was lower for all other urban districts than the percentage for the nation.

Among students who reported that a parent graduated from college, the percentage of students performing at or above *Proficient* was higher in Charlotte and San Diego than for comparable students in large central cities across the nation. In this same category, the percentages of students performing at or above *Proficient* in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles were lower than in large central cities.

Table 4.10 Percentages of students, by mathematics achievement level and student-reported parents' highest level of education, grade 8 public schools: By urban district, 2003

Grade 8	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Less than high school				
Nation (public)	56	44	9	1
Large central city (public)	59 **	41 **	7	1
Atlanta	74 *,**	26 *,**	3	#
Boston	63	37	13	3
Charlotte	‡	‡	‡	‡
Chicago	57	43	10	#
Cleveland	58	42	5	1
District of Columbia	75 *,**	25 *,**	2	#
Houston	54	46	7	#
Los Angeles	72 *,**	28 *,**	5 **	#
New York City	51	49	14	3
San Diego	64	36	6	#
Graduated high school				
Nation (public)	42	58	16	2
Large central city (public)	59 **	41 **	10 **	1
Atlanta	80 *,**	20 *,**	2 *,**	#
Boston	61 **	39 **	11 **	2
Charlotte	59 **	41 **	11	2
Chicago	63 **	37 **	6 *,**	#
Cleveland	63 **	37 **	4 *,**	#
District of Columbia	81 *,**	19 *,**	1 *,**	#
Houston	56 **	44 **	7 **	#
Los Angeles	73 *,**	27 *,**	4 *,**	#
New York City	52 **	48 **	16	2
San Diego	57 **	43 **	9 **	#
Some education after high school				
Nation (public)	27	73	28	4
Large central city (public)	42 **	58 **	19 **	2 **
Atlanta	60 *,**	40 *,**	6 *,**	#
Boston	43 **	57 **	19 **	2
Charlotte	28 *	72 *	29 *	6
Chicago	50 **	50 **	11 *,**	1 **
Cleveland	52 *,**	48 *,**	10 *,**	#
District of Columbia	63 *,**	37 *,**	6 *,**	#
Houston	41 **	59 **	13 **	2 **
Los Angeles	58 *,**	42 *,**	10 *,**	1
New York City	36 **	64 **	23	2
San Diego	39 **	61 **	18 **	1

See notes at end of table. ▶

Table 4.10 Percentages of students, by mathematics achievement level and student-reported parents' highest level of education, grade 8 public schools: By urban district, 2003—Continued

Grade 8	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Graduated college				
Nation (public)	23	77	39	8
Large central city (public)	39 **	61 **	26 **	5 **
Atlanta	65 *,**	35 *,**	10 *,**	2 *,**
Boston	41 **	59 **	26 **	7
Charlotte	24 *	76 *	43 *	11 *
Chicago	57 *,**	43 *,**	12 *,**	2 *,**
Cleveland	67 *,**	33 *,**	6 *,**	#
District of Columbia	64 *,**	36 *,**	11 *,**	3 *,**
Houston	38 **	62 **	23 **	5 **
Los Angeles	54 *,**	46 *,**	15 *,**	3 **
New York City	38 **	62 **	27 **	6
San Diego	33 *,**	67 *,**	32 *,**	5 **
Unknown				
Nation (public)	53	47	12	1
Large central city (public)	61 **	39 **	9 **	1 **
Atlanta	81 *,**	19 *,**	2 *,**	#
Boston	63 **	37 **	10	2
Charlotte	41 *,**	59 *,**	19 *	2
Chicago	63 **	37 **	6 **	#
Cleveland	69 **	31 **	5 **	#
District of Columbia	75 *,**	25 *,**	3 *,**	1
Houston	53 *	47 *	7 **	#
Los Angeles	77 *,**	23 *,**	3 *,**	#
New York City	59 **	41 **	11	1
San Diego	62 **	38 **	7 **	#

The estimate rounds to zero.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: NAEP sample sizes have increased in 2003 compared to previous years, resulting in smaller detectable differences than in previous assessments. Detail may not sum to totals because of rounding. Significance tests were performed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Trial Urban District Mathematics Assessment.

5 Sample Assessment Questions and Student Responses

This chapter presents sample questions and examples of student responses from the NAEP 2003 mathematics assessment. Six representative questions, including both multiple-choice and constructed-response questions, are provided for each grade. For each question, the content area and mathematical ability being assessed, as described in the framework, along with a brief commentary and the scale score indicating where the question falls on the NAEP item map, are given at the end of this chapter. For multiple-choice questions, the oval corresponding to the correct answer is filled in. Constructed-response questions are accompanied by scoring guides with the correct answer, a summary of the scoring criteria for each response level, and sample student responses with assigned scores and brief commentary. The student responses presented in this chapter were selected to illustrate how questions were scored. Additional questions, as well as student performance data, detailed scoring guides, and sample student responses from the current and previous NAEP assessments, are available on the NAEP web site (http://nces.ed.gov/nationsreportcard/itmrls).

To indicate how students performed on the sample questions, each question included in this chapter is accompanied by a table presenting two types of performance data: (a) the overall percentage of students who answered successfully and (b) the percentage of students who answered successfully within specific score ranges on the NAEP mathematics scale. The score ranges correspond to the three achievement-level intervals—

Basic, *Proficient*, and *Advanced*—as well as the range below *Basic*.

The sample questions are also marked on the item maps at the end of this chapter. The location of each four-option multiple-choice question on the item map represents the average scale score of students who had a 74 percent probability of answering the question correctly. The location of each five-option multiple-choice question represents the average score of students who had a 72 percent probability of answering the question correctly. The location on the item map of each constructed-response question represents the average scale score of students who had a 65 percent probability of receiving the score level being mapped.

Grade 4 Sample Assessment Questions and Results

Sample questions from the fourth-grade mathematics assessment include four multiple-choice questions, one short constructed-response question, and one extended constructed-response question. Information about the content area and mathematical ability for each question shows where the question fits into the NAEP mathematics framework.

Grade 4

Sample Question 1 (multiple-choice)

In sample question 1, students were asked to add two 3-digit numbers. Students are expected to be able to compute with numbers at each grade level assessed by NAEP. Some questions, such as this one, are administered in a block that does not permit calculator use. For this question, students are instructed to add; however, for other questions, presented in the context of a story problem, students must decide whether to add, subtract, multiply, or divide. Computation exercises are presented in both calculator and noncalculator blocks. This question was easy for the students, with 89 percent of fourth-graders choosing the correct answer. This question appears on the item map at scale score 172.

Add: $\begin{array}{r} 238 \\ +\ 462 \\ \hline \end{array}$

Ⓐ 600
Ⓑ 690
● 700
Ⓓ 790

Mathematics Content Area:
Number Sense, Properties, and Operations

Mathematical Ability:
Procedural Knowledge

Table 5.1 Percentage scored correct for multiple-choice sample question 1, by achievement-level range, grade 4: 2003

Grade 4

	Percentage correct			
Overall percentage correct	Below ***Basic*** **213 or below[1]**	At ***Basic*** **214–248[1]**	At ***Proficient*** **249–281[1]**	At ***Advanced*** **282 or above[1]**
89	79	91	95	97

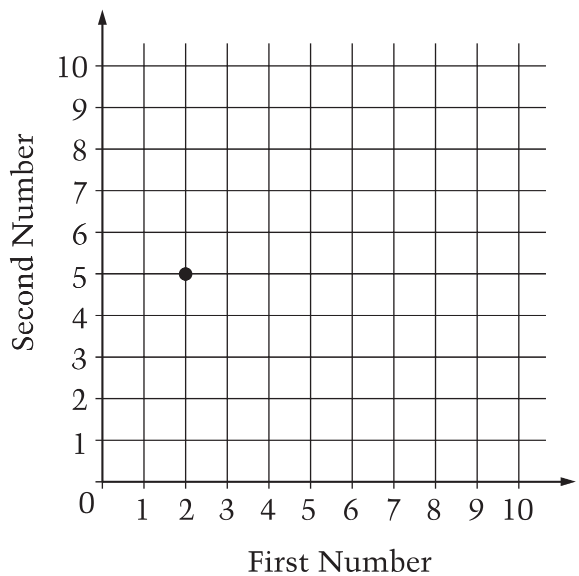
[1] NAEP mathematics composite scale range.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Grade 4

Sample Question 2 (short constructed-response)

In sample question 2, students were asked to locate two points on a coordinate grid. By the fourth grade, students are beginning to learn how to plot points such as (2, 5) on a grid. However, their experience in plotting points is limited and they may need to be reminded that the first number in a pair is plotted along the horizontal axis and the second number is its location along the vertical axis. So, for this question, the location of (2, 5) is given and the student is asked to locate two other points. It is important that students learn how to plot points because, in later years, they will be graphing equations and investigating relationships between numbers in scatterplots. Answers to this question were scored either as "Correct" (both points were located correctly), "Partial" (only one of the two points was located correctly), or "Incorrect." This question was of moderate difficulty for the students, with 71 percent of fourth-grade responses scored as "Partial" or better and 44 percent of fourth-grade responses scored as "Correct." This question appears on the item map at scale score 265 for students whose response was scored as "Correct."

A point is shown on the grid below. The coordinates of the point are (2, 5).



On the same grid draw the point with coordinates (4, 7) and the point with coordinates (8, 0).

Mathematics Content Area:
Algebra and Functions

Mathematical Ability:
Procedural Knowledge

Table 5.2a Percentage scored "Partial" or better for short constructed-response sample question 2, by achievement-level range, grade 4: 2003

Grade 4

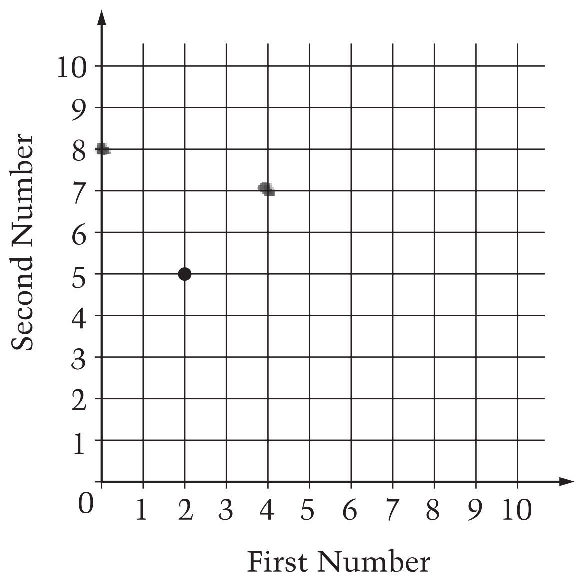
	Percentage "Partial" or better			
Overall percentage "Partial" or better	Below ***Basic*** **213 or below**[1]	At ***Basic*** **214–248**[1]	At ***Proficient*** **249–281**[1]	At ***Advanced*** **282 or above**[1]
71	45	72	87	95

[1] NAEP mathematics composite scale range.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Sample "Partial" Response

The following sample response was scored as "Partial" because the point (8, 0) was incorrectly plotted at the position (0, 8). The point (4, 7) was plotted correctly.

A point is shown on the grid below. The coordinates of the point are (2, 5).



On the same grid draw the point with coordinates (4, 7) and the point with coordinates (8, 0).

Table 5.2b Percentage scored "Correct" for short constructed-response sample question 2, by achievement-level range, grade 4: 2003

Grade 4

	Percentage "Correct"			
Overall percentage "Correct"	Below ***Basic*** **213 or below**[1]	At ***Basic*** **214–248**[1]	At ***Proficient*** **249–281**[1]	At ***Advanced*** **282 or above**[1]
44	21	41	59	78

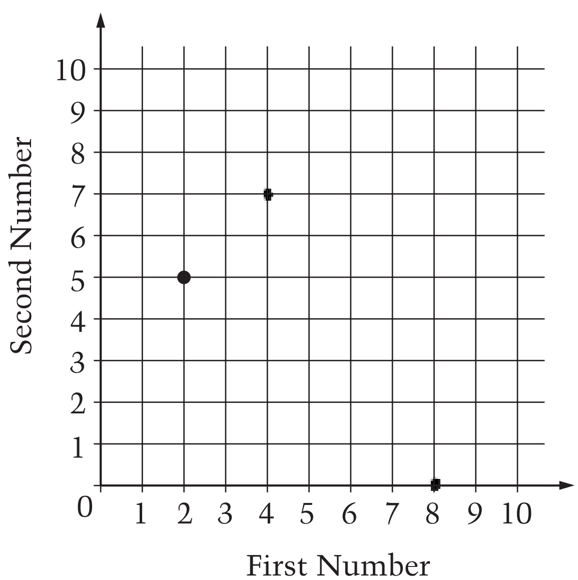
[1] NAEP mathematics composite scale range.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Sample "Correct" Response

The following sample response was scored as "Correct" because the points (8, 0) and (4, 7) were both plotted correctly.

A point is shown on the grid below. The coordinates of the point are (2, 5).

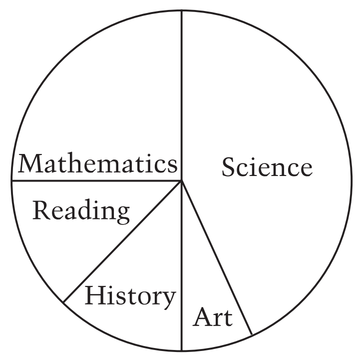


On the same grid draw the point with coordinates (4, 7) and the point with coordinates (8, 0).

Grade 4

Sample Question 3 (multiple-choice)

In sample question 3, students were asked to interpret information presented in a pie chart and use this information to solve a problem. This question required students to bring together reasoning skills and problem-solving strategies. Students at the fourth-grade level have worked with various representations of data, including pictographs, bar graphs, pie charts, and line graphs. For this question, the student first needed to recognize that the two hours spent on mathematics accounted for 1/4 of the time spent on homework. The student then needed to use this information to determine that the total amount of time spent on homework was eight hours. Fourth-grade students could arrive at this answer using informal reasoning skills and knowledge of fractional parts. This question was of moderate difficulty for the students, with 51 percent of fourth-graders choosing the correct answer. This question appears on the item map at scale score 268.



The pie chart above shows the portion of time Pat spent on homework in each subject last week. If Pat spent 2 hours on mathematics, about how many hours did Pat spend on homework altogether?

Ⓐ 4
● 8
Ⓒ 12
Ⓓ 16

Mathematics Content Area:
Data Analysis, Statistics, and Probability

Mathematical Ability:
Problem Solving

Table 5.3 Percentage scored correct for multiple-choice sample question 3, by achievement-level range, grade 4: 2003

Grade 4

	Percentage correct			
Overall percentage correct	Below *Basic* 213 or below[1]	At *Basic* 214–248[1]	At *Proficient* 249–281[1]	At *Advanced* 282 or above[1]
51	28	45	73	92

[1] NAEP mathematics composite scale range.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Grade 4

Sample Question 4 (multiple-choice)

In sample question 4, students were asked to determine the length of one side of a square given the perimeter. Students at the fourth-grade level have been taught properties of common geometric figures, including how to find the perimeter. To solve this problem, the student needed to know that a square has 4 sides of equal length. In order for the perimeter to be 36 inches, each side must be 36 ÷ 4 = 9 inches long. This question was somewhat difficult for the students, with 47 percent of fourth-graders choosing the correct answer. This question appears on the item map at scale score 273.

The perimeter of a square is 36 inches. What is the length of one side of the square?

Ⓐ 4 inches

Ⓑ 6 inches

● 9 inches

Ⓓ 18 inches

Mathematics Content Area:
Measurement

Mathematical Ability:
Problem Solving

Table 5.4 Percentage scored correct for multiple-choice sample question 4, by achievement-level range, grade 4: 2003

Grade 4

	Percentage correct			
Overall percentage correct	Below ***Basic*** **213 or below**[1]	At ***Basic*** **214–248**[1]	At ***Proficient*** **249–281**[1]	At ***Advanced*** **282 or above**[1]
47	19	40	75	92

[1] NAEP mathematics composite scale range.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Grade 4

Sample Question 5 (multiple-choice)

In sample question 5, students were asked to solve an inequality involving whole numbers. In the early grades, students begin to have informal experiences with algebraic thinking. For example, there is an emphasis on "completing number sentences" instead of "solving equations." The inequality in this question involves subtraction. Although this increases the difficulty of the question, students could obtain the correct answer by "testing" the values given in the answer choices. In this question, it was important for the student to know that the value 5, for which $8 - \square = 3$, is not part of the correct answer. This question was difficult for the students, with 24 percent of fourth-graders choosing the correct answer. This question appears on the item map at scale score 290.

What are all the whole numbers that make $8 - \square > 3$ true?

- (A) 0, 1, 2, 3, 4, 5
- ● 0, 1, 2, 3, 4
- (C) 0, 1, 2
- (D) 5

Mathematics Content Area:
Alegebra and Functions

Mathematical Ability:
Conceptual Understanding

Table 5.5 Percentage scored correct for multiple-choice sample question 5, by achievement-level range, grade 4: 2003

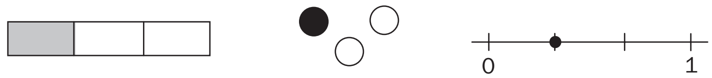
Grade 4

	Percentage correct			
Overall percentage correct	Below ***Basic*** **213 or below[1]**	At ***Basic*** **214–248[1]**	At ***Proficient*** **249–281[1]**	At ***Advanced*** **282 or above[1]**
24	17	19	30	65

[1] NAEP mathematics composite scale range.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Sample Question 6 (extended constructed-response)

In sample question 6, students were asked to demonstrate an understanding of equivalent fractions in the context of a pictorial representation of the fractions. In the early grades, students begin to develop an understanding of fractions by relating them to various models. For example, each of the models below can be used to represent 1/3.

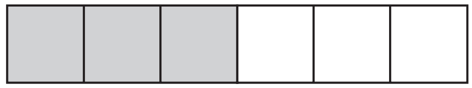


Shaded-Region Model   Discrete Model   Number-Line Model

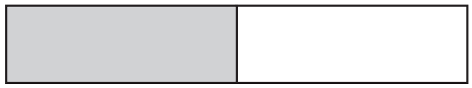
This question uses a shaded-region model in which three rectangular regions of equal length are divided into 6 equal parts, 2 equal parts, and 10 equal parts, respectively. Students are told that the first fraction strip shows 3/6 and are asked what fraction the other strips show. The expected answers are 1/2 and 5/10. By asking, "What do the fractions shown in A, B, and C have in common?" the question assesses students' understanding of equivalent fractions. Students are also asked to shade two other strips to represent different fractions that are equivalent to the ones shown.

Five responses were required for this question: (1) part B, (2) part C, (3) what the fractions have in common, (4) the first fraction strip to be shaded, and (5) the second fraction strip to be shaded. Answers to this question were scored as "Extended" (all five responses were correct), "Satisfactory" (any four responses were correct), "Partial" (any three responses were correct), "Minimal" (any one or two responses were correct), or "Incorrect." This question was difficult for the students, with 30 percent of fourth-grade responses scored as "Satisfactory" or better and only 19 percent of fourth-grade responses scored as "Extended." This question appears on the item map at scale score 293 for students whose response was scored as "Extended."

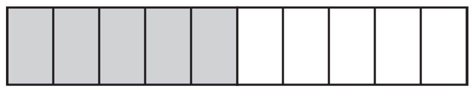
The shaded part of each strip below shows a fraction.

A. 

This fraction strip shows $\frac{3}{6}$.

B. 

What fraction does this fraction strip show? ________________

C. 

What fraction does this fraction strip show? ________________

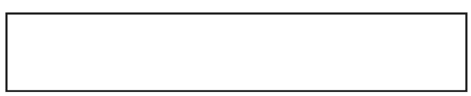
What do the fractions shown in A, B, and C have in common?

____

____

____

Shade in the fraction strips below to show two different fractions that are equivalent to the ones shown in A, B, and C.



Mathematics Context:
Number Sense, Properties, and Operations

Mathematical Ability:
Problem Solving

Table 5.6a Percentage scored as "Satisfactory" or better for extended constructed-response sample question 6, by achievement-level range, grade 4: 2003

Grade 4

	Percentage "Satisfactory" or better			
Overall percentage "Satisfactory" or better	Below ***Basic*** **213 or below**[1]	At ***Basic*** **214–248**[1]	At ***Proficient*** **249–281**[1]	At ***Advanced*** **282 or above**[1]
30	2	19	58	89

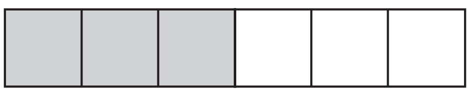
[1] NAEP mathematics composite scale range.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

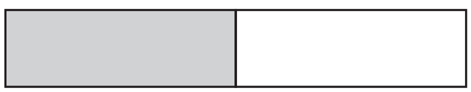
Sample "Satisfactory" Response

The following sample response was scored as "Satisfactory" because credit was not awarded for shading the second fraction strip, which was labeled 2/4 but appears to have 4/8 shaded.

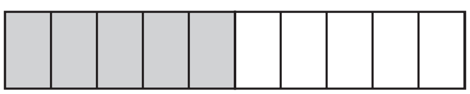
The shaded part of each strip below shows a fraction.

A. 

This fraction strip shows $\frac{3}{6}$.

B. 

What fraction does this fraction strip show? $\frac{1}{2}$

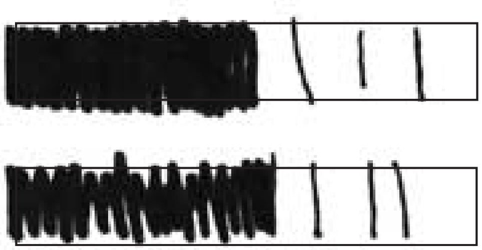
C. 

What fraction does this fraction strip show? $\frac{5}{10}$

What do the fractions shown in A, B, and C have in common?

The fractions in A, B, and C are all half of the number of spaces in the rectangle.

Shade in the fraction strips below to show two different fractions that are equivalent to the ones shown in A, B, and C.



$\frac{4}{8}$

$\frac{2}{4}$

Table 5.6b Percentage scored as "Extended" for extended constructed-response sample question 6, by achievement-level range, grade 4: 2003

Grade 4

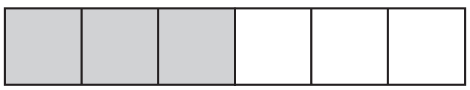
	Percentage "Extended"			
Overall percentage "Extended"	Below ***Basic*** **213 or below**[1]	At ***Basic*** **214–248**[1]	At ***Proficient*** **249–281**[1]	At ***Advanced*** **282 or above**[1]
19	1	9	40	77

[1] NAEP mathematics composite scale range.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

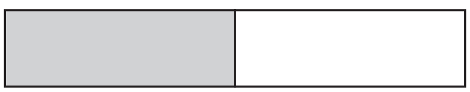
Sample "Extended" Response

The following sample response was scored as "Extended" because all five required responses were correct.

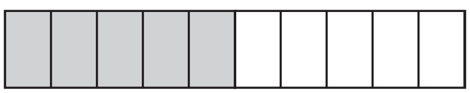
The shaded part of each strip below shows a fraction.

A. 

This fraction strip shows $\frac{3}{6}$.

B. 

What fraction does this fraction strip show? $\frac{1}{2}$

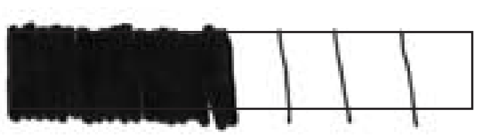
C. 

What fraction does this fraction strip show? $\frac{5}{10}$

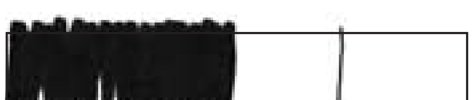
What do the fractions shown in A, B, and C have in common?

They all equal $\frac{1}{2}$ which means they are equivalent.

Shade in the fraction strips below to show two different fractions that are equivalent to the ones shown in A, B, and C.



$\frac{4}{8}$



$\frac{2}{4}$

Grade 8 Sample Assessment Questions and Results

Sample questions from the eighth-grade mathematics assessment include four multiple-choice questions, one short constructed-response question, and one extended constructed-response question. Information about the content area and mathematical ability for each question shows where the question fits into the NAEP mathematics framework.

Grade 8

Sample Question 7 (short constructed-response)

In sample question 7, students were asked to divide a three-digit number by a two-digit number. Students are expected to be able to compute with numbers at each grade level assessed by NAEP. By the eighth grade, students are expected to be able to carry out long division. This sample question is presented in a constructed-response format because, as a multiple-choice question, students could use the choices and work backwards by multiplying to find the answer. This question was in a block that did not permit calculator use; however, other questions in both calculator and noncalculator blocks require significant computing in problem-solving situations. Unlike this sample question—which does not provide a context and specifies the method of computation to be used—other NAEP exercises involve situations that require the students to determine exactly which computation operations need to be employed to reach a solution. This question was scored as either “Correct” or “Incorrect” and was fairly easy for the students, with 73 percent of eighth-graders providing the correct answer. This question appears on the item map at scale score 252 for students whose response was scored as “Correct.”

Divide: $21\overline{)504}$

Answer: ______________________

Mathematic Content Area:
Number Sense, Properties, and Operations

Mathematical Ability:
Procedural Knowledge

Table 5.7 **Percentage scored “Correct” for short constructed-response sample question 7, by achievement-level range, grade 8: 2003**

Grade 8

	Percentage “Correct”			
Overall percentage “Correct”	Below ***Basic*** **261 or below**[1]	At ***Basic*** **262–298**[1]	At ***Proficient*** **299–332**[1]	At ***Advanced*** **333 or above**[1]
73	52	78	89	94

[1] NAEP mathematics composite scale range.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Sample "Correct" Response

The following sample response was scored as "Correct" because the correct answer is 24. Although this response contains complete work for the long division and for checking the answer by multiplying, checking the answer was not required for a "Correct" response.

Divide: $21\overline{)504}$

Answer: 24

$$\begin{array}{r} 24 \\ 21\overline{)504} \\ -42 \\ \hline 84 \\ -84 \\ \hline - \end{array} \qquad \begin{array}{r} \text{Check:} \\ 21 \\ \times 24 \\ \hline 84 \\ 42 \\ \hline 504 \end{array}$$

Grade 8

Sample Question 8 (multiple-choice)

In sample question 8, students were asked to identify a value of x that satisfies a given inequality condition. Algebraic concepts are included in the mathematics curriculum before eighth grade. In fact, more than 50 percent of eighth-grade students are enrolled in algebra or prealgebra at the time they take the NAEP assessment. This sample question uses the variable x in the expression $x + 2$. The student is asked to identify a value of x that would make $x + 2$ less than 12. Of the choices listed, only 8 is a value that satisfies this condition. This question was fairly easy for the students, with 77 percent of eighth-graders choosing the correct answer. This question appears on the item map at scale score 262.

If the value of the expression $x + 2$ is less than 12, which of the following could be a value of x ?

- Ⓐ 16
- Ⓑ 14
- Ⓒ 12
- Ⓓ 10
- ● 8

Mathematic Content Area:
Algebra and Functions

Mathematical Ability:
Procedural Knowledge

Table 5.8 Percentage scored correct for multiple-choice sample question 8, by achievement-level range, grade 8: 2003

Grade 8

	Percentage correct			
Overall percentage correct	Below ***Basic*** **261 or below**[1]	At ***Basic*** **262–298**[1]	At ***Proficient*** **299–332**[1]	At ***Advanced*** **333 or above**[1]
77	52	84	95	99

[1] NAEP mathematics composite scale range.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Grade 8

Sample Question 9 (multiple-choice)

In sample question 9, students were asked to identify an algebraic expression that represents the average of three different values. This question illustrates how a question can address multiple NAEP content areas—in this case both "Data Analysis, Statistics, and Probability" and "Algebra and Functions." At the eighth-grade level, students begin to have experience with variables and formal algebraic representation. Translating between verbal and symbolic statements is an important skill for further mathematics study. This question was of moderate difficulty for the students, with 58 percent of eighth-graders choosing the correct answer. This question appears on the item map at scale score 292.

Tetsu rides his bicycle x miles the first day, y miles the second day, and z miles the third day. Which of the following expressions represents the average number of miles per day that Tetsu travels?

Ⓐ $x + y + z$

Ⓑ xyz

Ⓒ $3(x + y + z)$

Ⓓ $3(xyz)$

● $\dfrac{x + y + z}{3}$

Mathematic Content Area:
Algebra and Functions

Mathematical Ability:
Procedural Knowledge

Table 5.9 **Percentage scored correct for multiple-choice sample question 9, by achievement-level range, grade 8: 2003**

Grade 8

	Percentage correct			
Overall percentage correct	Below ***Basic*** **261 or below**[1]	At ***Basic*** **262–298**[1]	At ***Proficient*** **299–332**[1]	At ***Advanced*** **333 or above**[1]
58	24	58	89	98

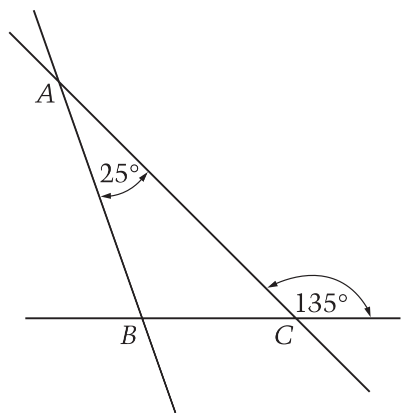
[1] NAEP mathematics composite scale range.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Grade 8

Sample Question 10 (multiple-choice)

In sample question 10, students were asked to use information given in a figure to find the degree measure of $\angle ABC$ in a triangle. The question itself uses few words, but the problem-solving process requires students to use what they know about angles related to a triangle to find a missing angle measure. The expected solution involves finding the measure of $\angle ACB$. This angle measure is 180° – 135°, or 45°. Because the sum of the degree measures of all angles in a triangle is 180°, the measure of $\angle ABC$ is 180° – 25° – 45°, or 110°. Students who have a deeper understanding of geometry may recognize that the measure of the external angle (135°) is the sum of 25° and the measure of the angle of interest. However, eighth-grade students are not expected to know this relationship. This question was difficult for the students, with 33 percent of eighth-graders choosing the correct answer. This question appears on the item map at scale score 334.



In the triangle, what is the degree measure of $\angle ABC$?

- Ⓐ 45
- Ⓑ 100
- ● 110
- Ⓓ 135
- Ⓔ 160

Mathematic Content Area:
Geometry and Spatial Sense

Mathematical Ability:
Problem Solving

Table 5.10 Percentage scored correct for multiple-choice sample question 10, by achievement-level range, grade 8: 2003

Grade 8

	Percentage correct			
Overall percentage correct	Below ***Basic*** **261 or below**[1]	At ***Basic*** **262–298**[1]	At ***Proficient*** **299–332**[1]	At ***Advanced*** **333 or above**[1]
33	19	29	49	77

[1] NAEP mathematics composite scale range.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Grade 8

Sample Question 11 (multiple-choice)

In sample question 11, students were asked to reason using a scale along a line. To answer this question, the student could observe that there were 4 equal intervals along the line representing a distance of 60 miles, so each interval represented 15 miles. The student could then conclude that the total distance from Bay City to Yardville, which was represented by 7 equal intervals along the line, was 105 miles. Proportional reasoning of this type is an important concept in mathematics. This question was difficult for the students, with 39 percent of eighth-graders choosing the correct answer. This question appears on the item map at scale score 340.

On the road shown above, the distance from Bay City to Exton is 60 miles. What is the distance from Bay City to Yardville?

- (A) 45 miles
- (B) 75 miles
- (C) 90 miles
- ● 105 miles

Mathematic Content Area:
Number Sense, Properties, and Operations

Mathematical Ability:
Problem Solving

Table 5.11 Percentage scored correct for multiple-choice sample question 11, by achievement-level range, grade 8: 2003

Grade 8

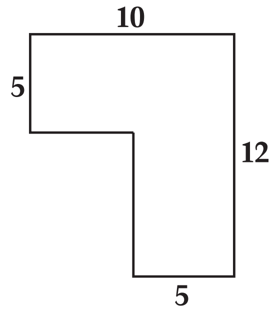
	Percentage correct			
Overall percentage correct	Below ***Basic*** **261 or below**[1]	At ***Basic*** **262–298**[1]	At ***Proficient*** **299–332**[1]	At ***Advanced*** **333 or above**[1]
39	18	39	58	73

[1] NAEP mathematics composite scale range.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

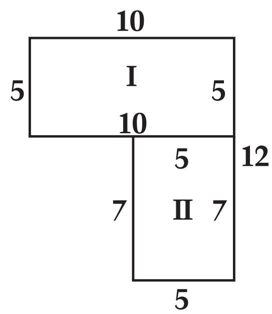
Grade 8

Sample Question 12 (extended constructed-response)

In sample question 12, students were asked to draw and explain three different ways to divide an L-shaped region to determine the area. The areas of some geometric figures cannot be calculated directly, but the figures can be partitioned into simpler figures whose areas can be easily determined. One way to partition the hallway is shown and the corresponding area is 50 + 35 = 85. Students are asked to show 3 other ways the hallway can be divided and, for each of these, to show how the area can be calculated. Although units are not given for this question, other questions specify units such as inches or centimeters. Answers to this question were scored as "Extended" (three figures were divided correctly with no incorrect labels and three correct expressions for area), "Satisfactory" (three figures were divided correctly with no incorrect labels and two correct expressions for area), "Partial" (two figures were divided correctly with no incorrect labels and one or two correct expressions for the area of those figures, or three figures divided correctly with no incorrect labels and one correct expression for area), "Minimal" (one figure divided correctly with no incorrect labels and correct expression for the area of that figure, or two or three figures divided correctly with no incorrect labels and no correct—or missing—expressions for the area of the figures), or "Incorrect." This question was very difficult for the students, with only 10 percent of eighth-grade responses scored as "Satisfactory" or better and only 6 percent of eighth-grade responses scored as "Extended." This question appears on the item map at scale score 417 for students whose responses were scored as "Extended."

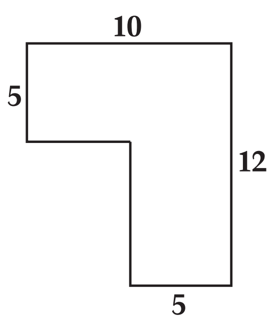


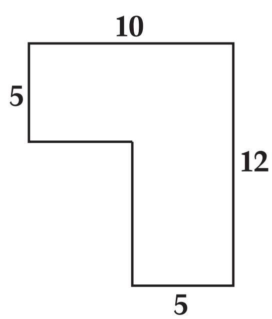
Ted wants to purchase floor covering for the hallway shown above. He knows there are many ways to find the area of the hallway. One way is to divide the hallway into the sections shown below and then add together the area of each section.

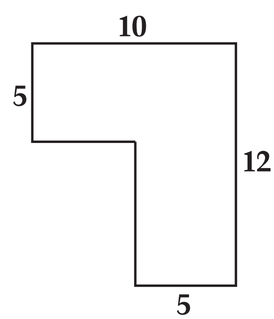


Area of Hallway	=	Area of Region I	+	Area of Region II
Area	=	(5 x 10)	+	(7 x 5)

Use the figures below to show 3 other ways that Ted can divide the hallway to find its area. Below each figure explain what numbers and operations Ted could use to calculate the area.







Mathematic Content Area:
Measurement

Mathematical Ability:
Problem Solving

Table 5.12a Percentage scored as "Satisfactory" or better for extended constructed-response sample question 12, by achievement-level range, grade 8: 2003

Grade 8

	Percentage "Satisfactory" or better			
Overall percentage "Satisfactory" or better	Below ***Basic*** **261 or below**[1]	At ***Basic*** **262–298**[1]	At ***Proficient*** **299–332**[1]	At ***Advanced*** **333 or above**[1]
10	#	2	23	66

The estimate rounds to zero.
[1] NAEP mathematics composite scale range.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Sample "Satisfactory" Response

Although most of the work was correct, the following sample response was scored as "Satisfactory" because the expression computing the areas associated with the first figure should have been $5 \times 5 + 12 \times 5$. The three figures were all divided correctly and the expressions for computing the areas associated with the second and third figures were correct.

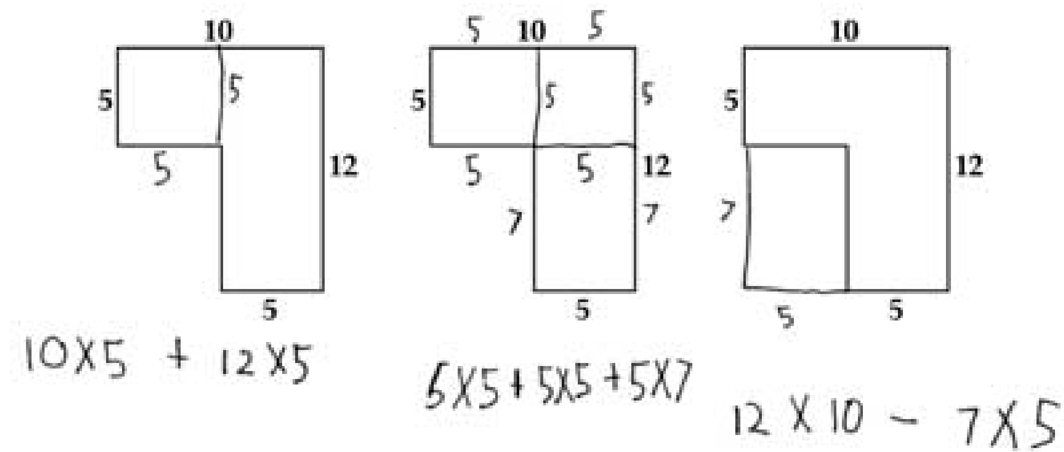


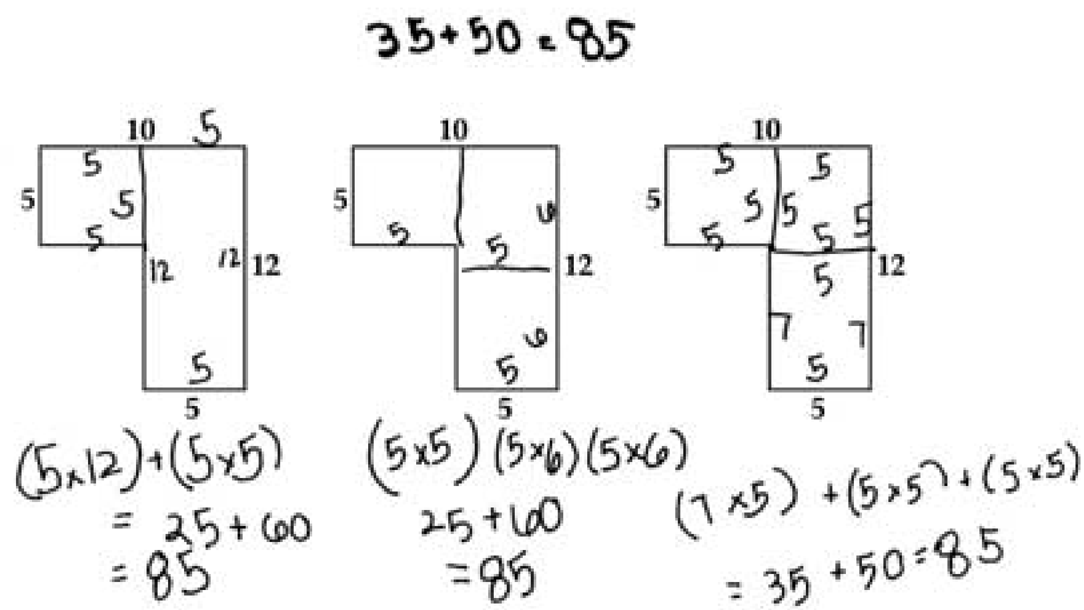
Table 5.12b **Percentage scored as "Extended" for extended constructed-response sample question 12, by achievement-level range, grade 8: 2003**

Grade 8	Percentage "Extended"			
Overall percentage "Extended"	Below ***Basic*** **261 or below**[1]	At ***Basic*** **262–298**[1]	At ***Proficient*** **299–332**[1]	At ***Advanced*** **333 or above**[1]
6	#	1	12	41

[#] The estimate rounds to zero.
[1] NAEP mathematics composite scale range.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Sample "Extended" Response

The following sample response was scored as "Extended" because the three figures were divided correctly and the expressions for computing the areas associated with each figure were correct.



Maps of Selected Item Descriptions on the NAEP Mathematics Scale—Grades 4 and 8

Item maps show particular items at the position along the NAEP mathematics scale where the items are likely to be successfully answered by students who attained that score or higher.[1] The descriptions focus on the mathematics skills or abilities needed to answer the questions. For multiple-choice questions, the description indicates the skill or knowledge demonstrated when students select the correct option. For constructed-response questions, the description reflects the skill or knowledge specified by different levels of the scoring criteria for that question.

For each description on the map, students whose average scale scores fell above the corresponding scale point had a higher probability of successfully answering the question; students whose average scale scores fell below that scale point had a lower probability of successfully answering that question. For the purpose of mapping each question, the probability level was set at 65 percent for constructed-response questions and 74 percent for multiple-choice questions.[2] For example, when a multiple-choice question like the fourth-grade sample question 1 in figure 5.1 maps at 172 on the scale, fourth-grade students with an average score of 172 or more have at least a 74 percent chance of answering this question correctly. In other words, out of a sample of 100 students whose average score was at or above 172, at least 74 would be expected to have answered this question correctly. Students who score above the scale point have a higher probability of successfully answering the question; however, it does not mean that every student at or above 172 always answered this question correctly, nor does it mean that students below 172 always answered the question incorrectly.

[1] For details on the procedures used to develop item maps, see Allen, N. L., Donoghue, J. R., and Schoeps, T. L. (2001). *The NAEP 1998 Technical Report* (NCES 2001–509). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

[2] The probability convention is set higher for multiple-choice questions to correct for the possibility of answering correctly by guessing.

Figure 5.1 Map of selected item descriptions on the NAEP mathematics scale, grade 4: 2003

Grade 4 — NAEP Mathematics Scale

This map describes the knowledge or skill associated with answering individual mathematics questions. The map identifies the score point at which students had a higher probability of successfully answering the question.[1]

500

340

330

333 Label a spinner, given probabilities

320

314 *Solve a story problem involving fractions*

310

300

298 Determine the length of an object pictured above a ruler in a nonstandard position
293 Analyze a situation involving equivalent fractions—Sample question 6
292 *Describe a doubling pattern*
290 *Solve an inequality*—Sample question 5
289 *Identify the region that fits a problem situation*

290

Advanced 282

280

279 *Identify the figure that could not be folded to form a cube*
274 Read the temperature shown on a thermometer
273 *Determine the length of a side of a square, given the perimeter*—Sample question 4
271 *Find the product of several numbers when one of them is zero*
268 *Solve a problem using data given in a pie chart*—Sample question 3
267 *Use algebraic reasoning to determine a relationship*
265 Locate two points on a grid, given coordinates—Sample question 2

270

260

257 *Solve a problem involving liquid measure (calculator available)*
255 Complete a letter pattern
250 *Identify a correct numerical expression to model a word problem (calculator available)*

250

Proficient 249

244 *Solve a simple probability problem (calculator available)*

240

238 *Interpret the result shown on a calculator display (calculator available)*
238 *Reason using properties of a rectangle*

230

226 Solve a problem involving multiples of 2 and 4 (calculator available)
223 *Solve a multistep word problem*
219 Complete a bar graph using data from a table

220

Basic 214

214 *Divide one 3-digit number by another (calculator available)*
211 *Relate a pictorial representation of place value to its number*

210

205 *Identify which of four objects is heaviest*

200

190

185 *Identify a reasonable amount of time to walk 2 miles (calculator available)*

180

170

172 *Add two 3-digit numbers*—Sample question 1

0

[1] Each grade 4 mathematics question in the 2003 mathematics assessment was mapped onto the NAEP 0–500 mathematics scale. The position of a question on the scale represents the average scale score attained by students who had a 65 percent probability of successfully answering a constructed-response question, or a 74 percent probability of correctly answering a four-option multiple-choice question. Only selected questions are presented. Scale score ranges for mathematics achievement levels are referenced on the map. For constructed-response questions, the question description represents students' performance at the scoring criteria level being mapped.

NOTE: Regular type denotes a constructed-response question. Italic type denotes a multiple-choice question.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.

Figure 5.2 Map of selected item descriptions on the NAEP mathematics scale, grade 8: 2003

Grade 8

NAEP Mathematics Scale

This map describes the knowledge or skill associated with answering individual mathematics questions. The map identifies the score point at which students had a higher probability of successfully answering the question.[1]

500

420

417 Divide an L-shaped region in three different ways; model area—Sample question 12

410

400

390

388 *Determine the surface area of a rectangular solid (calculator available)*

380

370

367 List all possible pairs of numbered chips that can be drawn from a box

360

356 *Determine which term in a pattern of fractions will have a specified decimal value (calculator available)*

351 *Recognize the meaning of "isosceles"*

350

340

Advanced

340 *Use proportional reasoning to find the distance between two towns along a line*—Sample question 11

333

334 *Find the measure of an angle in a triangle*—Sample question 10

330

330 *Relate a numerical expression to area of a rectangle (calculator available)*

326 *Identify price increases on a line graph (calculator available)*

325 Draw two flattened boxes that have a given volume

320 *Solve a multistep word problem (calculator available)*

320

313 *Reason using information about relative position along a line*

312 *Identify a counterexample for a statement about even and odd numbers (calculator available)*

310

Proficient

308 Explain sampling bias (calculator available)

304 Graph an inequality on a number line

299

300

300 *Solve an equation in terms of a variable (calculator available)*

296 Solve and explain a word problem involving remainders

295 *Identify an equivalent ratio*

292 *Represent the mean of three distances algebraically (calculator available)*—Sample question 9

290

280

277 Complete a pattern and write a rule

274 Locate ¾ on a number line

270

Basic

262

260

262 *Identify the value of a variable that satisfies a given condition*—Sample question 8

256 *Solve a problem using data given in a pie chart*

252 *Find the area of an irregular polygon drawn on a grid*

250

252 Divide a 3-digit number by a 2-digit number—Sample question 7

247 *Identify the result of a transformation of the letter "F"*

240

0

[1] Each grade 8 mathematics question in the 2003 assessment was mapped onto the NAEP 0–500 mathematics scale. The position of the question on the scale represents the scale score attained by students who had a 65 percent probability of successfully answering a constructed-response question, a 74 percent probability of correctly answering a four-option multiple-choice question, or a 72 percent probability of correctly answering a five-option multiple-choice question. Only selected questions are presented. Scale score ranges for mathematics achievement levels are referenced on the map. For constructed-response questions, the question description represents students' performance at the scoring criteria level being mapped.

NOTE: Regular type denotes a constructed-response question. Italic type denotes a multiple-choice question.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Mathematics Assessment.