National Assessment of Educational Progress

The Nation's Report Card

Trial Urban District Assessment

Mathematics Highlights 2003

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About this Trial Assessment

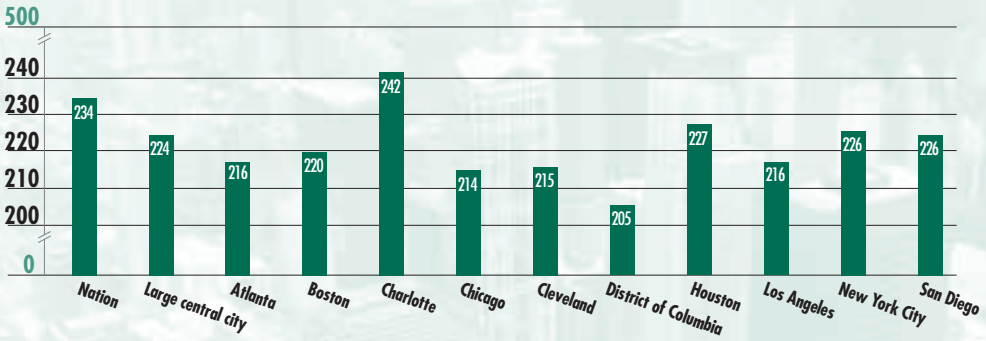
In 2001, after discussion among NCES, the National Assessment Governing Board (NAGB), and the Council of the Great City Schools, Congress appropriated funds for a district-level assessment on a trial basis, similar to the trial for state assessments that began in 1990, and NAGB passed a resolution approving the selection of urban districts for participation in the Trial Urban District Assessment (TUDA), a special project within NAEP.

Representatives of the Council of Great City Schools worked with the staff of NAGB to identify districts for the trial assessment. Districts were selected that permitted testing of the feasibility of conducting NAEP over a range of characteristics, such as district size, minority concentrations, federal program participation, socioeconomic conditions, and percentages of students with disabilities (SD) and limited-English-proficient (LEP) students.

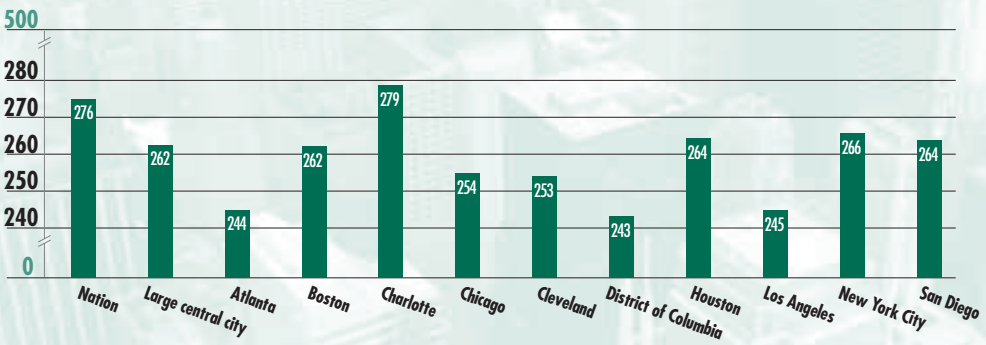
By undertaking the Trial Urban District Assessment, NAEP continues a tradition of extending its service to education, while preserving the rigorous sampling, scoring, and reporting procedures that have characterized prior NAEP assessments at both the national and state levels.

Results of the First NAEP Trial Urban District Assessment in Mathematics

Average NAEP mathematics scores, grade 4 public schools: By urban district, 2003



Average NAEP mathematics 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.

In 2002, five urban school districts participated in NAEP's first Trial Urban District Assessment (TUDA) in reading and writing. In 2003, nine urban districts (including the original five) participated in the TUDA in reading and mathematics at grades 4 and 8: Atlanta City, Boston School District, Charlotte-Mecklenburg Schools, City of Chicago School District 299, Cleveland Municipal School District, Houston Independent School District, Los Angeles Unified, New York City Public Schools, and San Diego City Unified. Only public-school students were sampled in the TUDA. Results for the District of Columbia public schools, which normally participate in NAEP's state assessments, are also reported.

Average mathematics scores are reported on a 0–500 scale. The figure above shows the average scores at both grades for the districts that participated in 2003. The average scores for public-school students in the nation and for public-school students attending schools located in large central cities are also shown for comparison. "Urban districts" refers to the ten districts reported in this trial study. Eight of the ten urban districts consist entirely of schools in cities with a population of 250,000 or more (i.e., large central cities as defined by NCES); two of them (Charlotte and Los Angeles) consist primarily of schools in large central cities, but also have from one-quarter to one-third of their fourth- and eighth-grade students enrolled in surrounding urban fringe or rural areas. All of the data for both districts were used to compare with data from large central cities and the nation.

At grade 4, the average score in Charlotte was higher than the average scores for the nation, large central cities, and the other participating districts. All participating districts at grade 4 except Charlotte had lower average scores than the average score for the nation. Compared with the average score in large central cities, the average scores in three districts (Houston, New York City, and San Diego) were not found to be significantly different, and the average scores in the remaining six districts were lower.

At grade 8, the average score in Charlotte was again higher than the average scores for the nation, large central cities, and the other participating districts, while the average scores for all other districts were lower than that for the nation. Students in New York City also scored higher, on average, than students in large central city public schools, while the average scores for students in Boston, Houston, and San Diego were not found to be significantly different from that in large central cities. The average scores in the remaining five districts were lower than the average score in large central cities.

All estimates have a standard error—a range of up to a few points above or below the score—due to sampling error and measurement error. Statistical tests are used to determine whether the differences between average scores are significant, after considering the standard errors. Therefore, not all apparent differences may be found to be statistically significant. All the differences discussed in this report were tested for statistical significance at the .05 level.

Achievement Levels Provide Standards for Student Performance

Achievement levels are performance standards set by NAGB to provide a context for interpreting student performance on NAEP. These performance standards, based on recommendations from broadly representative panels of educators and members of the public, are used to report what students should know and be able to do at the *Basic, Proficient,* and *Advanced* levels of performance in each subject area and at each grade assessed.

Detailed descriptions of the NAEP mathematics achievement levels can be found on the NAGB web site (http://www.nagb.org/pubs/pubs.html).

The minimum scale scores for achievement levels are as follows:

	Grade 4	Grade 8
Basic	214	262
Proficient	249	299
Advanced	282	333

As provided by law, NCES, upon review of a congressionally mandated evaluation of NAEP, has determined that achievement levels are to be used on a trial basis and should be interpreted and used with caution.

However, both NCES and NAGB believe that these performance standards are useful for understanding trends in student achievement. NAEP achievement levels have been widely used by national and state officials.

Achievement-Level Results for Urban Districts

The table below shows the percentages of students in each participating urban district performing below *Basic*, at or above *Basic*, at or above *Proficient,* and at *Advanced* levels 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 percentage 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. The percentage of eighth-graders at or above *Basic* in Boston, Houston, New York City, and San Diego was not found to be different from the percentage in large central cities.

NOTE: For Charlotte and Los Angeles, statistical comparisons restricted to just the schools in large central cities, as distinct from the whole-district comparisons used here, are available from the online Data Tool on the NAEP web site (http://www.nces.ed.gov/nationsreportcard/naepdata). The results of significance tests in this report for these two districts may differ slightly from those found by type of location in the online Data Tool.

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

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

The estimate rounds to zero.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: 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.

Achievement Levels

Basic: This level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.

Proficient: This level represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

Advanced: This level signifies superior performance.

Percentile Results for 2003

Examining the performance of students at different locations (high, middle, and low) on the full student score distribution gives a more complete picture than examining the average score alone. The percentile indicates the percentage of students whose scores fell below a particular score. For example, to score above the 25th percentile nationally, a fourth-grade public-school student would have had to score at least 215 compared to a fourth-grade public school student in a large central city who would have had to score at least 204.

At both grades 4 and 8, the scores for all of the districts except Charlotte were lower than those of public schools in the nation at the 25th, 50th, and 75th percentiles. At grade 4, the score at the 75th percentile for students in large central cities was lower than the score for Charlotte; not found to differ significantly from the scores for Houston, New York City, and San Diego; and higher than the scores in the remaining districts.

At grade 8, the score at the 75th percentile for students in large central cities was lower than that for Charlotte; not found to differ significantly from the scores for Boston, New York City, and San Diego; and higher than the scores in the remaining districts.

Selected mathematics scale score percentiles, grades 4 and 8 public schools: By urban district, 2003

	25th percentile	50th percentile	75th percentile
Grade 4			
Nation (public)	215	235	254
Large central city (public)	204 **	224 **	245 **
Atlanta	195 *,**	214 *,**	234 *,**
Boston	203 **	219 *,**	236 *,**
Charlotte	223 *,**	242 *,**	261 *,**
Chicago	196 *,**	214 *,**	232 *,**
Cleveland	197 *,**	215 *,**	232 *,**
District of Columbia	185 *,**	204 *,**	224 *,**
Houston	210 *,**	226 **	243 **
Los Angeles	196 *,**	215 *,**	235 *,**
New York City	207 *,**	226 **	246 **
San Diego	207 *,**	226 **	244 **
Grade 8			
Nation (public)	253	278	301
Large central city (public)	238 **	262 **	288 **
Atlanta	220 *,**	244 *,**	267 *,**
Boston	236 **	260 **	287 **
Charlotte	252 *	280 *	307 *,**
Chicago	233 *,**	255 *,**	277 *,**
Cleveland	233 *,**	252 *,**	272 *,**
District of Columbia	219 *,**	243 *,**	267 *,**
Houston	244 *,**	263 **	283 *,**
Los Angeles	219 *,**	245 *,**	270 *,**
New York City	241 **	266 **	293 **
San Diego	239 **	265 **	290 **

* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: 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.

Important Indicator of Educational Progress

Since 1969 the National Assessment of Educational Progress (NAEP) has been an ongoing nationally representative indicator of what American students know and can do in major academic subjects.

Over the years, NAEP has measured students' achievement in many subjects, including reading, mathematics, science, writing, U.S. history, geography, civics, and the arts. In 2003, NAEP conducted national and state assessments in reading and mathematics at grades 4 and 8.

NAEP is a project of the National Center for Education Statistics (NCES) within the Institute of Education Sciences (IES) of the U.S. Department of Education, and is overseen by the National Assessment Governing Board (NAGB).

NAEP 2003 Mathematics Assessment Design

Assessment Framework

The NAEP mathematics framework, which defines the content for the 2003 assessment, was developed through a comprehensive national consultative process and approved by NAGB.

The mathematics framework calls for the assessment to include questions based on five mathematics content areas: 1) number sense, properties, and operations; 2) measurement; 3) geometry and spatial sense; 4) data analysis, statistics, and probability; and 5) algebra and functions.

In addition, the framework specifies that each question should measure one of three mathematical abilities. The three mathematical abilities specified by the framework are: 1) conceptual understanding, 2) procedural knowledge, and 3) problem solving.

The sample questions on pages 16–19 illustrate how the assessment was developed to measure the content areas and mathematical abilities. Each student was given approximately 45 questions to answer in 50 minutes.

The complete framework is available on the NAGB web site (http://www.nagb.org/pubs/pubs.html).

Student Samples

Results from the 2003 Trial Urban District Assessment are reported for the participating districts for public school students at grades 4 and 8. The TUDA employed larger-than-usual samples within the districts, making reliable district-level data possible. The samples were also large enough to provide reliable estimates on subgroups within the districts, such as female students or Hispanic students.

Accommodations

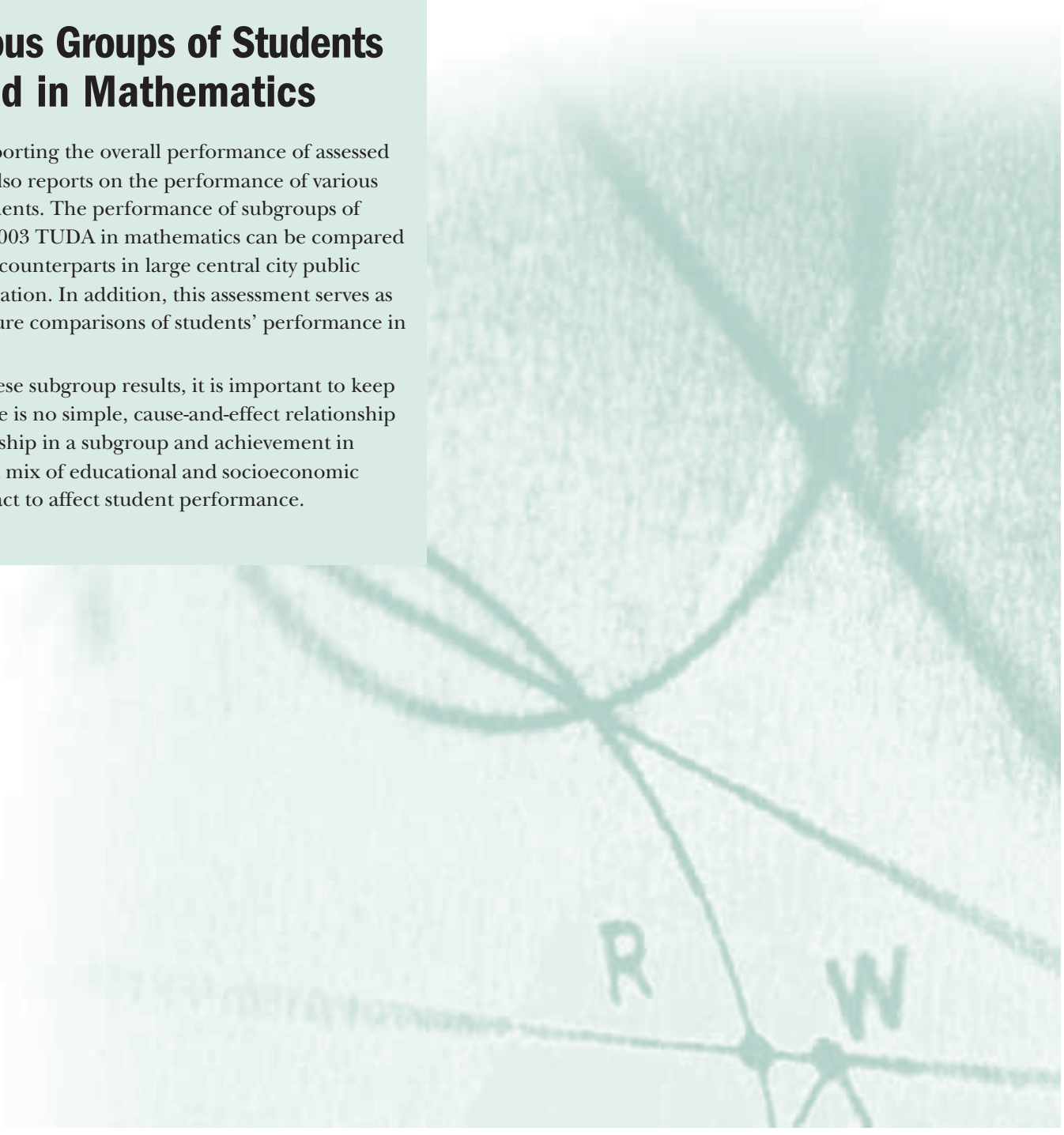
It is NAEP's intent to assess all selected students from the target population. Beginning in 2002, students with disabilities and limited-English-proficient students who require accommodations have been permitted to use them in NAEP, unless a particular accommodation would alter the skills and knowledge being tested. For example, students may not use calculators for questions not intended for calculator use.

Because the representativeness of samples is ultimately a validity issue, NCES has commissioned studies of the impact of assessment accommodations on overall scores. One paper that explores the impact of two possible scenarios on NAEP is available on the web site (http://www.nces.ed.gov/nationsreportcard/pdf/main2002/statmeth.pdf).

How Various Groups of Students Performed in Mathematics

In addition to reporting the overall performance of assessed students, NAEP also reports on the performance of various subgroups of students. The performance of subgroups of students on the 2003 TUDA in mathematics can be compared with that of their counterparts in large central city public schools and the nation. In addition, this assessment serves as a baseline for future comparisons of students' performance in mathematics.

When reading these subgroup results, it is important to keep in mind that there is no simple, cause-and-effect relationship between membership in a subgroup and achievement in NAEP. A complex mix of educational and socioeconomic factors may interact to affect student performance.



Average Mathematics Scores by Gender

The table below presents the percentages of male and female students assessed and their average mathematics scores at grades 4 and 8. 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. The average scores for male fourth-graders in Houston, New York City, and San Diego, and the average scores for female students in New York City and San Diego were not found to differ significantly from the corresponding average scores 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 scores for both male and female students in Charlotte were higher than the corresponding average score for large central cities. The average scores for both male and female eighth-graders in Boston, Houston, New York City, and San Diego were not found to differ significantly from the corresponding average scores in large central cities. Both male and female eighth-graders in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles had lower average scores than their counterparts in large central cities and in the nation.

Average mathematics scale score results, by gender, grades 4 and 8 public schools: By urban district, 2003

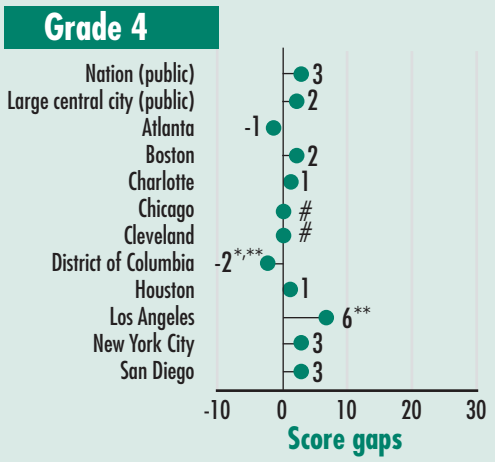
	Percentage of students	Average scale score
Grade 4		
Male		
Nation (public)	51	235
Large central city (public)	50	225 **
Atlanta	50	215 *,**
Boston	51	221 *,**
Charlotte	52	242 *,**
Chicago	50	214 *,**
Cleveland	49	215 *,**
District of Columbia	50	204 *,**
Houston	49	227 **
Los Angeles	51	219 *,**
New York City	50	228 **
San Diego	48	227 **
Female		
Nation (public)	49	233
Large central city (public)	50	223 **
Atlanta	50	216 *,**
Boston	49	219 *,**
Charlotte	48	241 *,**
Chicago	50	214 *,**
Cleveland	51	215 *,**
District of Columbia	50	206 *,**
Houston	51	227 *,**
Los Angeles	49	213 *,**
New York City	50	225 **
San Diego	52	225 **
Grade 8		
Male		
Nation (public)	50	277
Large central city (public)	50	263 **
Atlanta	49	243 *,**
Boston	48	260 **
Charlotte	51	279 *
Chicago	50	255 *,**
Cleveland	50	254 *,**
District of Columbia	47	242 *,**
Houston	49	266 **
Los Angeles	51	245 *,**
New York City	50	266 **
San Diego	49	267 **
Female		
Nation (public)	50	275
Large central city (public)	50	261 **
Atlanta	51	246 *,**
Boston	52	263 **
Charlotte	49	278 *
Chicago	50	253 *,**
Cleveland	50	252 *,**
District of Columbia	53	244 *,**
Houston	51	263 **
Los Angeles	49	245 *,**
New York City	50	265 **
San Diego	51	262 **

* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: 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.

Average Score Gaps Between Male and Female Students in Mathematics

In 2003, male public-school students in the nation scored higher, on average, than female students by 3 points at grade 4 and by 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 outscored males). The score gap between male and female students for Los Angeles was wider than that in the nation. At grade 8, there was also a reversal of the score difference for male and female students in Atlanta, Boston, and the District of Columbia (i.e., female students outscored male students).

Male average score minus female average score: 2003



The estimate rounds to zero.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: 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 Gender

The percentages of male and female students performing below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced* are presented below.

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 at or above *Proficient* were higher than those for the nation. When compared with male and female students in large central city public schools, higher percentages of both male and of female fourth-grade students in Charlotte performed at or above *Proficient*. The percentages of fourth-grade male and female students performing at or above *Proficient* in Houston, New York City, and San Diego were not found to differ significantly from the corresponding percentages at or above *Proficient* in large central cities.

At grade 8, greater percentages of male students in Charlotte performed at or above *Proficient* than in public schools nationally and in large central cities. Greater percentages of female eighth-grade students in Charlotte and New York City performed at or above *Proficient* than those in large central city public schools. The percentages of eighth-grade male and female students in Boston and San Diego and eighth-grade male students in New York City were not found to differ significantly from the percentage at or above *Proficient* in large central cities. Lower percentages of male and female students in the other TUDA districts performed at or above *Proficient* than the percentages of their counterparts in large central city public schools.

Percentage of students at or above each achievement level in mathematics, by gender, grades 4 and 8 public schools: By urban district, 2003

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

The estimate rounds to zero.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: 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.

Average Mathematics Scores by Race/Ethnicity

Based on information obtained from school records, students who participated in the NAEP mathematics assessment were identified as belonging to one of the racial/ethnic subgroups listed in the table on this page or as American Indian/Alaska Native. In each of the urban districts assessed, Black students and/or Hispanic students constituted the majority or the largest racial/ethnic subgroup in both grades 4 and 8. This distribution differs from that for the 2003 national assessment, in which White students constituted a majority—58 percent of the fourth-grade sample and 62 percent of the eighth-grade sample. Statistically significant differences between the average scores of racial/ethnic subgroups in the districts and their counterparts in the nation and in large central cities are marked with asterisks in the table.

At grade 4, the average scale scores for White students in Charlotte, the District of Columbia, and Houston; Black students in Boston, Charlotte, Houston, and New York City; and Hispanic students in Charlotte and Houston were higher than the corresponding scores 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.

At grade 8, the average scale scores were higher for White students in Atlanta, Charlotte, and Houston; Black students in Charlotte, Houston, and New York City; and Hispanic students in Houston than the corresponding score in large central cities. The average scores 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 were lower than the corresponding score in large central cities.

Average mathematics scale score results, by race/ethnicity, grades 4 and 8 public schools: By urban district, 2003

Grade 4	Percentage of students	Average scale score
White		
Nation (public)	58	243
Large central city (public)	22	243
Atlanta	10	258
Boston	12	234 *,**
Charlotte	41	257 *,**
Chicago	11	235 *,**
Cleveland	16	233 *,**
District of Columbia	4	262 *,**
Houston	7	254 *,**
Los Angeles	11	241
New York City	15	244
San Diego	23	243
Black		
Nation (public)	17	216
Large central city (public)	34	212 **
Atlanta	87	211 **
Boston	46	216 *
Charlotte	46	229 *,**
Chicago	52	207 *,**
Cleveland	76	210 **
District of Columbia	87	202 *,**
Houston	35	221 *,**
Los Angeles	10	208 **
New York City	35	219 *
San Diego	17	216
Hispanic		
Nation (public)	19	221
Large central city (public)	35	220 **
Atlanta	2	‡
Boston	33	215 *,**
Charlotte	7	233 *,**
Chicago	34	217 **
Cleveland	6	220
District of Columbia	8	205 *,**
Houston	56	226 *,**
Los Angeles	73	211 *,**
New York City	37	220
San Diego	42	216 *,**
Asian/Pacific Islander		
Nation (public)	4	246
Large central city (public)	7	246
Atlanta	#	‡
Boston	8	243
Charlotte	4	252
Chicago	3	‡
Cleveland	1	‡
District of Columbia	1	‡
Houston	2	‡
Los Angeles	6	241
New York City	12	247
San Diego	18	238 **

Grade 8	Percentage of students	Average scale score
White		
Nation (public)	62	287
Large central city (public)	24	285
Atlanta	5	298 *
Boston	16	289
Charlotte	42	301 *,**
Chicago	10	276 **
Cleveland	15	269 *,**
District of Columbia	3	‡
Houston	8	293 *,**
Los Angeles	10	277
New York City	16	289
San Diego	27	284
Black		
Nation (public)	17	252
Large central city (public)	35	247 **
Atlanta	93	241 *,**
Boston	46	251
Charlotte	46	258 *,**
Chicago	51	245 **
Cleveland	72	249
District of Columbia	87	240 *,**
Houston	33	259 *,**
Los Angeles	12	234 *,**
New York City	36	253 *
San Diego	16	252
Hispanic		
Nation (public)	15	258
Large central city (public)	32	257
Atlanta	1	‡
Boston	28	252 **
Charlotte	6	262
Chicago	36	259
Cleveland	11	249 **
District of Columbia	9	246 *,**
Houston	55	261 *
Los Angeles	71	240 *,**
New York City	34	260
San Diego	38	248 *,**
Asian/Pacific Islander		
Nation (public)	4	289
Large central city (public)	8	282 **
Atlanta	#	‡
Boston	9	300 *,**
Charlotte	5	293 *
Chicago	4	286
Cleveland	1	‡
District of Columbia	1	‡
Houston	3	‡
Los Angeles	7	275 **
New York City	14	286
San Diego	19	278 **

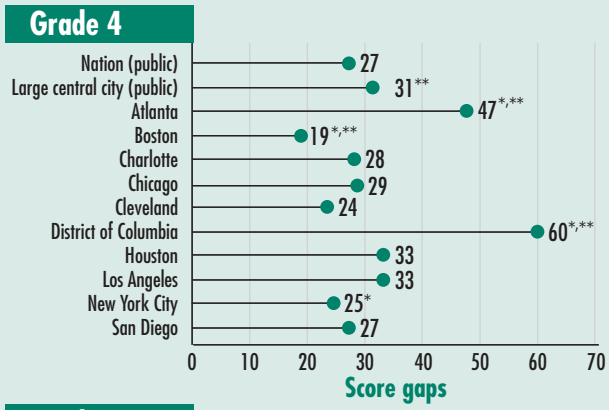
The estimate rounds to zero.
‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: Significance tests were performed using unrounded numbers. American Indian/Alaska Native data are not shown because of insufficient sample sizes at both grades 4 and 8.
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.

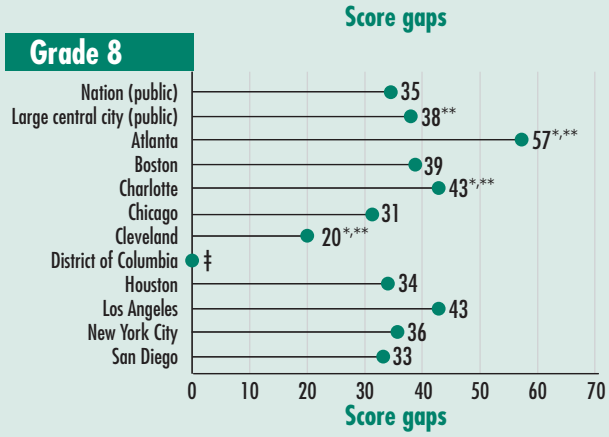
Average Mathematics Score Gaps Between Selected Racial/Ethnic Subgroups

Average score gaps between White students and Black students and between White students and Hispanic students are presented in the figures shown below. District gaps marked with asterisks indicate statistical differences from the gaps in large central cities and in the nation. The differences marked can represent either narrower or wider gaps than those in the comparison groups. At grade 4, the gaps between White students and Black students in Boston and New York City were narrower than those in large central cities; the gaps in Atlanta and the District of Columbia were wider than the gaps 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.

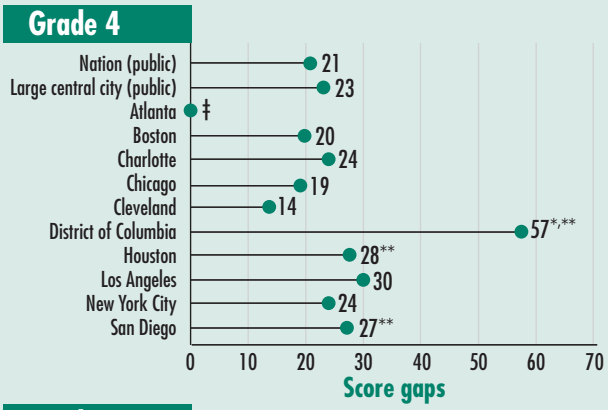
At grade 8, the gap between White students and Black students in Cleveland was narrower than the gap in large central cities and the gaps in Atlanta and Charlotte were wider than the gaps between White students and Black students in large central cities. The gap between White students and Hispanic students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

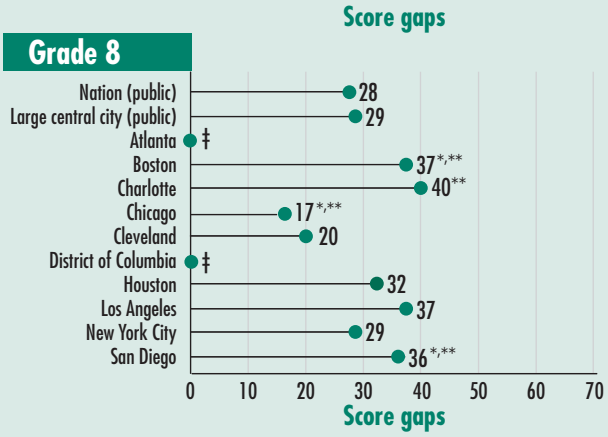
White average score minus Black average score: 2003





White average score minus Hispanic average score: 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: 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 Race/Ethnicity

Mathematics achievement-level results for racial/ethnic sub-groups are presented in the tables that are adjacent and on the following page. Statistically significant differences in results among racial/ethnic subgroups in the urban districts and their counterparts in the nation and in large central cities are marked with asterisks in the tables. Note that the differences marked can represent either higher percentages or lower percentages.

At grade 4, the percentages of students at or above the *Proficient* level were 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 percentages of fourth-grade students at or above *Proficient* 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 were lower than corresponding percentage in large central cities.

At grade 8, the percentages of students at or above the *Proficient* level were 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 percentages of eighth-grade students at or above the *Proficient* level 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 were lower than the corresponding percentage in large central cities.

Percentage of students at or above each achievement level in mathematics, by race/ethnicity, grade 4 public schools: By urban district, 2003

Grade 4	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
White				
Nation (public)	13	87	42	5
Large central city (public)	15	85	42	6
Atlanta	11	89	70 *,**	20 *,**
Boston	23 **	77 **	32 *,**	5
Charlotte	4 *,**	96 *,**	66 *,**	12 *,**
Chicago	18	82	31 *,**	2 *
Cleveland	20	80	27 *,**	2 *,**
District of Columbia	3 *,**	97 *,**	71 *,**	21 *,**
Houston	4 *,**	96 *,**	63 *,**	7
Los Angeles	17	83	44	4
New York City	12	88	42	7
San Diego	13	87	41	6
Black				
Nation (public)	46	54	10	#
Large central city (public)	53 **	47 **	8 **	#
Atlanta	55 **	45 **	7 **	#
Boston	45 *	55 *	6 **	#
Charlotte	27 *,**	73 *,**	20 *,**	1
Chicago	61 *,**	39 *,**	4 *,**	#
Cleveland	56 **	44 **	5 *,**	#
District of Columbia	67 *,**	33 *,**	4 *,**	#
Houston	38 *,**	62 *,**	12	#
Los Angeles	58	42	6	#
New York City	42 *	58 *	12 *	#
San Diego	46	54	8	#
Hispanic				
Nation (public)	38	62	15	1
Large central city (public)	40	60	13 **	# **
Atlanta	‡	‡	‡	‡
Boston	49 *,**	51 *,**	7 *,**	#
Charlotte	20 *,**	80 *,**	26 *	1
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 *,**	# **
New York City	40	60	13	#
San Diego	47 *,**	53 *,**	9 *,**	#
Asian/Pacific Islander				
Nation (public)	13	87	48	10
Large central city (public)	14	86	48	10
Atlanta	‡	‡	‡	‡
Boston	13	87	43	4
Charlotte	10	90	60	9
Chicago	‡	‡	‡	‡
Cleveland	‡	‡	‡	‡
District of Columbia	‡	‡	‡	‡
Houston	‡	‡	‡	‡
Los Angeles	14	86	38	4 **
New York City	11	89	47	9
San Diego	16	84	32 **	4 **

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: Detail may not sum to totals because of rounding. Significance tests were performed using unrounded numbers. American Indian/Alaska Native 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.

Percentage of students at or above each achievement level in mathematics, by race/ethnicity, grade 8 public schools: By urban district, 2003

Grade 8	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
White				
Nation (public)	21	79	36	7
Large central city (public)	23 **	77 **	36	7
Atlanta	17	83	54 *,**	15
Boston	23	77	48 *,**	11
Charlotte	9 *,**	91 *,**	55 *,**	15 *,**
Chicago	32 **	68 **	25	5
Cleveland	37 *,**	63 *,**	14 *,**	1
District of Columbia	‡	‡	‡	‡
Houston	20	80	47 *,**	11
Los Angeles	33 **	67 **	29	7
New York City	21	79	40	9
San Diego	24	76	35	5
Black				
Nation (public)	61	39	7	#
Large central city (public)	66 **	34 **	5 **	#
Atlanta	74 *,**	26 *,**	3 *,**	#
Boston	64	36	6	#
Charlotte	53 *,**	47 *,**	11 *,**	1
Chicago	71 **	29 **	4	#
Cleveland	68 **	32 **	5 **	#
District of Columbia	74 *,**	26 *,**	3 *,**	#
Houston	53 *,**	47 *,**	7	1
Los Angeles	79 *,**	21 *,**	2 *,**	#
New York City	60 *	40 *	9 *	1
San Diego	61	39	7	#
Hispanic				
Nation (public)	53	47	11	1
Large central city (public)	56	44	10	1
Atlanta	‡	‡	‡	‡
Boston	62 **	38 **	7 *,**	#
Charlotte	54	46	18	1
Chicago	52	48	8	# *,**
Cleveland	65	35	2	#
District of Columbia	67 *,**	33 *,**	3 *,**	#
Houston	51	49	9 **	# *,**
Los Angeles	74 *,**	26 *,**	3 *,**	#
New York City	52	48	15	2
San Diego	66 *,**	34 *,**	6 *,**	#
Asian/Pacific Islander				
Nation (public)	23	77	42	12
Large central city (public)	29 **	71 **	33 **	6 **
Atlanta	‡	‡	‡	‡
Boston	13 *,**	87 *,**	57 *,**	18 *
Charlotte	19	81	43	14
Chicago	22	78	36	8
Cleveland	‡	‡	‡	‡
District of Columbia	‡	‡	‡	‡
Houston	‡	‡	‡	‡
Los Angeles	36 **	64 **	25 **	3 **
New York City	26	74	38	10
San Diego	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: Detail may not sum to totals because of rounding. Significance tests were performed using unrounded numbers. American Indian/Alaska Native 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.

Mathematics Performance by Students' Eligibility for Free/Reduced-Price Lunch

NAEP collects data on students' eligibility for free/reduced-price lunch as an indicator of economic status. In 2003, approximately 7 percent of fourth-graders and 6 percent of eighth-graders nationally attended schools that did not participate in the National School Lunch Program. The adjacent table displays both the average scale scores and achievement-level percentages for public-school students in the nation, large central cities, and the participating urban districts by free/reduced-price eligibility status. Note that Cleveland chose to define all of its students as eligible for free or reduced-price lunch. Information regarding students' eligibility in 2003 was not available for 4 percent of fourth-graders nationally and 6 percent of eighth-graders. For information on the National School Lunch Program, see http://www.fns.usda.gov/cnd/governance/iegs/iegs.htm.

At grade 4, the average scores for students eligible for free/reduced-price lunch in Charlotte, Houston, and New York City were higher than the average score for large central cities nationally. The average scores for eligible fourth-graders in Boston, Cleveland, and San Diego were not found to differ significantly from the average score for large central cities; the average scores for eligible students in Atlanta, Chicago, the District of Columbia, and Los Angeles were lower than the average score for eligible students in large central cities.

At grade 8, the average scores for students who were eligible for free/reduced-price lunch in Boston, Houston, and New York City were higher than the average score for large central cities. In Charlotte, Chicago, Cleveland, and San Diego, the average scores for eligible eighth-graders were not found to differ from that in large central cities. The average scores for eligible students in Atlanta, the District of Columbia, and Los Angeles were lower than the average score in large central cities.

Average mathematics scale score and achievement-level results, by eligibility for free/reduced-price school lunch, grades 4 and 8 public schools: By urban district, 2003

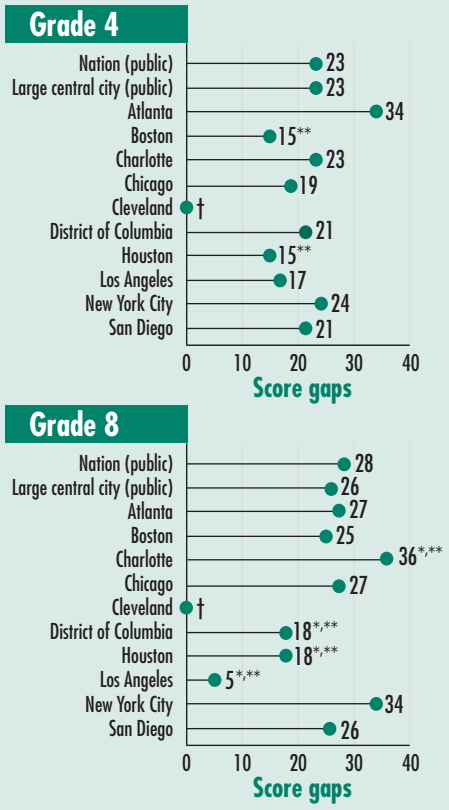
Grade 4	Percentage of students	Average scale score	Percentage of students: Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Eligible						
Nation (public)	44	222	38	62	15	1
Large central city (public)	69	217 **	45 **	55 **	12 **	1
Atlanta	81	209 *,**	57 *,**	43 *,**	5 *,**	#
Boston	83	218 **	43 **	57 **	10 **	1
Charlotte	45	229 *,**	26 *,**	74 *,**	19 *	2
Chicago	85	212 *,**	53 *,**	47 *,**	8 *,**	# *,**
Cleveland	100	215 **	49 **	51 **	10 **	#
District of Columbia	71	200 *,**	71 *,**	29 *,**	3 *,**	#
Houston	76	223 *	34 *	66 *	13	1
Los Angeles	83	212 *,**	53 *,**	47 *,**	8 *,**	# **
New York City	88	224 *	36 *	64 *	18 *	2 *
San Diego	58	217 **	44 **	56 **	10 **	#
Not eligible						
Nation (public)	52	244	12	88	45	6
Large central city (public)	28	240 **	19 **	81 **	40	7
Atlanta	18	244	21	79	50	11
Boston	8	233 **	24 **	76 **	31 **	3
Charlotte	55	252 *,**	8 *,**	92 *,**	59 *,**	10
Chicago	7	230 *,**	28 **	72 **	24 *,**	2
Cleveland	0	†	†	†	†	†
District of Columbia	24	221 *,**	43 *,**	57 *,**	20 *,**	4
Houston	21	239	18	82	37	4
Los Angeles	5	229 *,**	30 *,**	70 *,**	25 *,**	2
New York City	10	248 *	11 *	89 *	49	9
San Diego	36	239 **	18	82	35 **	5
Grade 8						
Eligible						
Nation (public)	36	258	53	47	11	1
Large central city (public)	60	253 **	60 **	40 **	9 **	1
Atlanta	78	239 *,**	76 *,**	24 *,**	2 *,**	#
Boston	71	256 *	57 **	43 **	11 *	2
Charlotte	36	256	56	44	10	1
Chicago	88	252 **	61 **	39 **	7 **	1
Cleveland	100	253 **	62 **	38 **	6 *,**	#
District of Columbia	57	235 *,**	79 *,**	21 *,**	2 *,**	# *,**
Houston	69	259 *	54 *	46 *	7 **	# **
Los Angeles	65	240 *,**	72 *,**	28 *,**	4 *,**	# *,**
New York City	83	261 *	51 *	49 *	15 *,**	2
San Diego	52	252 **	61 **	39 **	9	#
Not eligible						
Nation (public)	58	287	22	78	37	7
Large central city (public)	33	279 **	31 **	69 **	31 **	6 **
Atlanta	15	265 *,**	48 *,**	52 *,**	19 *,**	4
Boston	10	282	32 **	68 **	35	11
Charlotte	63	292 *,**	19 *	81 *	44 *,**	11 *,**
Chicago	6	279	30	70	30	5
Cleveland	0	†	†	†	†	†
District of Columbia	31	254 *,**	60 *,**	40 *,**	12 *,**	3 *,**
Houston	31	276 **	35 **	65 **	25 *,**	5
Los Angeles	6	245 *,**	67 *,**	33 *,**	7 *,**	#
New York City	14	295 *	18 *	82 *	49 *	14 *
San Diego	44	278 **	31 **	69 **	29 **	4 **

The estimate rounds to zero.
† Not applicable.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: Detail may not sum to totals because of rounding. Significance tests were performed using unrounded numbers.
Results not shown for students whose eligibility status was not available.
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.

Average Mathematics Score Gaps Between Students Who Were Eligible and Those Who Were Not Eligible for Free/Reduced-Price Lunch

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. The differences marked in the figure can represent either narrower or wider gaps than the comparison groups. 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 gap found in large central cities and in the nation.

Not eligible average score minus eligible average score: 2003



† Not Applicable
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: 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 Performance by Student-Reported Highest Level of Parents' Education, Grade 8

Eighth-grade students who participated in the NAEP 2003 mathematics assessments, including those in the Trial Urban District Assessment, were asked to indicate, from among five options, the highest level of education completed by each parent. The question was not posed to fourth-graders. The table to the right displays the percentage of eighth-graders who chose each category as the highest level of education for either parent, as well as the average score and the percentage at or above each achievement level for students in each category.

As in previous tables, asterisks mark statistically significant differences between scores for any urban district and the corresponding scores in large central cities or the nation. For example, 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. 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. Students in Boston, Houston, and New York City who reported that a parent graduated from college had an average score that was not found to differ statistically from that of their counterparts in large central cities.

Average mathematics scale score and achievement-level results, by student-reported parents' highest level of education, grade 8 public schools: By urban district, 2003

Grade 8	Percentage of students	Average scale score	Percentage of students: Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Less than high school						
Nation (public)	7	256	56	44	9	1
Large central city (public)	11	253 **	59 **	41 **	7	1
Atlanta	6	240 *,**	74 *,**	26 *,**	3	#
Boston	10	253	63	37	13	3
Charlotte	4	‡	‡	‡	‡	‡
Chicago	11	256	57	43	10	#
Cleveland	11	255	58	42	5	1
District of Columbia	7	236 *,**	75 *,**	25 *,**	2	#
Houston	20	259 *	54	46	7	#
Los Angeles	19	242 *,**	72 *,**	28 *,**	5 **	#
New York City	9	260	51	49	14	3
San Diego	12	250 **	64	36	6	#
Graduated high school						
Nation (public)	18	267	42	58	16	2
Large central city (public)	18	255 **	59 **	41 **	10 **	1
Atlanta	24	238 *,**	80 *,**	20 *,**	2 *,**	#
Boston	18	256 **	61 **	39 **	11 **	2
Charlotte	15	255 **	59 **	41 **	11	2
Chicago	20	250 *,**	63 **	37 **	6 *,**	#
Cleveland	23	252 **	63 **	37 **	4 *,**	#
District of Columbia	23	235 *,**	81 *,**	19 *,**	1 *,**	#
Houston	17	257 **	56 **	44 **	7 **	#
Los Angeles	15	240 *,**	73 *,**	27 *,**	4 *,**	#
New York City	17	260 **	52 **	48 **	16	2
San Diego	14	256 **	57 **	43 **	9 **	#
Some education after high school						
Nation (public)	18	280	27	73	28	4
Large central city (public)	17	268 **	42 **	58 **	19 **	2 **
Atlanta	19	253 *,**	60 *,**	40 *,**	6 *,**	#
Boston	19	268 **	43 **	57 **	19 **	2
Charlotte	17	281 *	28 *	72 *	29 *	6
Chicago	20	262 *,**	50 **	50 **	11 *,**	1 **
Cleveland	20	260 *,**	52 *,**	48 *,**	10 *,**	#
District of Columbia	18	252 *,**	63 *,**	37 *,**	6 *,**	#
Houston	14	270 **	41 **	59 **	13 **	2 **
Los Angeles	15	253 *,**	58 *,**	42 *,**	10 *,**	1
New York City	13	272 **	36 **	64 **	23	2
San Diego	16	270 **	39 **	61 **	18 **	1
Graduated college						
Nation (public)	45	287	23	77	39	8
Large central city (public)	38	272 **	39 **	61 **	26 **	5 **
Atlanta	40	250 *,**	65 *,**	35 *,**	10 *,**	2 *,**
Boston	36	273 **	41 **	59 **	26 **	7
Charlotte	55	289 *	24 *	76 *	43 *	11 *
Chicago	30	257 *,**	57 *,**	43 *,**	12 *,**	2 *,**
Cleveland	32	251 *,**	67 *,**	33 *,**	6 *,**	#
District of Columbia	37	250 *,**	64 *,**	36 *,**	11 *,**	3 *,**
Houston	28	274 **	38 **	62 **	23 **	5 **
Los Angeles	24	257 *,**	54 *,**	46 *,**	15 *,**	3 **
New York City	43	275 **	38 **	62 **	27 **	6
San Diego	38	278 *,**	33 *,**	67 *,**	32 *,**	5 **
Unknown						
Nation (public)	11	258	53	47	12	1
Large central city (public)	17	252 **	61 **	39 **	9 **	1 **
Atlanta	11	231 *,**	81 *,**	19 *,**	2 *,**	#
Boston	18	251 **	63 **	37 **	10	2
Charlotte	10	266 *,**	41 *,**	59 *,**	19 *	2
Chicago	19	249 **	63 **	37 **	6 **	#
Cleveland	14	248 **	69 **	31 **	5 **	#
District of Columbia	15	239 *,**	75 *,**	25 *,**	3 *,**	1
Houston	21	259 *	53 *	47 *	7 **	#
Los Angeles	27	238 *,**	77 *,**	23 *,**	3 *,**	#
New York City	19	253 **	59 **	41 **	11	1
San Diego	21	249 **	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: 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.

Testing Status of Special-Needs Students Selected in NAEP Samples

NAEP endeavors to assess all students selected in the randomized sampling process, including students with disabilities (SD) and students who are classified by their schools as limited English proficient (LEP). Some students who are sampled for participation, however, can be excluded from the sample according to carefully defined criteria. School personnel, guided by the student's Individualized Education Program (IEP), as well as by eligibility for Section 504 services, make decisions regarding inclusion in the assessment of students with disabilities. Based on NAEP's guidelines, they also make the decision regarding inclusion of LEP students. The process includes evaluating the student's capability to participate in the assessment in English, as well as taking into consideration the number of years the student has been receiving instruction in English. The percentage of students excluded from NAEP may vary considerably across states or districts. Comparisons of achievement results across districts should be interpreted with caution if the exclusion rates vary widely. The rates of identification, exclusion, and assessment with and without accommodations for SD and LEP students are presented in the table to the right for the Trial Urban District Assessment.

Students with disabilities and limited-English-proficient students identified, excluded, and assessed with accommodations, as a percentage of all students, grades 4 and 8 in public schools: By urban district, 2003

Grade 4	Identified	Excluded	Assessed with accommodations
SD [1] and/or LEP [2] students			
Nation (public)	22	4	8
Large central city (public)	30	5	9
Atlanta	9	1	4
Boston	33	5	17
Charlotte	21	4	12
Chicago	31	8	7
Cleveland	15	7	5
District of Columbia	18	4	10
Houston	45	8	18
Los Angeles	60	3	8
New York City	22	6	12
San Diego	41	2	4
SD students only			
Nation (public)	14	3	7
Large central city (public)	13	3	6
Atlanta	8	1	4
Boston	20	3	12
Charlotte	17	3	10
Chicago	15	5	6
Cleveland	12	5	5
District of Columbia	13	4	7
Houston	18	7	3
Los Angeles	11	2	4
New York City	12	1	10
San Diego	11	1	3
LEP students only			
Nation (public)	11	1	2
Large central city (public)	21	3	4
Atlanta	2	#	#
Boston	18	3	7
Charlotte	8	2	4
Chicago	20	5	2
Cleveland	4	1	1
District of Columbia	7	1	3
Houston	35	4	17
Los Angeles	56	2	6
New York City	13	6	4
San Diego	34	2	2
Grade 8			
SD [1] and/or LEP [2] students			
Nation (public)	19	4	7
Large central city (public)	24	5	7
Atlanta	11	2	5
Boston	31	7	15
Charlotte	18	3	9
Chicago	22	7	7
Cleveland	21	9	9
District of Columbia	20	6	9
Houston	26	8	3
Los Angeles	37	2	6
New York City	24	5	14
San Diego	29	4	4
SD students only			
Nation (public)	14	3	6
Large central city (public)	14	4	5
Atlanta	10	1	5
Boston	24	4	13
Charlotte	14	3	8
Chicago	17	5	7
Cleveland	17	9	6
District of Columbia	16	5	8
Houston	16	7	#
Los Angeles	12	2	5
New York City	15	2	10
San Diego	11	1	3
LEP students only			
Nation (public)	6	1	1
Large central city (public)	13	2	3
Atlanta	2	1	#
Boston	13	5	4
Charlotte	7	1	3
Chicago	8	3	2
Cleveland	5	1	3
District of Columbia	5	1	2
Houston	16	5	2
Los Angeles	33	2	4
New York City	13	4	6
San Diego	23	3	2

The estimate rounds to zero.
[1] Students with disabilities.
[2] Limited-English-proficient students.
NOTE: Within each grade level, the combined SD/LEP portion of the table is not a sum of the separate SD and LEP portions because some students were identified as both SD and LEP.
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 Special-Needs Students in the Trial Urban District Assessment

The following table displays both the average scale scores and the percentages of the SD and LEP students at or above each achievement level for grades 4 and 8.

Average mathematics scale score and achievement-level results, of students with disabilities and of limited-English-proficient students, grades 4 and 8 in public schools: By urban district, 2003

Grade 4	Average scale score	Percentage of students: Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Students with disabilities					
Nation (public)	214	50	50	12	1
Large central city (public)	204	63	37	7	1
Atlanta	200	67	33	8	#
Boston	201	71	29	3	#
Charlotte	225	36	64	16	2
Chicago	194	74	26	4	1
Cleveland	195	78	22	1	#
District of Columbia	177	91	9	2	#
Houston	216	47	53	10	#
Los Angeles	198	73	27	4	#
New York City	203	65	35	4	#
San Diego	210	58	42	8	1
Limited-English-proficient students					
Nation (public)	214	51	49	9	#
Large central city (public)	212	54	46	7	#
Atlanta	‡	‡	‡	‡	‡
Boston	209	59	41	5	#
Charlotte	226	33	67	17	2
Chicago	204	67	33	3	#
Cleveland	‡	‡	‡	‡	‡
District of Columbia	200	72	28	3	#
Houston	221	39	61	10	#
Los Angeles	207	61	39	4	#
New York City	203	66	34	7	#
San Diego	211	55	45	5	#
Grade 8					
Students with disabilities					
Nation (public)	242	71	29	6	1
Large central city (public)	229	81	19	4	#
Atlanta	210	95	5	#	#
Boston	227	89	11	2	#
Charlotte	253	58	42	16	3
Chicago	217	92	8	1	#
Cleveland	223	90	10	2	#
District of Columbia	204	96	4	1	#
Houston	241	77	23	4	#
Los Angeles	215	91	9	2	#
New York City	223	89	11	#	#
San Diego	228	86	14	2	#
Limited-English-proficient students					
Nation (public)	241	74	26	5	1
Large central city (public)	238	76	24	4	#
Atlanta	‡	‡	‡	‡	‡
Boston	229	88	12	2	#
Charlotte	258	59	41	19	4
Chicago	228	82	18	2	#
Cleveland	‡	‡	‡	‡	‡
District of Columbia	231	79	21	3	1
Houston	240	79	21	2	#
Los Angeles	223	90	10	2	#
New York City	238	78	22	4	1
San Diego	235	82	18	2	#

The estimate rounds to zero.

‡ Reporting standards not met. Sample size is insufficient to permit a reliable estimate.

NOTE: Detail may not sum to totals because of rounding. The results for students with disabilities and limited-English-proficient students are based on students who were assessed and cannot be generalized to the total population of such 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.

Sample Mathematics Assessment Questions

The following pages present sample questions from the NAEP 2003 Mathematics Assessment. Students answered a combination of multiple-choice and constructed-response questions. Some constructed-response questions required students to provide answers to computation problems or to describe solutions in one or two sentences. Extended constructed-response questions required students to provide longer written answers, in order to measure students' ability to reason, communicate, and make connections between concepts and skills, either across the mathematics content areas or from mathematics to other curricular areas.

The tables presented here with each sample question show the percentage of students who answered a multiple-choice question correctly or whose responses to a constructed-response question were rated at or above a particular score level, first as the overall percentage and then as the percentage of students at each achievement level who answered successfully. For the multiple-choice questions shown, the oval corresponding to the correct response is filled in. For the constructed-response questions, sample student responses are presented. In addition, the mathematics content area and mathematics ability assessed by each question are identified.

Additional sample mathematics questions from the 2003 and previous assessments are available on the NAEP web site (http://nces.ed.gov/nationsreportcard/itmrls).

Grade 4 Sample Questions and Responses

Fourth-Grade Multiple-Choice Question

Overall percentage correct	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.

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 section that does not permit calculator use. For this question, students are instructed to add; for other questions, presented in the context of a story problem, students must decide whether to add, subtract, multiply, or divide.

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

Ⓐ 600
Ⓑ 690
● 700
Ⓓ 790

Mathematics Content Area:	Mathematics Ability:
Number Sense, Properties, and Operations	Procedural Knowledge

Fourth-Grade Multiple-Choice Question

Overall percentage correct	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.

Fourth-graders have been taught properties of common geometric figures, including how to find the perimeter. To solve this problem, the student needs 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, or 9 inches long.

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:	Mathematics Ability:
Measurement	Problem Solving

Fourth-Grade Extended Constructed-Response Question

In the early grades, students begin to develop an understanding of fractions by relating them to various models. This NAEP extended constructed-response question was designed to assess fourth-grade students' understanding of equivalent fractions. The 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 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.

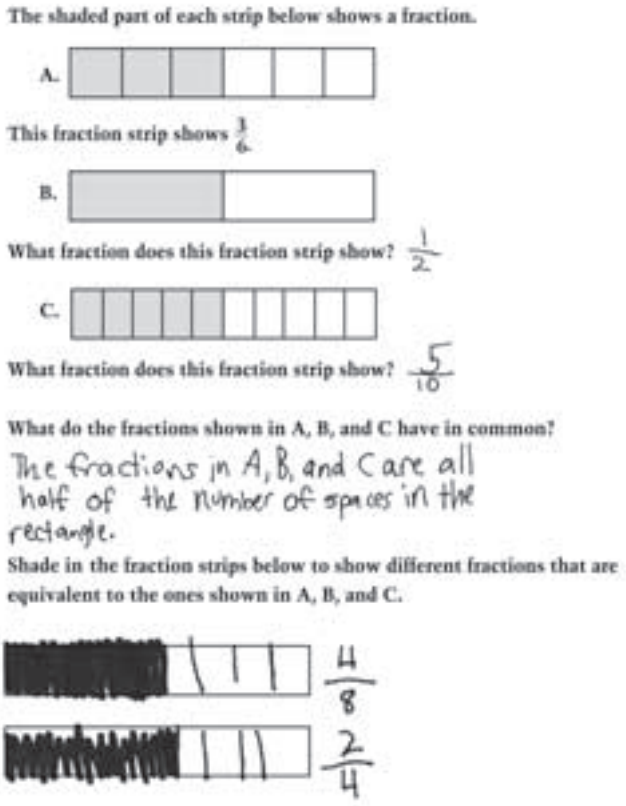
Answers to this question were scored on five levels: "Incorrect," "Minimal," "Partial," "Satisfactory," or "Extended."

The first sample response was rated only "Satisfactory" because the shaded fraction strip for 2/4 was not accurate.

	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.

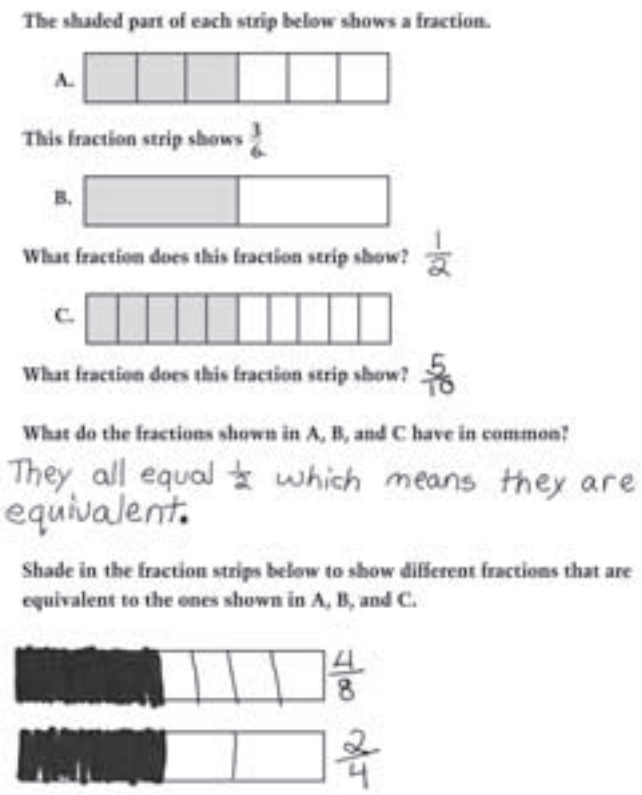
Sample "Satisfactory" Response



	Percentage "Extended"			
Overall percentage "Extended"	**Below *Basic* 213 or below[1]**	**At *Basic* 214–248[1]**	**At *Proficient* 249–81[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



Mathematics Content Area:	Mathematics Ability:
Number Sense, Properties, and Operations	Problem Solving

Grade 8 Sample Questions and Responses

Eighth-Grade Short Constructed-Response Question

Students are expected to be able to compute with numbers at each grade level assessed by NAEP. By eighth grade, students are expected to be able to carry out long division. This sample question is presented in a constructed-response format because, if it were a multiple-choice question, students could use the choices and work backwards by multiplying to find the answer. This question was in a section that did not permit calculator use.

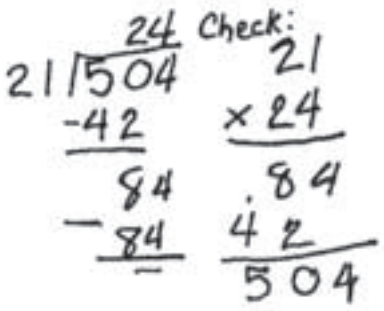
Answers to this question were scored as "Unsatisfactory" or "Satisfactory."

	Percentage "Satisfactory"			
Overall percentage "Satisfactory"	**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.

Divide:

Answer: 24



Mathematics Content Area:	Mathematics Ability:
Number Sense, Properties, and Operations	Procedural Knowledge

Eighth-Grade Multiple-Choice Question

Algebraic concepts are included in the mathematics curriculum before eighth grade. 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.

	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.

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

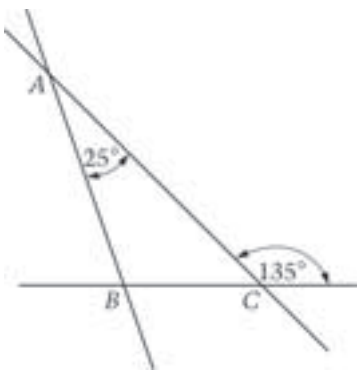
Mathematics Content Area:	Mathematics Ability:
Algebra and Functions	Procedural Knowledge

Eighth-Grade Multiple-Choice Question

This multiple-choice geometry question requires students to use information given in a figure to find the degree measure of $\angle ABC$. The question 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°.

	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.



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

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

Mathematics Content Area:	Mathematics Ability:
Geometry and Spatial Sense	Problem Solving

Eighth-Grade Extended Constructed-Response Question

The areas of some geometric figures cannot be calculated directly, but the figure can be partitioned into simpler figures whose areas can be easily determined. This extended constructed-response question requires students to identify different ways of finding the area of a hallway. One way to partition the hallway is shown. The corresponding area is 50 + 35 = 85. Students are asked to show three other ways the hallway can be divided and for each of them to show how the area can be calculated.

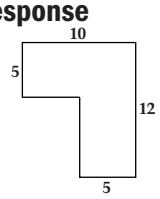
Answers to this question were scored on five levels: "Incorrect," "Minimal," "Partial," "Satisfactory," or "Extended."

The first sample response was only rated "Satisfactory" because the computation given to calculate the area for the first figure should have been 5 x 5 + 12 x 5.

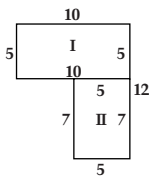
	Percentage "Satisfactory" or better			
Overall percentage "Satisfactory" or better	**Below *Basic* 261 or below[1]**	**At *Basic* 262–298[1]**	**At *Proficient* 299–332[1]**	**At *Advanced* 333 or above[1]**
10	#	2	23	66

#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.

Question with Sample "Satisfactory" Response



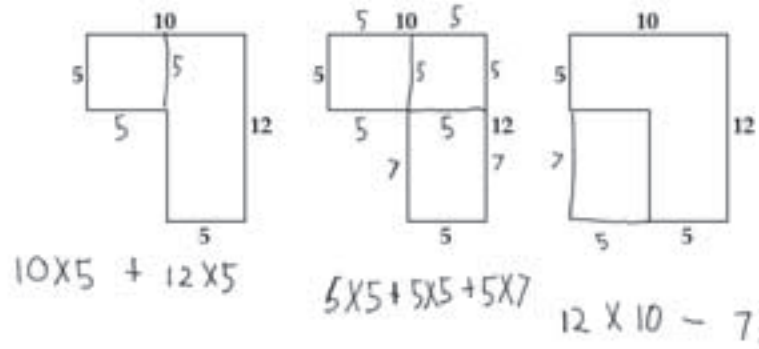
Ted wants to purchase floor covering for the hallway shown above. He knows there are many ways to find the area of the hallway. One way is to divide the hallway into the sections shown below and then add together the area of each section.



Area of Hallway = Area of Region I + Area of Region II

Area = (5 x 10) + (7 x 5)

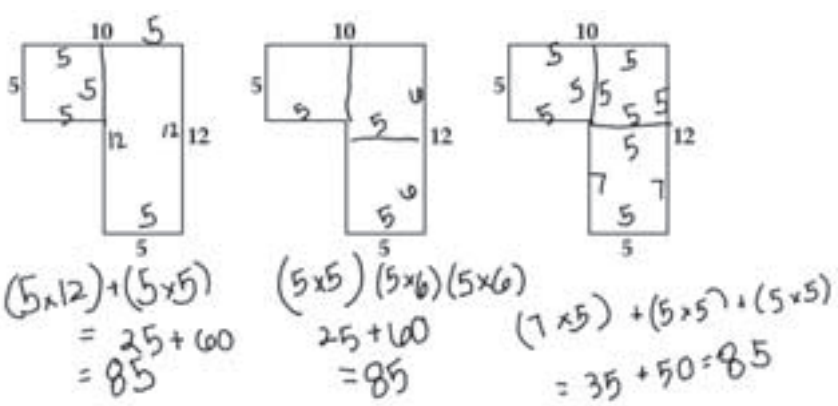
Use the figures below to show 3 other ways that Ted can divide the hallway to find its area. Below each figure explain what numbers and operations Ted could use to calculate the area.



	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



Mathematics Content Area:	Mathematics Ability:
Measurement	Problem Solving

The Nation's Report Card

Trial Urban District Assessment

Mathematics Highlights 2003

National Center for Education Statistics

More Information

Additional results and detailed information about the NAEP 2003 Trial Urban District Assessment of mathematics can be found on the NAEP web site. Additional NAEP publications can be ordered from

U.S. Department of Education
ED Pubs
P.O. Box 1398
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Additional information about the NAEP mathematics framework can be found on the National Assessment Governing Board web site (http://www.nagb.org/pubs/pubs.htm).

NAEP on the Web

http://nces.ed.gov/nationsreportcard

The NAEP web site offers a wealth of assessment information, publications, and analysis tools, including

- access to free NAEP publications and assessment data
- national and state report cards on student achievement in core subject areas such as reading, mathematics, and science
- sample questions, student answers, and scoring guides
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