National Assessment of Educational Progress

The Nation's Report Card™

Trial Urban District Assessment

Mathematics 2005

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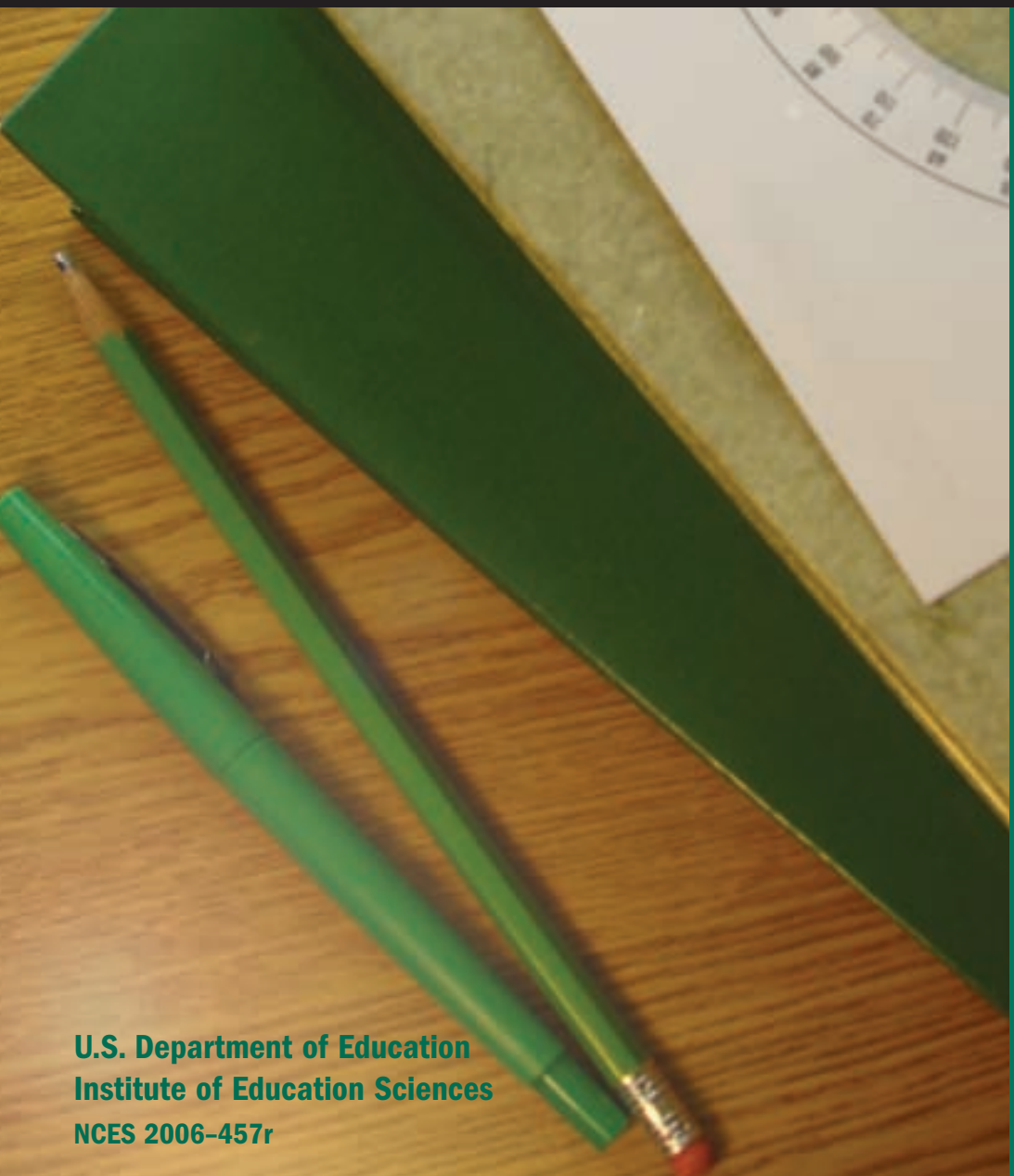

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What is **The Nation's Report Card™**?

The Nation's Report Card™ informs the public about the academic achievement of elementary and secondary students in the United States. Report cards communicate the findings of the National Assessment of Educational Progress (NAEP), the only continuing and nationally representative measure of achievement in various subjects over time. *The Nation's Report Card*™ compares performance among states, urban districts, public and private schools, and student demographic groups.

For over three decades, NAEP assessments have been conducted periodically in reading, mathematics, science, writing, history, geography, and other subjects. By making objective information available on student performance at the national, state, and local levels, NAEP is an integral part of our nation's evaluation of the condition and progress of education. Only information related to academic achievement and relevant variables is collected. The privacy of individual students is protected, and the identities of participating schools are not released.

NAEP is a congressionally mandated project of the National Center for Education Statistics within the Institute of Education Sciences of the U.S. Department of Education. By law, the Commissioner of Education Statistics is responsible for carrying out the NAEP project. The National Assessment Governing Board (NAGB) oversees and sets policy for NAEP. NAGB is an independent, bipartisan group composed of 26 representatives from throughout the U.S., including state and local officials, educators, business leaders, and members of the general public.

For More Information...

The NAEP initial release website (www.nationsreportcard.gov) provides:

- Interactive displays of trial urban district results
- NAEP Data Explorer for statistical testing
- Snapshot reports for individual urban districts
- NAEP released questions tool

Executive Summary

NAEP is a sample-based survey assessment that provides periodic reports on student academic performance at the national and state levels. The Trial Urban District Assessment (TUDA), a special project in NAEP, began assessing performance in selected large urban districts in 2002 with reading and writing assessments, and continued in 2003 and 2005 with reading and mathematics assessments. Eleven large urban school districts participated in 2005, with Austin participating for the first time. This report provides the 2005 NAEP mathematics results for the participating districts. The report compares results to public school students' performance in the nation and in large central cities, and to results for the previous mathematics assessment in 2003, where applicable, using a .05 significance level.

Mathematics Results for Grade 4

In 2005, public school students in Austin and Charlotte had higher average scale scores than students nationally; average scores in the other districts were lower than the national average. Compared with students in large central city public schools nationwide, students in Austin, Charlotte, Houston, New York City, and San Diego had higher average scores and higher percentages performing at or above *Basic*. Boston had higher percentages at or above *Basic*. Students in Austin, Charlotte, and San Diego had higher percentages performing at or above *Proficient*. Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic* and at or above *Proficient*.

Compared to students of the same race/ethnicity in large central city schools, Black students in Austin, Boston, Charlotte, Houston, and New York City had higher average scores and higher percentages performing at or above *Basic*. Black students in Chicago, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic*. Hispanic students in Austin, Charlotte, Houston, and New York City had higher average scores and higher percentages performing at or above *Basic*. Hispanic students in Chicago, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic*.

Between 2003 and 2005, both the average scores and the percentages performing at or above *Basic* increased in Atlanta, Boston, Cleveland, the District of Columbia, Houston, Los Angeles, New York City, and San Diego. The same districts, except for Atlanta and Cleveland, also showed increases in the percentage of students performing at or above *Proficient* between 2003 and 2005.

Mathematics Results for Grade 8

In 2005, average scores for students in Austin and Charlotte were higher than the average score for public school students in the nation, with average scores in the other districts lower. Compared with students in large central cities, students in Austin, Boston, Charlotte, and San Diego had higher average scores and higher percentages performing at or above *Basic*. Austin, Boston, and Charlotte also had higher percentages of students performing at or above *Proficient*. Houston had a higher percentage at or above *Basic*, but a lower percentage at or above *Proficient*. Students in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic* and at or above *Proficient*.

At grade 4, between 2003 and 2005, average scores improved in 8 of the 10 districts that participated in both years. At grade 8, during the same period, average scores improved in 4 of the 10 districts.

Compared to students of the same race/ethnicity in large central city schools, Black students in Austin, Boston, Charlotte, Houston, and New York City had higher average scores and higher percentages at or above *Basic*. Black students in Atlanta, Chicago, Cleveland, and the District of Columbia had lower average scores and lower percentages performing at or above *Basic*. Black students in Los Angeles had lower average scores. Hispanic students in Austin, Chicago, and Houston had higher average scores and higher percentages performing at or above *Basic* than their large central city peers. Hispanic students in Los Angeles had lower average scores and lower percentages performing at or above *Basic*.

Between 2003 and 2005, the average scores and the percentages of students performing at or above *Basic* and at or above *Proficient* increased in Boston, Houston, Los Angeles, and San Diego.

Introduction and Overall Performance: Grades 4 and 8

In 2005, ten urban school districts participated in the TUDA in mathematics at grades 4 and 8. The participating cities were Atlanta, Austin, Boston, Charlotte, Chicago, Cleveland, Houston, Los Angeles, New York City, and San Diego. (See the Technical Notes section for the full names of the school districts.) Austin participated for the first time in 2005. Results for District of Columbia public school students, normally included along with NAEP's state assessment results, are also reported. The results for these districts are for public school students only.

In this report, NAEP results are presented in two ways: as average scale scores and as the percentage of students performing at or above three standards called *achievement levels.* NAEP mathematics scores are reported for grades 4 and 8 on a 0–500 scale. Separate scales are created for other subjects, so even when a subject's scale has the same numerical range (0–500), average scores should not be compared across subjects.

Achievement levels are performance standards set by NAGB in a national process based on recommendations from panels of educators and members of the public. These performance standards indicate what students should know and be able to do in school subjects. The standards define basic, proficient, and advanced performance, providing a context for interpreting student results.

Urban district results are compared with results for public school students in the nation and in large central cities (population of 250,000 or more). As shown in figure 1, average scores for large central cities are lower than average scores for the nation. In many cases, students in participating urban districts also scored lower, on average, than those in the nation. In 2005, grade 4 students in Austin and Charlotte had higher average scores than those in the nation, and all other districts had lower average scores. At grade 8, students in Austin and Charlotte also had higher average scores than students in the nation. The average scores in all other districts were lower than the nation's average score.

The focus of the "Key Findings" boxes throughout the report is on comparing students in urban districts and large central city schools, because these schools represent a peer group, and are a more appropriate comparison than the nation as a whole for these urban districts.

Overall performance results for districts can be seen in figure 1; apparent differences between districts may not be statistically significant (at the .05 level). Note that the differences marked can indicate either higher or lower scores or percentages for the district. Figures A-1 to A-4 in the appendix display the statistically significant differences in performance among the districts. The rates of exclusion of students with disabilities and English language learners vary across districts and could affect comparisons of district performance. These rates are displayed in tables A-2 and A-3 in the appendix.

NAEP Achievement Levels

The three NAEP achievement levels, from lowest to highest, are

Basic—denotes partial mastery of the knowledge and skills that are fundamental for proficient work at a given grade.

Proficient—represents solid academic performance. Students reaching this level have demonstrated competency over challenging subject matter.

Advanced—signifies superior performance.

See pages 16 and 20 for brief descriptions of the achievement levels for mathematics. Detailed descriptions of the NAEP achievement levels for each subject can be found on the NAGB website (http://www.nagb.org/pubs/pubs.html).

KEY FINDINGS

GRADE 4

Compared with student performance in large central city schools...

students in Austin, Charlotte, Houston, New York City, and San Diego had higher average scores and higher percentages performing at or above *Basic*.

Austin, Charlotte, and San Diego had higher percentages performing at or above *Proficient*.

Boston had a higher percentage of students performing at or above *Basic*.

students in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic* and at or above *Proficient*.

GRADE 8

Compared with student performance in large central city schools...

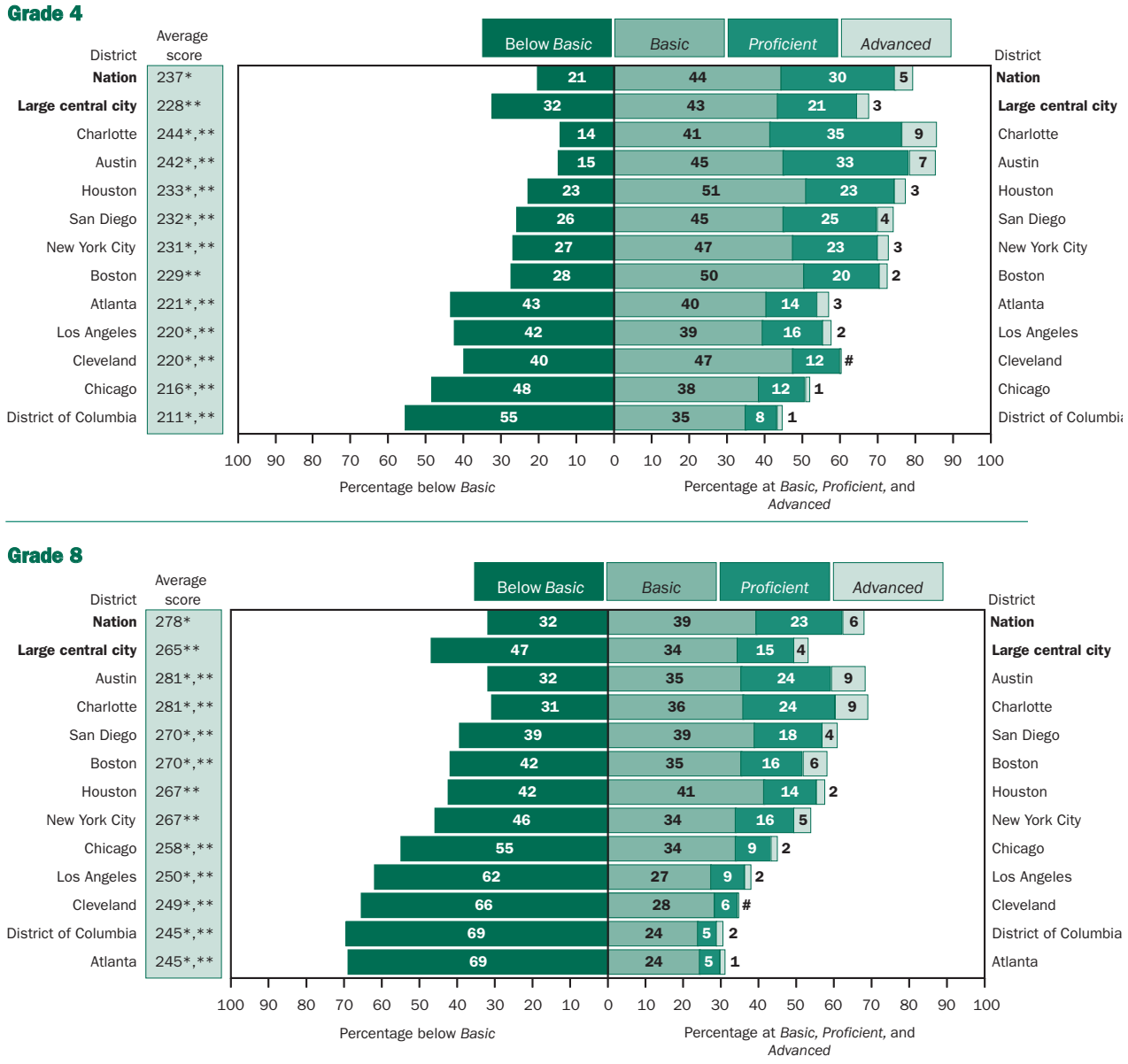
students in Austin, Boston, Charlotte, and San Diego had higher average scores and higher percentages performing at or above *Basic*.

Austin, Boston, and Charlotte had higher percentages performing at or above *Proficient*.

Houston had a higher percentage of students performing at or above *Basic*, but a lower percentage at or above *Proficient*.

students in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic* and at or above *Proficient*.

Figure 1. Average mathematics scale scores and percentage of students within each achievement level, grades 4 and 8 public schools: By urban district, 2005



The estimate rounds to zero.
* Average score significantly different from large central city public schools.
** Average score significantly different from nation (public schools).
NOTE: Detail may not sum to totals because of rounding. The shaded bars are graphed using unrounded numbers.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

A Note on Achievement Levels

As provided by law, the National Center for Education Statistics (NCES), upon review of congressionally mandated evaluations of NAEP, has determined that achievement levels are to be used on a trial basis and should be interpreted with caution. However, NCES and NAGB have affirmed the usefulness of these performance standards for understanding trends in achievement. NAEP achievement levels have been widely used by national and state officials. Information about what students at each grade level should know and be able to do at each achievement level is provided in the "Framework and Sample Questions" section.

Student Group Results

District Mathematics Results by Race/Ethnicity: Grade 4

NAEP obtains information on a student's race/ethnicity from school rosters and reports it as one of six categories: White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin unless specified. If the school roster was left blank for a student, student-reported race/ethnicity was used.

Table 1 shows the percentages of students in grade 4 in each of the participating districts for 2005 by race/ethnicity. In each of the urban districts assessed, Black students and/or Hispanic students constituted the majority in grade 4. For the 2005 national assessment in public schools, White students constituted a majority—57 percent of the grade 4 sample.

Table 2 shows the average scale scores and the percentages of students performing below *Basic,* at or above *Basic,* and at or above *Proficient* in 2005 for White, Black, Hispanic, and Asian/Pacific Islander students in grade 4. Performance results are not presented for American Indian/Alaska Native and Unclassified categories because of small sample sizes. Districts are rank-ordered by average scale score within each racial/ethnic category. Asterisks in the table mark statistically significant differences between results for students in the urban districts and their counterparts in the nation and in large central cities. Information on average score gaps between White and Black students and between White and Hispanic students for each district, for 2005 and previous assessments, can be found in figure A-5 in the appendix. For more information on results by race/ethnicity, visit http://nces.ed.gov/nationsreportcard/naepdata.

Table 1. Percentage of students by race/ethnicity in mathematics, grade 4 public schools: By urban district, 2005

District	White	Black	Hispanic	Asian/Pacific Islander	American Indian/Alaska Native	Unclassified[1]
Nation	57	17	20	4	1	1
Large central city	21	32	39	6	1	1
Atlanta	11	84	3	1	#	1
Austin	28	14	55	3	#	#
Boston	13	45	32	9	#	#
Charlotte	41	40	11	5	#	3
Chicago	8	47	42	3	#	#
Cleveland	20	70	7	1	#	3
District of Columbia	4	86	8	1	#	#
Houston	10	28	59	3	#	#
Los Angeles	10	10	74	6	#	#
New York City	14	35	39	12	#	#
San Diego	23	14	44	17	1	#

The estimate rounds to zero.
[1] "Unclassified" students are those whose school-reported race/ethnicity was "other" or "unavailable," or was missing, and whose race/ethnicity category could not be determined from self-reported information.
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

KEY FINDINGS

GRADE 4

Compared to students of the same race/ethnicity in large central city schools...

Black students in Austin, Boston, Charlotte, Houston, and New York City had higher average scores and higher percentages performing at or above *Basic*.

Black students in Chicago, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic*.

Hispanic students in Austin, Charlotte, Houston, and New York City had higher average scores and higher percentages performing at or above *Basic*.

Hispanic students in Chicago, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic*.

Asian/Pacific Islander students in Boston, Charlotte, and New York City had higher average scores.

Asian/Pacific Islander students in Boston and New York City had higher percentages performing at or above *Basic*.

Table 2. Average scale scores and achievement-level results in mathematics, by race/ethnicity, grade 4 public schools: By urban district, 2005

District	White				District	Black			
		Percentage of students					Percentage of students		
	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*		Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*
Nation	246	11	89	47*	**Nation**	220*	40*	60*	13*
Large central city	247	12	88	50**	**Large central city**	217**	45**	55**	11**
District of Columbia	266*,**	1	99	78*,**	Charlotte	230*,**	26*,**	74*,**	21*,**
Atlanta	263*,**	4*,**	96*,**	72*,**	Austin	228*,**	26*,**	74*,**	18
Austin	262*,**	1*,**	99*,**	75*,**	Houston	224*	33*,**	67*,**	14
Houston	262*,**	3*,**	97*,**	73*,**	Boston	223*,**	35*	65*	13
Charlotte	261*,**	3*,**	97*,**	70*,**	New York City	222*	37*	63*	14
San Diego	249	6*,**	94*,**	50	San Diego	221	40	60	15
Los Angeles	247	13	87	49	Atlanta	215**	49**	51**	9**
New York City	245	13	87	46	Cleveland	215**	48**	52**	8**
Boston	244	12	88	43	Los Angeles	209*,**	58*,**	42*,**	9
Chicago	243	12	88	43	Chicago	208*,**	59*,**	41*,**	6*,**
Cleveland	233*,**	19	81	25*,**	District of Columbia	207*,**	59*,**	41*,**	5*,**

District	Hispanic				District	Asian/Pacific Islander			
		Percentage of students					Percentage of students		
	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*		Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*
Nation	225*	33*	67*	19*	**Nation**	251*	11	89	54*
Large central city	223**	36**	64**	17**	**Large central city**	247**	13	87	49**
Austin	234*,**	20*,**	80*,**	27*,**	Boston	256*	2*,**	98*,**	65*
Charlotte	234*,**	19*,**	81*,**	27	Charlotte	256*	4	96	62
Houston	232*,**	22*,**	78*,**	23*	New York City	253*	8*	92*	60*
New York City	226*	30*	70*	18	Los Angeles	246	12	88	45
Boston	225	30	70	14	San Diego	245**	13	87	46
Cleveland	224	32	68	18	Atlanta	‡	‡	‡	‡
San Diego	222**	37**	63**	16	Austin	‡	‡	‡	‡
Chicago	217*,**	45*,**	55*,**	13	Chicago	‡	‡	‡	‡
Los Angeles	216*,**	47*,**	53*,**	13*,**	Cleveland	‡	‡	‡	‡
District of Columbia	215*,**	49*,**	51*,**	11*,**	District of Columbia	‡	‡	‡	‡
Atlanta	‡	‡	‡	‡	Houston	‡	‡	‡	‡

‡ Reporting standards not met.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: Detail may not sum to totals because of rounding. Results are not shown for students whose race/ethnicity was "American Indian/Alaska Native" or "unclassified."
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

District Mathematics Results by Race/Ethnicity: Grade 8

Table 3, similar to table 1, shows the percentages of students in grade 8 by race/ethnicity for each of the participating districts. In each of the urban districts assessed, Black students and/or Hispanic students constituted the majority in grade 8. For the 2005 national assessment in public schools, White students constituted a majority—60 percent of the grade 8 sample. Table 4 displays the average scores and percentages performing below *Basic*, at or above *Basic*, and at or above *Proficient* in 2005 for the same racial/ethnic groups as in table 2. The districts are rank-ordered by average scale score within each racial/ethnic category.

Information on average score gaps between White and Black students and between White and Hispanic students for each district, for 2005 and previous assessments, can be found in figure A-6 in the appendix.

Table 3. Percentage of students by race/ethnicity in mathematics, grade 8 public schools: By urban district, 2005

District	White	Black	Hispanic	Asian/Pacific Islander	American Indian/Alaska Native	Unclassified[1]
Nation	60	17	17	5	1	1
Large central city	24	32	36	8	1	1
Atlanta	5	93	2	#	#	#
Austin	33	13	51	3	#	#
Boston	16	45	28	11	#	1
Charlotte	38	48	9	4	1	1
Chicago	12	45	38	4	#	#
Cleveland	18	70	10	1	#	1
District of Columbia	4	88	7	1	#	#
Houston	10	28	58	4	#	#
Los Angeles	9	13	72	6	#	#
New York City	15	35	38	13	#	#
San Diego	26	15	41	17	1	#

The estimate rounds to zero.
[1] "Unclassified" students are those whose school-reported race/ethnicity was "other" or "unavailable," or was missing, and whose race/ethnicity category could not be determined from self-reported information.
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

KEY FINDINGS

GRADE 8

Compared to students of the same race/ethnicity in large central city schools...

Black students in Austin, Boston, Charlotte, Houston, and New York City had higher average scores and higher percentages performing at or above *Basic*.

Black students in Atlanta, Chicago, Cleveland, and the District of Columbia had lower average scores and lower percentages performing at or above *Basic*.

Black students in Los Angeles had lower average scores.

Hispanic students in Austin, Chicago, and Houston had higher average scores and higher percentages performing at or above *Basic*.

Hispanic students in Los Angeles had a lower average score and a lower percentage performing at or above *Basic*.

Asian/Pacific Islander students in Boston had a higher average score and a higher percentage performing at or above *Basic*.

Table 4. Average scale scores and achievement-level results in mathematics, by race/ethnicity, grade 8 public schools: By urban district, 2005

District	White				District	Black			
		Percentage of students					Percentage of students		
	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*		Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*
Nation	288	21	79	37	**Nation**	254*	59*	41*	8*
Large central city	288	22	78	39	**Large central city**	250**	64**	36**	7**
District of Columbia	317*,**	6*,**	94*,**	69*,**	Charlotte	264*,**	46*,**	54*,**	14*,**
Austin	305*,**	10*,**	90*,**	61*,**	Austin	262*	48*	52*	12
Charlotte	304*,**	10*,**	90*,**	60*,**	Houston	257*	53*	47*	7
Boston	299*,**	17	83	54*,**	New York City	257*	56*	44*	10
Houston	294	15	85	50	Boston	256*	55*	45*	9
San Diego	292	17	83	42	San Diego	253	60	40	8
New York City	286	23	77	38	Chicago	245*,**	72*,**	28*,**	3*,**
Chicago	281	29	71	33	Cleveland	244*,**	71*,**	29*,**	3*,**
Los Angeles	280*	32	68	32	Atlanta	242*,**	72*,**	28*,**	4*,**
Cleveland	265*,**	46*,**	54*,**	17*,**	District of Columbia	241*,**	73*,**	27*,**	4*,**
Atlanta	‡	‡	‡	‡	Los Angeles	239*,**	71**	29**	7

District	Hispanic				District	Asian/Pacific Islander			
		Percentage of students					Percentage of students		
	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*		Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*
Nation	261*	50*	50*	13*	**Nation**	294*	19*	81*	46*
Large central city	258**	54**	46**	11**	**Large central city**	289**	24**	76**	40**
Austin	267*,**	44*	56*	17*	Boston	309*,**	8*	92*	61*,**
Houston	265*,**	44*	56*	12	Houston	299	15	85	55
Chicago	263*	48*	52*	11	New York City	295	21	79	50
Charlotte	262	47	53	15	Chicago	292	17	83	38
Boston	261	49	51	12	Los Angeles	291	18	82	43
New York City	259	53	47	12	San Diego	282**	26	74	31**
San Diego	258	51	49	11	Atlanta	‡	‡	‡	‡
District of Columbia	252**	61	39	9	Austin	‡	‡	‡	‡
Cleveland	251	67**	33**	7	Charlotte	‡	‡	‡	‡
Los Angeles	245*,**	68*,**	32*,**	6*,**	Cleveland	‡	‡	‡	‡
Atlanta	‡	‡	‡	‡	District of Columbia	‡	‡	‡	‡

‡ Reporting standards not met.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: Detail may not sum to totals because of rounding. Results are not shown for students whose race/ethnicity was "American Indian/Alaska Native" or "unclassified."
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

District Mathematics Results by Eligibility for Free/Reduced-Price School Lunch: Grade 4

An indicator of a student's socioeconomic status is whether or not that student is eligible for free or reduced-price lunch under the National School Lunch Program (NSLP). Children from families with incomes at or below 130 percent of the poverty level are eligible for free meals under the NSLP. Those with incomes between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals. (For the period July 1, 2004, through June 30, 2005, for a family of four 130 percent of the poverty level was $24,505, and 185 percent was $34,873.)

Table 5. Average scale scores and achievement-level results in mathematics, by eligibility for free/reduced-price school lunch, grade 4 public schools: By urban district, 2005

District	Percentage of all students	Average scale score	Percentage of students		
			Below *Basic*	At or above *Basic*	At or above *Proficient*
Eligible					
Nation	46*	225*	33*	67*	19*
Large central city	71**	221**	40**	60**	15**
Austin	63*,**	232*,**	23*,**	77*,**	23*
Charlotte	44*	230*,**	25*,**	75*,**	20*
Houston	78*,**	228*,**	27*,**	73*,**	18
New York City	84*,**	228*,**	30*	70*	22*
Boston	84*,**	227*,**	29*,**	71*,**	19*
San Diego	64*,**	225*	34*	66*	19
Cleveland	100*,**	220**	39**	61**	13**
Los Angeles	86*,**	216*,**	47*,**	53*,**	13*,**
Atlanta	76*,**	213*,**	52*,**	48*,**	6*,**
Chicago	87*,**	212*,**	52*,**	48*,**	9*,**
District of Columbia	76*,**	206*,**	62*,**	38*,**	5*,**
Not eligible					
Nation	52*	248*	10*	90*	50*
Large central city	27**	246**	14**	86**	47**
Austin	37*,**	260*,**	2*,**	98*,**	70*,**
Charlotte	55*	256*,**	6*,**	94*,**	63*,**
Houston	22*,**	251	9*	91*	55
Los Angeles	14*,**	248	12	88	51
Atlanta	23*,**	247	16**	84**	49
San Diego	36*,**	246	11	89	47
Boston	13*,**	244	14	86	45
New York City	15*,**	243	13	87	42
Chicago	13*,**	237*,**	22**	78**	40
District of Columbia	22*,**	229*,**	32*,**	68*,**	27*,**
Cleveland	0	†	†	†	†

† Not applicable. In Cleveland, all students were categorized as eligible for free/reduced-price school lunch.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: Detail may not sum to totals because of rounding. Results are not shown for students whose eligibility status for free/reduced-price lunch was not available; percentages in this category ranged from 0 to 2 percent.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

KEY FINDINGS

GRADE 4

- **Compared to students eligible for free/reduced-price lunch in large central city schools...**

  eligible students in Austin, Boston, Charlotte, Houston, New York City, and San Diego had higher average scores and higher percentages performing at or above *Basic*.

  eligible students in Atlanta, Chicago, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic*.

GRADE 8

- **Compared to students eligible for free/reduced-price lunch in large central city schools...**

  eligible students in Austin, Boston, Charlotte, Houston, and New York City had higher average scores.

  eligible students in Austin, Boston, Charlotte, Houston, New York City, and San Diego had higher percentages performing at or above *Basic*.

  eligible students in Atlanta, Cleveland, the District of Columbia, and Los Angeles had lower average scores and lower percentages performing at or above *Basic*.

Average mathematics scale scores and achievement-level results by students' eligibility for free/reduced-price school lunch are shown in table 5 for grade 4 and in table 6 for grade 8. Districts are rank-ordered by average scale score within the "eligible" and "not eligible" categories. For comparison purposes, data are also provided for the nation and for large central cities. At grades 4 and 8, all districts except Austin, Charlotte, and San Diego had higher percentages of eligible students than did large central cities.

Table 6. Average scale scores and achievement-level results in mathematics, by eligibility for free/reduced-price school lunch, grade 8 public schools: By urban district, 2005

District	Percentage of all students	Average scale score	Percentage of students		
			Below *Basic*	At or above *Basic*	At or above *Proficient*
Eligible					
Nation	39*	261*	49*	51*	13*
Large central city	62**	256**	57**	43**	11**
Boston	74*,**	264*	47*	53*	17*
New York City	84*,**	264*	49*	51*	18*
Houston	70*,**	262*	47*	53*	10**
Austin	50*,**	261*	51*	49*	13
Charlotte	45*,**	261*	49*	51*	12
San Diego	55*,**	258	51*	49*	10
Chicago	81*,**	254**	60**	40**	8*,**
Cleveland	100	249*,**	66*,**	34*,**	6*,**
Los Angeles	77*,**	245*,**	68*,**	32*,**	6*,**
District of Columbia	72*,**	241*,**	74*,**	26*,**	4*,**
Atlanta	78*,**	240*,**	74*,**	26*,**	3*,**
Not eligible					
Nation	59*	288*	21*	79*	39*
Large central city	35**	282**	29**	71**	34**
Cleveland	0	†	†	†	†
Austin	49*,**	301*,**	12*,**	88*,**	54*,**
Charlotte	54*,**	297*,**	16*,**	84*,**	51*,**
Boston	25*,**	288	27	73	41
New York City	12*,**	286	26	74	39
San Diego	45*,**	285	24	76	36
Houston	30*,**	279**	31**	69**	30**
Chicago	18*,**	275**	35**	65**	27**
Los Angeles	23*,**	270*,**	41*,**	59*,**	25*,**
Atlanta	19*,**	266*,**	48*,**	52*,**	22*,**
District of Columbia	25*,**	261*,**	54*,**	46*,**	16*,**

† Not applicable. In Cleveland, all students were categorized as eligible for free/reduced-price school lunch.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: Detail may not sum to totals because of rounding. Results are not shown for students whose eligibility status for free/reduced-price lunch was not available; percentages in this category ranged from 0 to 4 percent.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

District Mathematics Results by Gender: Grades 4 and 8

The percentages of male and female students, their average scale scores, and the percentages performing below *Basic,* at or above *Basic,* and at or above *Proficient* are presented by district in table 7 for grade 4 and in table 8 for grade 8. At both grades 4 and 8, there were no significant differences between the average scores of male and female students within any of the districts in 2005.

Table 7. Average scale scores and achievement-level results in mathematics, by gender, grade 4 public schools: By urban district, 2005

District	Percentage of all students	Average scale score	Percentage of students: Below *Basic*	Percentage of students: At or above *Basic*	Percentage of students: At or above *Proficient*
Nation					
Male	51	238*	20*	80*	37*
Female	49	236*	21*	79*	33*
Large central city					
Male	51	229**	32**	68**	26**
Female	49	227**	33**	67**	23**
Atlanta					
Male	51	222*,**	42*,**	58*,**	18*,**
Female	49	219*,**	45*,**	55*,**	15*,**
Austin					
Male	49	242*,**	15*,**	85*,**	41*
Female	51	242*,**	14*,**	86*,**	39*,**
Boston					
Male	53	228**	29**	71**	23**
Female	47	230*,**	25*	75*	22**
Charlotte					
Male	50	244*,**	15*,**	85*,**	43*
Female	50	245*,**	14*,**	86*,**	45*,**
Chicago					
Male	53	217*,**	47*,**	53*,**	15*,**
Female	47	214*,**	50*,**	50*,**	11*,**
Cleveland					
Male	52	220*,**	41*,**	59*,**	14*,**
Female	48	220*,**	38**	62**	12*,**
District of Columbia					
Male	49	212*,**	56*,**	44*,**	11*,**
Female	51	211*,**	55*,**	45*,**	9*,**
Houston					
Male	48	234*,**	22*	78*	28**
Female	52	232*,**	23*	77*	24**
Los Angeles					
Male	48	222*,**	40*,**	60*,**	21*,**
Female	52	219*,**	44*,**	56*,**	16*,**
New York City					
Male	50	232*,**	26*,**	74*,**	28**
Female	50	229*,**	28*,**	72*,**	23**
San Diego					
Male	48	234*,**	25*	75*	31**
Female	52	231*,**	27*,**	73*,**	27*,**

* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

KEY FINDINGS

GRADE 4

- **Compared to students of the same gender in large central city schools...**

male students in Austin, Charlotte, Houston, New York City, and San Diego had higher average scores and higher percentages performing at or above *Basic*; male students in all other districts, except for Boston, performed lower on both measures.

female students in Austin, Boston, Charlotte, Houston, New York City, and San Diego had higher average scores; female students in all other districts scored lower.

GRADE 8

- **Compared to students of the same gender in large central city schools...**

male students in Austin and Charlotte had higher average scores and higher percentages performing at or above *Basic*; male students in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles performed lower on both measures.

female students in Austin, Boston, Charlotte, and San Diego had higher average scores and higher percentages performing at or above *Basic*; female students in Atlanta, Chicago, Cleveland, the District of Columbia, and Los Angeles performed lower on both measures.

Table 8. Average scale scores and achievement-level results in mathematics, by gender, grade 8 public schools: By urban district, 2005

District	Percentage of all students	Average scale score	Percentage of students		
			Below *Basic*	At or above *Basic*	At or above *Proficient*
Nation					
Male	51*	278*	32*	68*	30*
Female	49*	277*	33*	67*	27*
Large central city					
Male	49**	266**	46**	54**	20**
Female	51**	264**	48**	52**	18**
Atlanta					
Male	48	244*,**	70*,**	30*,**	7*,**
Female	52	246*,**	68*,**	32*,**	7*,**
Austin					
Male	47	282*	32*	68*	34*
Female	53	279*	32*	68*	32*,**
Boston					
Male	50	267**	45**	55**	20**
Female	50	272*,**	39*,**	61*,**	25*
Charlotte					
Male	51	279*	34*	66*	32*
Female	49	282*,**	29*	71*	34*,**
Chicago					
Male	48	258*,**	54*,**	46*,**	12*,**
Female	52	258*,**	56*,**	44*,**	10*,**
Cleveland					
Male	48	249*,**	66*,**	34*,**	6*,**
Female	52	249*,**	65*,**	35*,**	7*,**
District of Columbia					
Male	47	246*,**	68*,**	32*,**	7*,**
Female	53	245*,**	71*,**	29*,**	6*,**
Houston					
Male	50	267**	42**	58**	16*,**
Female	50	267**	43**	57**	17**
Los Angeles					
Male	49	252*,**	61*,**	39*,**	12*,**
Female	51	249*,**	64*,**	36*,**	9*,**
New York City					
Male	50	265**	47**	53**	19**
Female	50	268**	45**	55**	21
San Diego					
Male	50	268**	41**	59**	21**
Female	50	272*,**	37*	63*	23*

* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Changes in Performance

Of the 11 urban districts with assessment results for 2005, ten have comparison data from the 2003 assessment (Austin first participated in 2005). The vertical bars in figure 2 represent the average scale scores for grade 4 in 2003 and 2005 for public schools in the nation, in large central cities, and in each of the participating districts. An asterisk below the score in 2003 indicates that it is statistically different from the corresponding average score in 2005.

Table 9 presents the achievement-level results for each of the assessment years by district for grade 4. Percentages for 2003 that are statistically different from the corresponding percentage in 2005 are marked with an asterisk (*).

On page 14, figure 3 shows the average scale scores across years by district for grade 8. Table 10 displays the achievement-level results by district for 2003 and 2005 for grade 8.

KEY FINDINGS

GRADE 4

- **Between 2003 and 2005, average scores increased in 8 of the 10 urban districts that participated in both years: Atlanta, Boston, Cleveland, the District of Columbia, Houston, Los Angeles, New York City, and San Diego.**
- **The same 8 districts showed increases in the percentages of students performing at or above *Basic*.**
- **Boston, the District of Columbia, Houston, Los Angeles, New York City, and San Diego showed increases in the percentages of students performing at or above *Proficient*.**

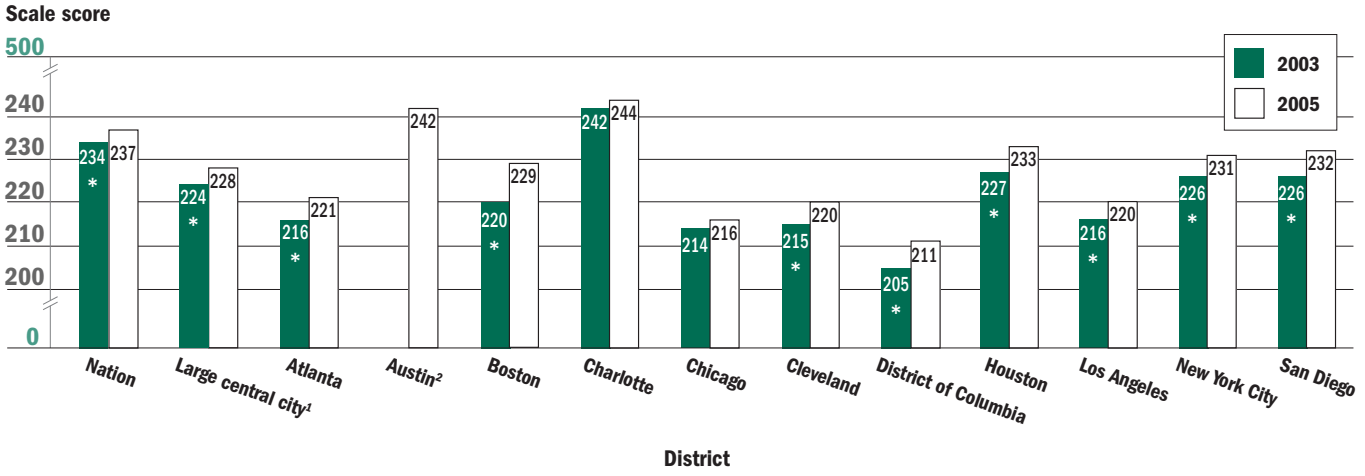
GRADE 8 (page 14)

- **Between 2003 and 2005, average scores increased in 4 of the 10 urban districts that participated in both years: Boston, Houston, Los Angeles, and San Diego.**
- **The same 4 districts showed increases in the percentages of students performing at or above *Basic* and at or above *Proficient*.**

For More Information...

More information on average scores and achievement-level results for a particular district or student group is available at http://nces.ed.gov/nationsreportcard/naepdata. This interactive site provides a data tool for exploring results and calculating the statistical significance of differences.

Figure 2. Average mathematics scale scores, grade 4 public schools: By urban district, 2003 and 2005



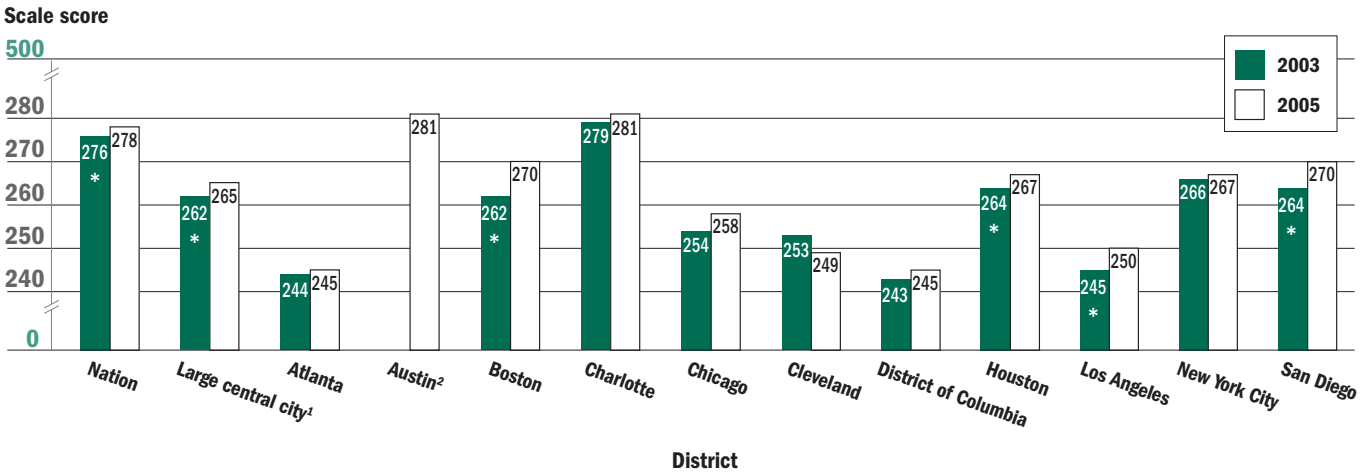
* Significantly different from 2005.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
[2] The district did not participate in 2003.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Table 9. Percentage of students by mathematics achievement level, grade 4 public schools: By urban district, 2003 and 2005

	Below *Basic*		At or above *Basic*		At or above *Proficient*		At *Advanced*	
District	2003	2005	2003	2005	2003	2005	2003	2005
Nation	24*	21	76*	79	31*	35	4*	5
Large central city[1]	37*	32	63*	68	20*	24	2	3
Atlanta	50*	43	50*	57	13	17	2	3
Austin	–	15	–	85	–	40	–	7
Boston	41*	28	59*	72	12*	22	1	2
Charlotte	16	14	84	86	41	44	6*	9
Chicago	50	48	50	52	10	13	1	1
Cleveland	49*	40	51*	60	10	13	#	#
District of Columbia	64*	55	36*	45	7*	10	1	1
Houston	30*	23	70*	77	18*	26	1	3
Los Angeles	48*	42	52*	58	13*	18	1	2
New York City	33*	27	67*	73	21*	26	2	3
San Diego	34*	26	66*	74	20*	29	2*	4

– Not available. The district did not participate in 2003.
The estimate rounds to zero.
* Significantly different from 2005.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Figure 3. Average mathematics scale scores, grade 8 public schools: By urban district, 2003 and 2005



* Significantly different from 2005.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
[2] The district did not participate in 2003.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Table 10. Percentage of students by mathematics achievement level, grade 8 public schools: By urban district, 2003 and 2005

	Below *Basic*		At or above *Basic*		At or above *Proficient*		At *Advanced*	
District	2003	2005	2003	2005	2003	2005	2003	2005
Nation	33*	32	67*	68	27*	28	5*	6
Large central city[1]	50*	47	50*	53	16*	19	3*	4
Atlanta	70	69	30	31	6	7	1	1
Austin	–	32	–	68	–	33	–	9
Boston	52*	42	48*	58	17*	23	4	6
Charlotte	33	31	67	69	32	33	7	9
Chicago	58	55	42	45	9	11	1	2
Cleveland	62	66	38	34	6	6	#	#
District of Columbia	71	69	29	31	6	7	1	2
Houston	48*	42	52*	58	12*	16	2	2
Los Angeles	68*	62	32*	38	7*	11	1	2
New York City	46	46	54	54	20	20	4	5
San Diego	47*	39	53*	61	18*	22	2*	4

– Not available. The district did not participate in 2003.
The estimate rounds to zero.
* Significantly different from 2005.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Framework and Sample Questions: Grade 4

The content of the NAEP mathematics assessment is based on a framework, that describes in detail how mathematics should be assessed by NAEP. The current NAEP mathematics framework was first used for the 1990 assessment and has continued to be the basis for the assessment content. It was developed through a comprehensive national consultative process and adopted by NAGB. The framework calls for the assessment of mathematics within five content areas and at different levels of complexity.

Mathematics content areas. In order to ensure that NAEP assesses an appropriate balance of content, the framework defines five broad areas of mathematical content. The content areas assessed at grade 4 are number properties and operations, measurement, geometry, data analysis and probability, and algebra. The framework calls for the test questions at grade 4 to be distributed across the five content areas in the following proportions:

Number properties and operations	Measurement	Geometry
40%	20%	15%

Data analysis and probability	Algebra
10%	15%

Mathematical complexity. The framework also calls for an assessment that measures different levels of mathematical complexity to make sure that NAEP assesses a variety of ways of knowing and doing mathematics. The level of complexity of a test question is determined by the demands that it places on students. For example, test questions with a high level of complexity at grade 4 might ask students to solve a problem in more than one way. According to the framework, the ideal balance for the assessment is that half the score is based on items of moderate complexity, with the remainder of the score based equally on items of low and high complexity.

Revisions were made to the framework for the 1996 assessment and again for the 2005 assessment. For example, the names of some of the content areas changed in 2005, but there remains a consistent focus on the five key areas. The framework reflects current curricular emphases and objectives, while continuing a connection to previous frameworks.

The grade 4 mathematics assessment consists of ten 25-minute sections of mathematics questions. Each section contains 14 to 20 questions. The questions are both multiple choice and constructed response. Multiple-choice questions require students to select an answer from four options, while constructed-response questions require students to write either short or extended answers. Each student receives only a portion of the entire assessment, consisting of a booklet containing two 25-minute sections of mathematics questions.

Item Maps

The item maps presented on pages 17 and 21 illustrate the knowledge and skills demonstrated by students performing at different score points on the 2005 NAEP mathematics assessment. In order to provide additional context, the cut scores for the three NAEP achievement levels are marked on the item maps. The map location for each question represents the probability that, for a given score point, 65 percent of the students for a constructed-response question, 74 percent of the students for a four-option multiple-choice question, or 72 percent of the students for a five-option multiple-choice question answered that question successfully. For constructed-response questions, only responses considered to be completely correct are shown on the item maps.

Achievement-Level Descriptions for Grade 4

Mathematics achievement-level descriptions are based on NAGB achievement-level policy descriptions with subject- and grade-specific information added. The following descriptions are abbreviated versions of the full achievement-level descriptions for grade 4 mathematics. The full descriptions can be found at http://www.nagb.org/pubs/mathbook.pdf.

Basic: Fourth-grade students performing at the *Basic* level should be able to estimate and use basic facts to perform simple computations with whole numbers; show some understanding of fractions and decimals; and solve some simple real-world problems in all NAEP content areas. Students at this level should be able to use—though not always accurately—four-function calculators, rulers, and geometric shapes. Their written responses will often be minimal and presented without supporting information.

Proficient: Fourth-grade students performing at the *Proficient* level should be able to use whole numbers to estimate, compute, and determine whether results are reasonable. They should have a conceptual understanding of fractions and decimals; be able to solve real-world problems in all NAEP content areas; and use four-function calculators, rulers, and geometric shapes appropriately. Students performing at the *Proficient* level should employ problem-solving strategies such as identifying and using appropriate information. Their written solutions should be organized and presented both with supporting information and explanations of how they were achieved.

Advanced: Fourth-grade students performing at the *Advanced* level should be able to solve complex and nonroutine real-world problems in all NAEP content areas. They should display mastery in the use of four-function calculators, rulers, and geometric shapes. The students are expected to draw logical conclusions and justify answers and solution processes by explaining why, as well as how, they were achieved. They should go beyond the obvious in their interpretations and be able to communicate their thoughts clearly and concisely.

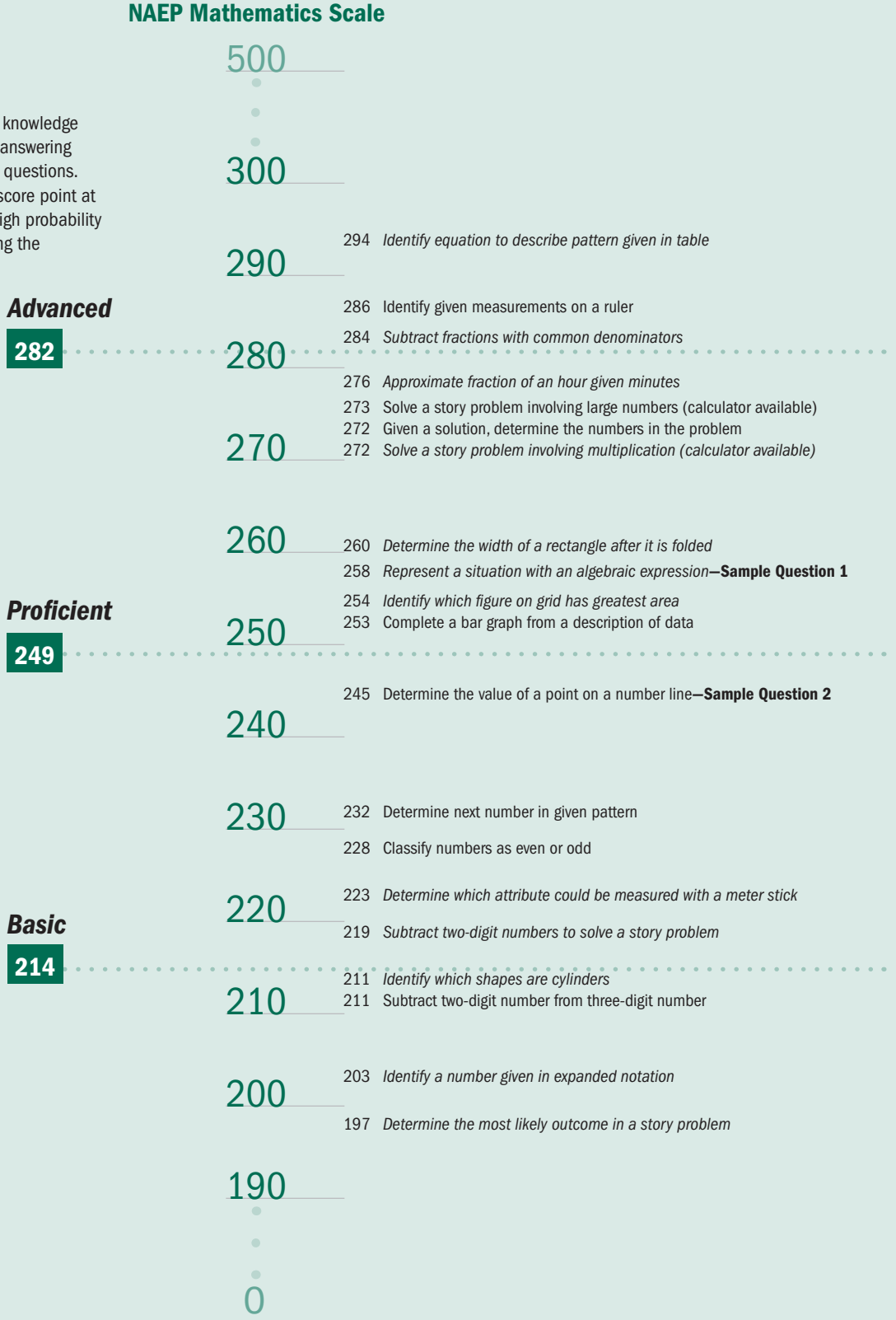
Cut Scores

Cut scores represent the minimum score required for performance at each NAEP achievement level. NAEP cut scores were determined through a standard-setting process that convened a cross-section of educators and interested citizens from across the nation. The group was asked to determine what students should know and be able to do relative to a body of content reflected in the mathematics framework. NAGB then adopted a set of cut scores on the 0–500 scale that define the lower boundaries of the *Basic, Proficient,* and *Advanced* achievement levels. The mathematics cut scores, which appear on the item maps, are as follows:

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

Grade 4 Item Map

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



[1] Each grade 4 mathematics question in the 2005 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 rated as completely correct.

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), 2005 Mathematics Assessment.

Sample Grade 4 Multiple-Choice Question

Sample Question 1 is a multiple-choice question in the algebra content area. This question asked students to represent a given situation with an algebraic expression.

1. N stands for the number of hours of sleep Ken gets each night. Which of the following represents the number of hours of sleep Ken gets in 1 week?

   (A) $N + 7$

   (B) $N - 7$

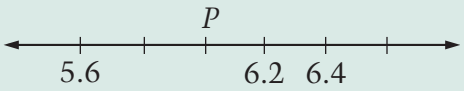
   ● $N \times 7$

   (D) $N \div 7$

61 percent of fourth-graders answered this question correctly.

Sample Grade 4 Short Constructed-Response Question

Sample Question 2 is a short constructed-response question in the number properties and operations content area. This question asked students to identify the point indicated on a number line. The response shown here would have been rated correct.



2. On the number line above, what number would be located at point P?

Answer: 6.0

56 percent of fourth-graders wrote correct responses.

Framework and Sample Questions: Grade 8

As at grade 4, the content of the mathematics assessment at grade 8 is based on a framework that describes in detail how mathematics should be assessed by NAEP. The current NAEP mathematics framework was first used for the 1990 assessment and has continued to be the basis for the assessment content. It was developed through a comprehensive national consultative process and adopted by NAGB. The framework calls for the assessment of mathematics within five content areas and at different levels of complexity.

Mathematics content areas. In order to ensure that NAEP assesses an appropriate balance of content, the framework defines five broad areas of mathematical content. The content areas assessed at grade 8 are the same as those assessed at grade 4: number properties and operations, measurement, geometry, data analysis and probability, and algebra. At grade 8, however, the emphasis placed on each content area is different from that at grade 4, to reflect differences in curricular emphasis at the two grades. The framework calls for the eighth-grade test questions to be distributed across the five content areas in the following proportions:

Number properties and operations	Measurement	Geometry
20%	15%	20%

Data analysis and probability	Algebra
15%	30%

Mathematical complexity. As at grade 4, the framework calls for an assessment at grade 8 that measures different levels of mathematical complexity, to make sure that NAEP assesses a variety of ways of knowing and doing mathematics. The level of complexity of a test question is determined by the demands that it places on students. For example, test questions at grade 8 with a high level of complexity might ask students to provide a mathematical justification. According to the framework, the ideal balance for the assessment is that half the score is based on items of moderate complexity, with the remainder of the score based equally on items of low and high complexity.

Revisions were made to the framework for the 1996 assessment and again for the 2005 assessment. For example, the names of some of the content areas changed in 2005, but there remains a consistent focus on the five key areas. The framework reflects current curricular emphases and objectives, while continuing a connection to previous frameworks.

The grade 8 mathematics assessment consists of ten 25-minute sections of mathematics questions. Each section contains 16 to 21 questions. The questions are either multiple choice or constructed response. Multiple-choice questions require students to select an answer from four or five options, while constructed-response questions require students to write either short or extended answers. Each student receives only a portion of the entire assessment, consisting of a booklet containing two 25-minute sections of mathematics questions.

For More Information...

The complete mathematics framework is available on the NAGB website (http://www.nagb.org/pubs/pubs.html). To view more questions, including sample responses and statistics, visit the NAEP questions tool at http://nces.ed.gov/nationsreportcard/itmrls/.

Achievement-Level Descriptions for Grade 8

Mathematics achievement-level descriptions are based on NAGB achievement-level policy descriptions with subject- and grade-specific information added. The following descriptions are abbreviated versions of the full achievement-level descriptions for grade 8 mathematics. The full descriptions can be found at http://www.nagb.org/pubs/mathbook.pdf.

Basic: Eighth-grade students performing at the *Basic* level should complete problems correctly with the help of structural prompts such as diagrams, charts, and graphs. They should be able to solve problems in all NAEP content areas through the appropriate selection and use of strategies and technological tools—including calculators, computers, and geometric shapes. Students at this level also should be able to use fundamental algebraic and informal geometric concepts in problem solving.

Proficient: Eighth-grade students performing at the *Proficient* level should be able to conjecture, defend their ideas, and give supporting examples. They should understand the connections between fractions, percents, decimals, and other mathematical topics such as algebra and functions. Students at this level are expected to have a thorough understanding of *Basic*-level arithmetic operations—an understanding sufficient for problem solving in practical situations.

Advanced: Eighth-grade students performing at the *Advanced* level should be able to probe examples and counterexamples in order to shape generalizations from which they can develop models. Eighth-graders performing at the *Advanced* level should use number sense and geometric awareness to consider the reasonableness of an answer. They are expected to use abstract thinking to create unique problem-solving techniques and explain the reasoning processes underlying their conclusions.

Grade 8 Item Map

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

NAEP Mathematics Scale

500

370

360
- 365 Reason about pattern on a grid using concept of slope

350
- 353 Determine a probability (calculator available)

340
- 343 *Determine effect of increasing the value of one variable*

Advanced

333

330
- 335 Reason about properties of a parallelogram
- 330 *Determine median price for a gallon of gasoline*

320
- 319 *Estimate the x-coordinate from the graph of a curve*
- 317 *Solve a story problem involving percent increase*
- 315 *Determine the 6th term in a pattern*—**Sample Question 3**

310
- 311 *Predict results of experiment using probability*

306 *Determine an equation given a table of x and y values*

Proficient

299

300
- 302 Solve a story problem with multiple operations
- 301 Extend a pattern on grid

294 *Determine coordinates to complete a rectangle*

294 *Identify piece of information not needed*

290
- 291 *Solve problem involving square root (calculator available)*

283 Shade a grid to form symmetric pattern—**Sample Question 4**

282 *Determine how many angles are less than 90 degrees*

280
- 282 *Convert a written number to decimal form*

270
- 274 *List angle measures from smallest to largest (protractor available)*

Basic

262

260

253 Draw the reflection of a figure

250
- 252 *Determine area of shaded region on grid*

247 Solve a multistep story problem

240

0

[1] Each grade 8 mathematics question in the 2005 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, 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 rated as completely correct.

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), 2005 Mathematics Assessment.

Sample Grade 8 Multiple-Choice Question

Sample Question 3 is a multiple-choice question in the algebra content area. This question asked students to infer a rule and find the next term in a sequence. The terms in this sequence are the squares of consecutive odd numbers.

1, 9, 25, 49, 81,…

3. The same rule is applied to each number in the pattern above. What is the 6th number in the pattern?

Ⓐ 40

Ⓑ 100

● 121

Ⓓ 144

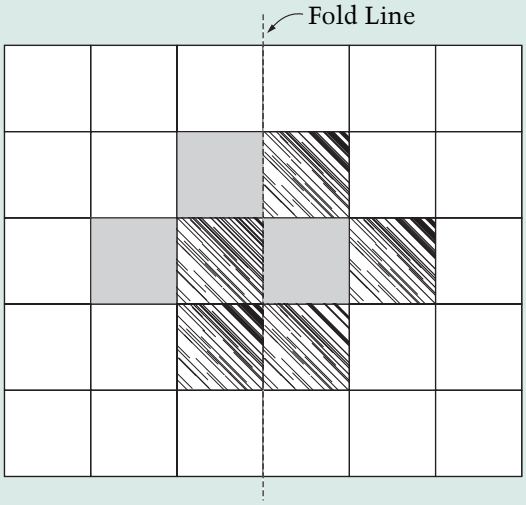
Ⓔ 169

60 percent of eighth-graders answered this question correctly.

Sample Grade 8 Short Constructed-Response Question

Sample Question 4 is a short constructed-response question in the geometry content area. This question asked students to shade five additional squares in a grid that has three shaded squares to create a symmetric pattern. Students were given paper squares for this question. The response shown here would have been rated correct.

4. Shade five more squares on the grid below so that if your completed figure were folded along the fold line both sides would match.



58 percent of eighth-graders gave correct responses.

Technical Notes and Data Appendix

About This Revised Report

The initial version of this TUDA report was released on December 1, 2005. In the national report card for mathematics for 2005, the "type of location" variable was not reported with across year trends because the US Census classifications of too many schools had changed. Consequently, the "large central city" variable, one of the categories in "type of location," was not reported for 2003 in the initial TUDA mathematics report. However, subsequent analyses showed that while the overall "type of location" variable was not sufficiently consistent to report student performance trends, the "large central city" school classifications had remained stable enough across 2003 and 2005 to permit reporting of trend results within this category. The main difference between this revised report and the original is the addition of large central city performance data in 2003.

Participating Districts

In 2005, ten urban public school districts participated in the TUDA in mathematics at grades 4 and 8. The school district names, as used in the NCES Common Core of Data, are Atlanta City School District, Austin Independent School District, Boston School District, Charlotte-Mecklenburg Schools, City of Chicago School District 299, Cleveland Municipal School District, Houston Independent School District, Los Angeles Unified School District, New York City Public Schools, and San Diego Unified School District. Results for the District of Columbia public school students, normally included along with NAEP's state assessment results, are also reported. The results for these districts are for public school students only.

NAEP Sampling Procedures

The sample of students in the participating TUDA school districts represents an augmentation of the sample of students who would usually be selected by NAEP as part of state samples. These augmented samples allow reliable reporting of student groups within these districts. Students in the TUDA samples are also included in "higher-level" samples. For example, data from students tested in the Los Angeles sample were used to report results for Los Angeles, and also contributed to the California and the national samples.

In the same way that schools and students participating in national NAEP assessments are chosen to be nationally representative, samples of schools and students in the urban districts were selected to be representative of their districts. The results from the assessed students are combined to provide accurate estimates of overall district performance. Results are weighted to take into account the fact that schools within districts represent different proportions of the overall district population. Table A-1 displays the sample sizes and target populations for the districts for 2003 and 2005.

Accommodations

It is important to assess all selected students from the target population, including students with disabilities (SD) and students classified by their schools as English language learners (ELL). To accomplish this goal, students who receive accommodations in their state's assessments, such as extra testing time or individual rather than group administration, are offered most of the same accommodations in NAEP. One notable exception is that students may not use calculators in NAEP in the sections where questions are not intended for calculator use.

Exclusion Rates

Some students identified as SD or ELL who are sampled for NAEP participation may be excluded from the assessment according to carefully defined criteria. School personnel, guided by the student's Individualized Education Program (IEP), as well as by section 504 eligibility, make decisions regarding inclusion in the assessment of students with disabilities. Based on NAEP's guidelines, they also make the decision whether to exclude students identified as ELL. 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 percentages of students excluded from NAEP may vary considerably across states and districts, as well as across years. Comparisons of achievement results across districts and within a district across years should be interpreted with caution if the exclusion rates vary widely. (See tables A-2 and A-3 for exclusion rates in 2003 and 2005.)

School and Student Participation Rates

In order to ensure reportable samples, NCES and NAGB established participation rate standards that states and jurisdictions are required to meet in order for their results to be reported. The same standards were applied to the urban districts. Participation rates before substitution needed to be at least 80 percent for schools and at least 85 percent for students in each subject and grade. Results are not reported in any instances in which participation rates did not meet the established standards for certain student groups or jurisdictions. In the 2005 mathematics assessment, all states, jurisdictions, and participating urban districts met NAEP participation rate standards at both grades 4 and 8 (see table A-1).

Interpreting Statistical Significance

Comparisons over time or between groups in this report are based on statistical tests that consider both the size of the differences and the standard errors of the two statistics being compared. Standard errors are measures of the margin of error in samples. Estimates based on smaller samples are likely to have larger margins of error than estimates based on large samples. The size of the standard errors may also be influenced by other factors, such as how representative the assessed students are of the population as a whole. When an estimate, such as an average score, has a large standard error, a numerical difference that seems large may not be statistically significant. Differences of the same magnitude may or may not be statistically significant, depending upon the size of the standard errors of the statistics. For example, a 3-point difference between male and female students may be statistically significant, while a 3-point difference between White and Asian/Pacific Islander students may not be. Standard errors for the NAEP scores and percentages presented in this report are available on the NAEP website (http://nces.ed.gov/nationsreportcard/naepdata/).

In the tables and charts of this report, asterisks are used to indicate that a score or percentage in 2005 is significantly different from the comparable measure in a previous assessment year, or to indicate differences from national or large central city results. Any difference between scores or percentages that is identified in the text as higher, lower, larger, or smaller in this report, including within-group differences not marked in tables and charts, meets the requirements for statistical significance. The differences described in this report have been determined to be statistically significant at the .05 level with appropriate adjustments for multiple comparisons.

"Large central city" in this report includes public schools located in large central cities (with populations of 250,000 or more) throughout the United States within metropolitan statistical areas as defined by the federal

Table A-1. School and student participation rates and target populations, grades 4 and 8 public schools: By urban district, 2005

	School participation		Student participation		
District	Student-weighted percent before substitution	Number of schools participating	Student-weighted percent	Number of students assessed	Target population
Grade 4					
Atlanta	100	100	95	1,200	6,000
Austin	100	100	94	1,300	7,000
Boston	99	100	93	1,200	5,000
Charlotte	100	100	94	1,500	9,000
Chicago	100	100	95	2,100	36,000
Cleveland	100	100	90	1,000	7,000
District of Columbia	100	100	93	2,200	6,000
Houston	100	100	96	2,000	18,000
Los Angeles	100	100	93	2,100	63,000
New York City	100	100	92	2,000	81,000
San Diego	100	100	95	1,400	12,000
Grade 8					
Atlanta	100	< 50	90	1,100	4,000
Austin	100	< 50	90	1,200	6,000
Boston	99	< 50	91	1,100	5,000
Charlotte	100	< 50	90	1,400	8,000
Chicago	100	100	93	1,900	35,000
Cleveland	100	< 50	80	900	5000
District of Columbia	100	< 50	86	1,900	3,000
Houston	100	< 50	88	1,700	14,000
Los Angeles	99	100	89	1,900	50,000
New York City	100	100	83	1,800	70,000
San Diego	100	< 50	89	1,300	10,000

NOTE: The numbers of schools and students are rounded to the nearest hundred, or indicated as < 50 where the value was between 1 and 49. The target population is rounded to the nearest thousand.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Office of Management and Budget. The term is not synonymous with "inner city." Urban districts are school districts that include schools in their large central cities. Some districts (Austin, Charlotte, Cleveland, Houston, and Los Angeles) encompass a small percentage of schools not classified as large central city. In these cases, the data from the entire district were used in statistical comparisons to large central city schools. Further comparisons of urban district student group data with large central city data are available from the online data explorer on the NAEP website (http://nces.ed.gov/nationsreportcard/naepdata). Selecting the variable "Large central city for urban district comparisons" when making statistical comparisons for urban districts will allow comparisons to large central city data and will permit the software user to replicate results in this report and to explore additional comparisons.

Table A-2. Percentage of all students identified as students with disabilities and/or English language learners, excluded, and assessed, grade 4 public schools: By urban district, 2003 and 2005

	Percentage of all students identified		Percentage of all students excluded		Percentage of all students assessed with accommodations		Percentage of all students assessed without accommodations	
District	2003	2005	2003	2005	2003	2005	2003	2005
SD and/or ELL								
Nation	22	23	4	3	8	10	10	10
Large central city[1]	31	32	5	4	9	11	17	17
Atlanta	9	11	1	1	4	6	4	3
Austin	–	37	–	10	–	14	–	12
Boston	33	33	5	6	17	15	11	11
Charlotte	21	22	4	3	12	12	5	7
Chicago	31	29	8	4	7	9	16	15
Cleveland	15	17	7	6	5	9	3	2
District of Columbia	18	20	4	6	10	10	4	4
Houston	45	46	8	7	18	21	19	17
Los Angeles	60	59	3	5	8	7	48	47
New York City	22	24	6	4	12	17	4	2
San Diego	41	43	2	4	4	6	34	33
SD only								
Nation	14	14	3	3	7	8	4	4
Large central city[1]	13	13	3	3	6	7	4	3
Atlanta	8	9	1	1	4	6	3	2
Austin	–	15	–	7	–	6	–	2
Boston	20	22	3	5	12	14	4	3
Charlotte	17	13	3	2	10	8	3	3
Chicago	15	13	5	4	6	7	4	3
Cleveland	12	13	5	5	5	8	2	1
District of Columbia	13	16	4	5	7	8	2	2
Houston	18	12	7	5	3	4	8	3
Los Angeles	11	11	2	3	4	5	5	3
New York City	12	14	1	2	10	11	1	1
San Diego	11	11	1	2	3	4	7	4
ELL only								
Nation	11	10	1	1	2	3	7	7
Large central city[1]	21	21	3	2	4	5	14	14
Atlanta	2	2	#	#	#	1	1	1
Austin	–	25	–	5	–	9	–	11
Boston	18	15	3	3	7	3	8	9
Charlotte	8	10	2	1	4	4	2	4
Chicago	20	18	5	2	2	4	13	12
Cleveland	4	4	1	1	1	2	1	2
District of Columbia	7	5	1	1	3	2	2	1
Houston	35	37	4	4	17	18	14	15
Los Angeles	56	54	2	4	6	5	47	45
New York City	13	12	6	3	4	8	3	1
San Diego	34	36	2	3	2	3	30	30

– Not available. The district did not participate in 2003.

The estimate rounds to zero.

[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.

NOTE: SD = students with disabilities. ELL = English language learners. Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Table A-3. Percentage of all students identified as students with disabilities and/or English language learners, excluded, and assessed, grade 8 public schools: By urban district, 2003 and 2005

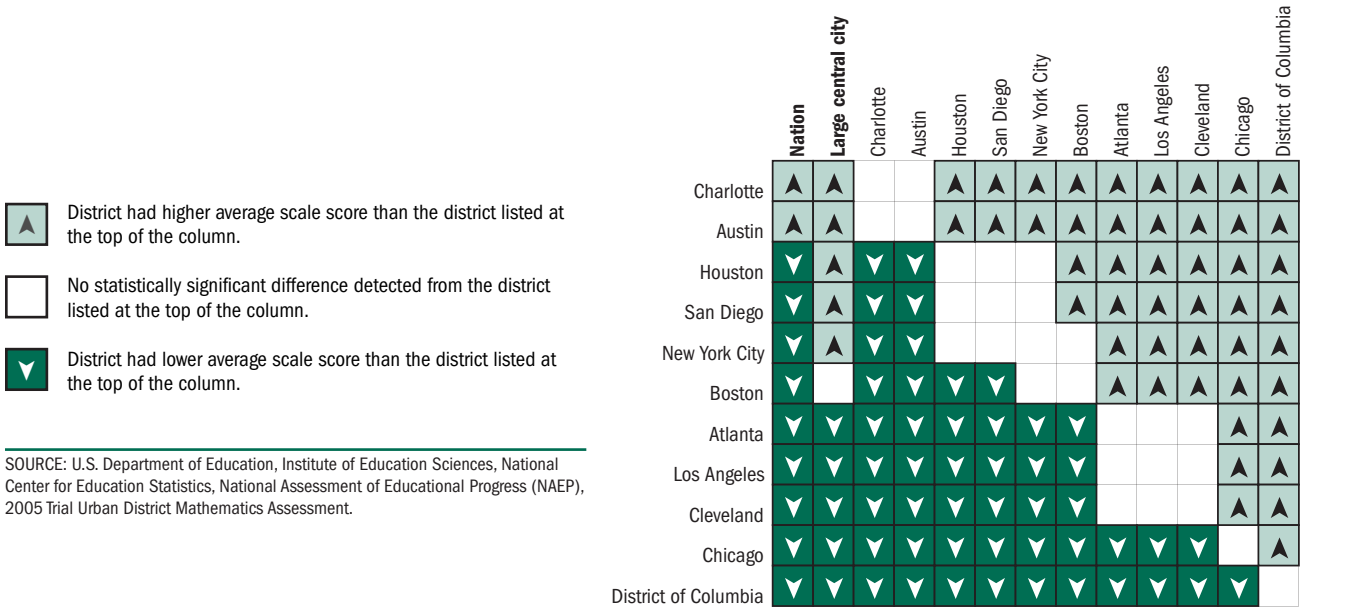
District	Percentage of all students identified		Percentage of all students excluded		Percentage of all students assessed with accommodations		Percentage of all students assessed without accommodations	
	2003	2005	2003	2005	2003	2005	2003	2005
SD and/or ELL								
Nation	19	19	4	4	7	8	8	7
Large central city[1]	24	24	5	4	7	8	13	12
Atlanta	11	12	2	1	5	8	4	3
Austin	–	26	–	10	–	4	–	12
Boston	31	25	7	9	15	9	9	7
Charlotte	18	18	3	3	9	10	5	5
Chicago	22	21	7	3	7	12	8	5
Cleveland	21	20	9	9	9	9	2	3
District of Columbia	20	19	6	6	9	11	5	2
Houston	26	24	8	6	3	4	16	14
Los Angeles	37	39	2	3	6	6	29	30
New York City	24	20	5	2	14	16	6	2
San Diego	29	28	4	4	4	7	22	17
SD only								
Nation	14	13	3	3	6	7	5	3
Large central city[1]	14	13	3	3	5	6	5	3
Atlanta	10	11	1	1	5	7	4	3
Austin	–	14	–	8	–	2	–	5
Boston	24	18	4	7	13	8	7	3
Charlotte	14	12	3	2	8	8	4	2
Chicago	17	16	5	2	7	11	6	3
Cleveland	17	18	9	8	6	7	1	3
District of Columbia	16	17	5	5	8	10	3	2
Houston	16	11	7	4	#	2	9	5
Los Angeles	12	12	2	2	5	5	5	5
New York City	15	12	2	1	10	10	3	1
San Diego	11	11	1	3	3	4	7	4
ELL only								
Nation	6	6	1	1	1	1	4	4
Large central city[1]	13	13	2	2	3	3	9	9
Atlanta	2	1	1	#	#	1	1	#
Austin	–	14	–	4	–	2	–	8
Boston	13	10	5	4	4	1	4	5
Charlotte	7	7	1	1	3	2	3	4
Chicago	8	6	3	2	2	2	3	2
Cleveland	5	3	1	1	3	2	1	#
District of Columbia	5	4	1	1	2	2	2	1
Houston	16	15	5	3	2	3	9	10
Los Angeles	33	34	2	2	4	4	27	28
New York City	13	10	4	2	6	7	3	2
San Diego	23	21	3	3	2	4	18	14

– Not available. The district did not participate in 2003.
The estimate rounds to zero.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
NOTE: SD = students with disabilities. ELL = English language learners. Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Cross-District Comparisons by Average Scale Score and Percentage at or Above *Basic*: Grades 4 and 8

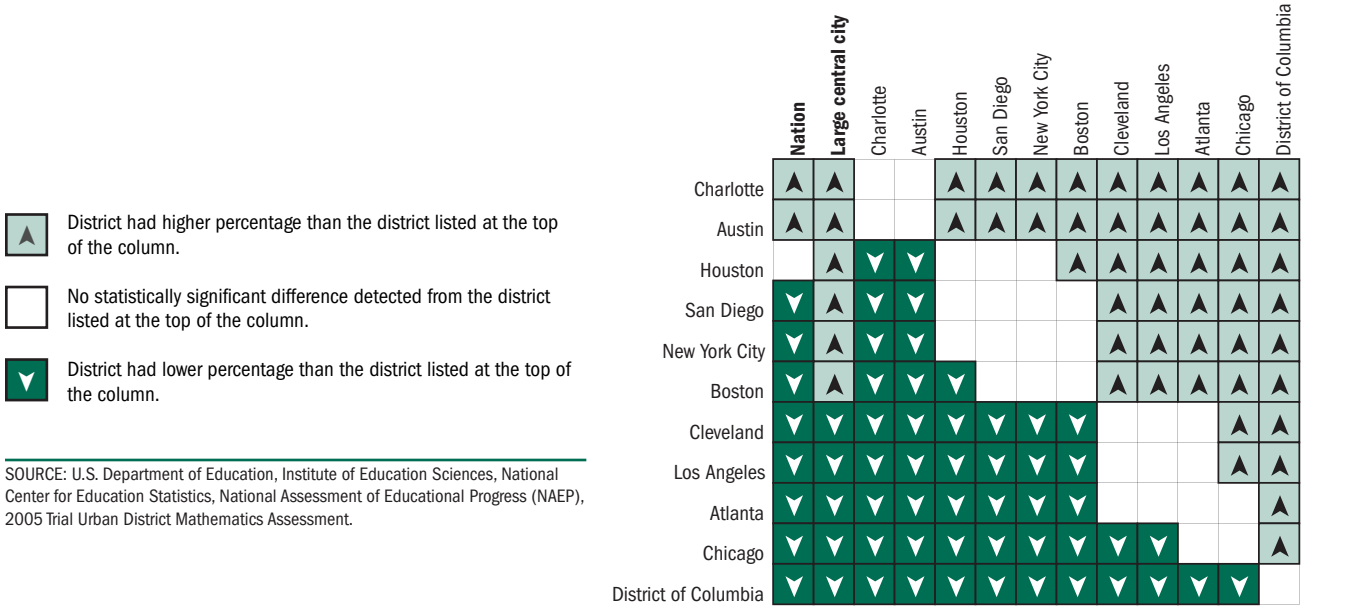
Figures A-1 though A-4 compare average scores and percentages of students performing at or above *Basic* in each district to those in the nation, in public schools in large central cities, and in each other district. Read across the row corresponding to a district listed to the left of any of the charts. Match the shading intensity to the chart's key to determine whether the average score (or percentage at or above *Basic*) of this district was found to be higher than, not significantly different from, or lower than that of the district in the column heading. In addition, the direction of the arrowheads in the comparison cells indicates whether the district in the row is significantly higher than (up arrow), lower than (down arrow), or not different from (blank cell) the district in the column heading.

Figure A-1. Cross-district comparisons of average mathematics scale scores, grade 4 public schools: 2005



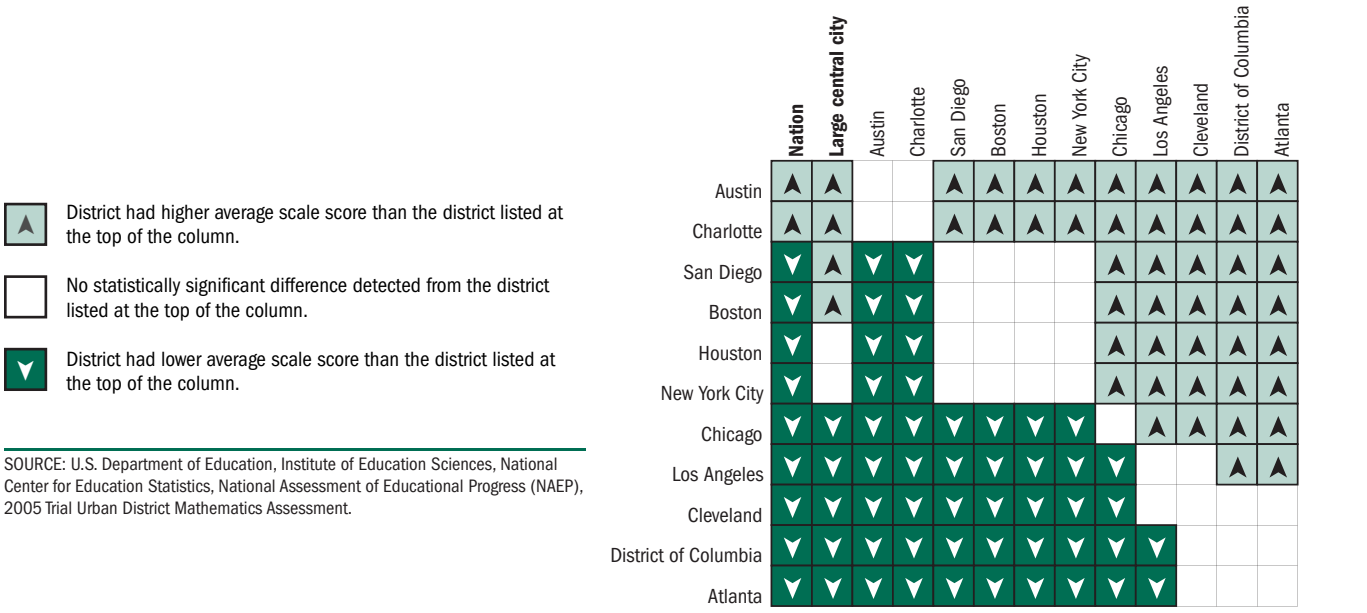
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Figure A-2. Cross-district comparisons of percentage of students at or above *Basic* in mathematics, grade 4 public schools: 2005



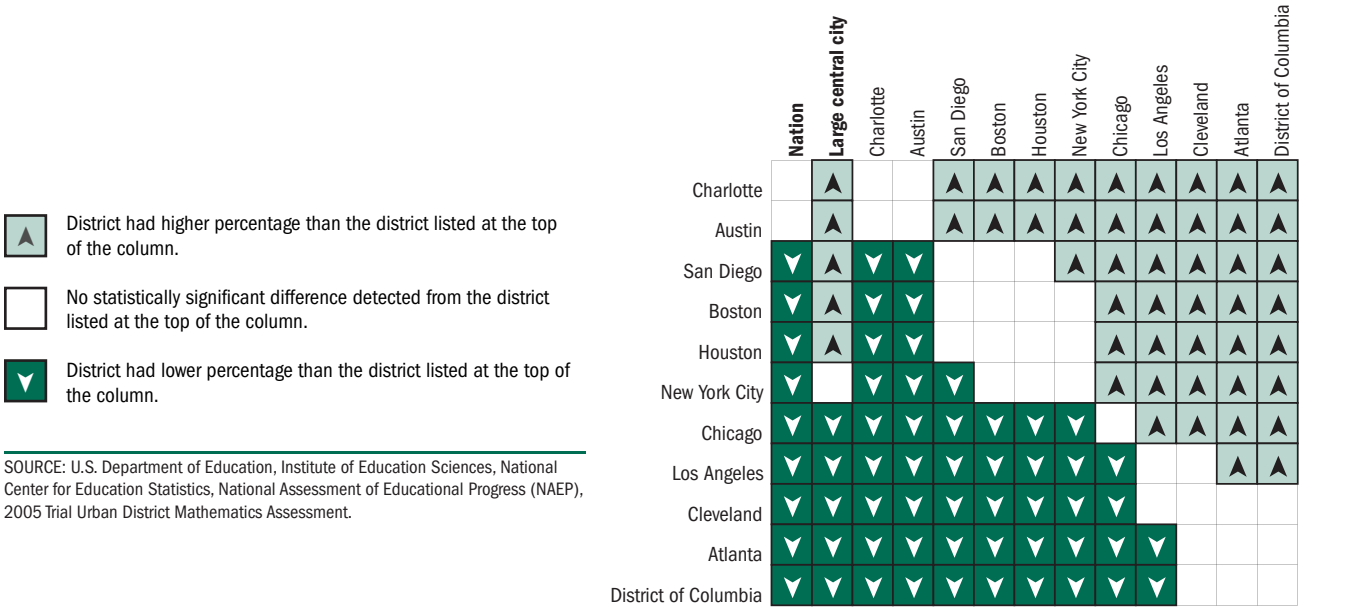
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Figure A-3. Cross-district comparisons of average mathematics scale scores, grade 8 public schools: 2005



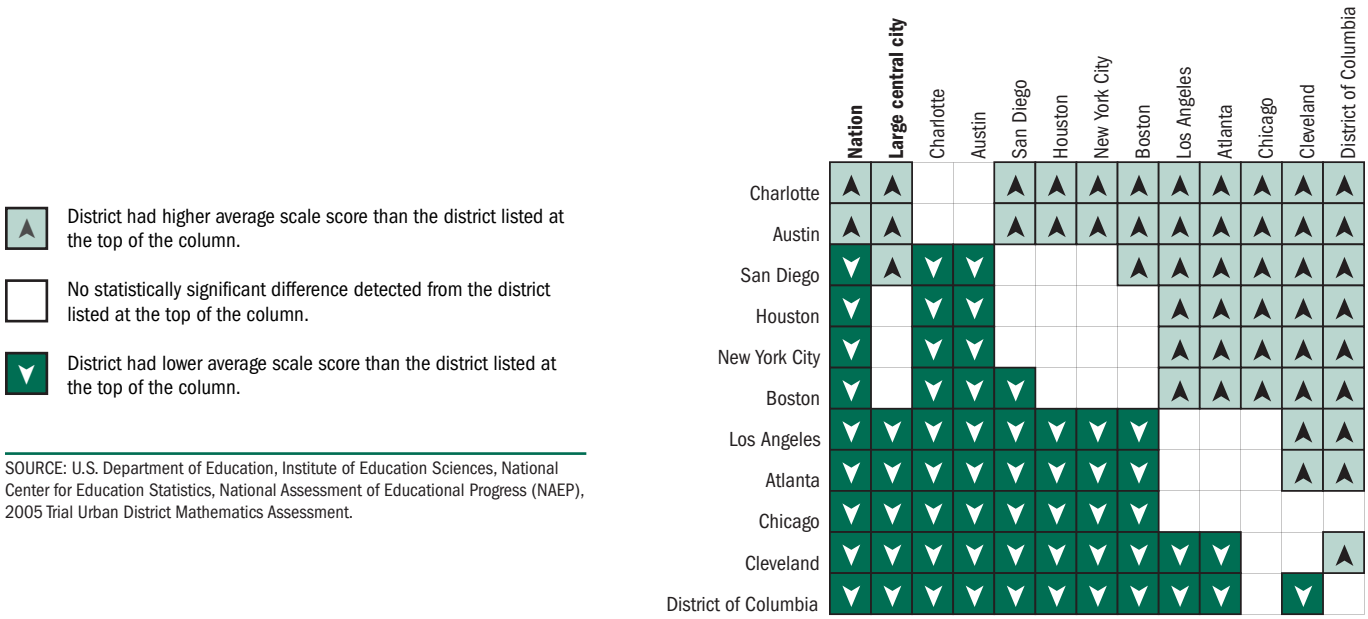
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Figure A-4. Cross-district comparisons of percentage of students at or above *Basic* in mathematics, grade 8 public schools: 2005



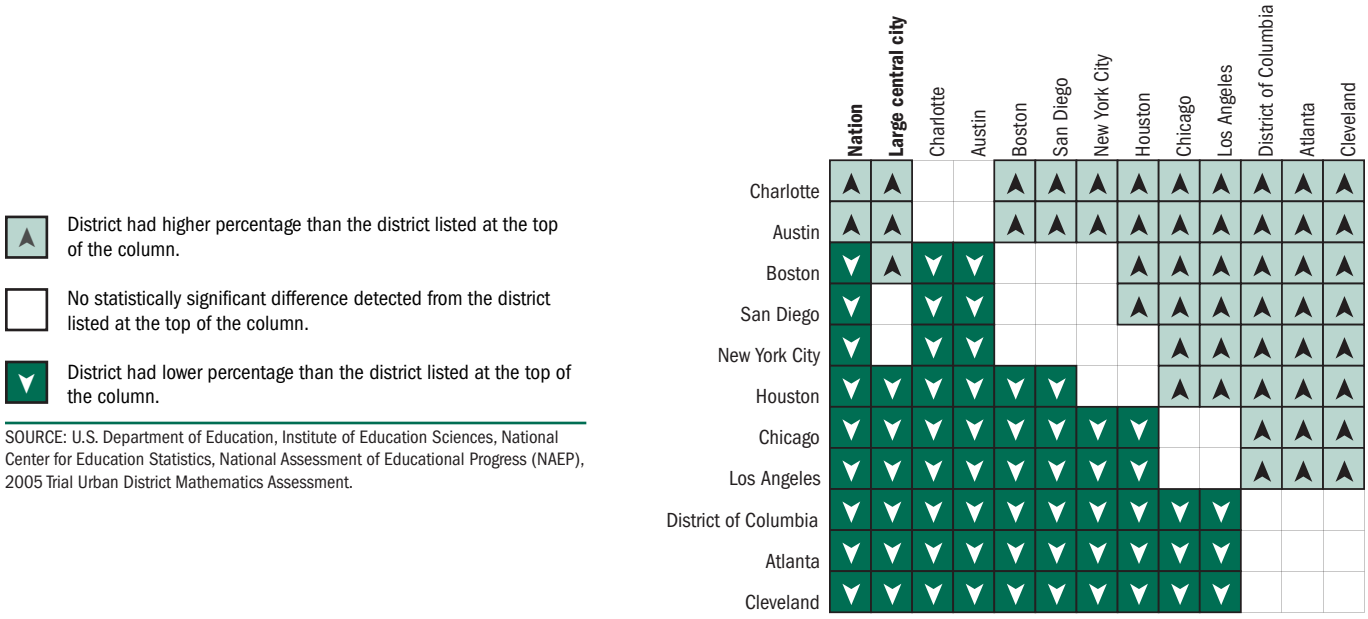
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Figure A-5. Cross-district comparisons of percentage of students at or above *Proficient* in mathematics, grade 4 public schools: 2005



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Figure A-6. Cross-district comparisons of percentage of students at or above *Proficient* in mathematics, grade 8 public schools: 2005



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Table A-4. Scale score percentiles in mathematics, grades 4 and 8 public schools: By urban district, 2003 and 2005

District	25th percentile		50th percentile		75th percentile	
	2003	2005	2003	2005	2003	2005
Grade 4						
Nation	215***	219*	235***	239*	254***	257*
Large central city[1]	204***	207**	224***	228**	244***	248**
Atlanta	195***	200*,**	214***	219*,**	234***	240*,**
Austin	–	224*,**	–	242*,**	–	260*,**
Boston	203***	212*,**	219***	230**	236***	247**
Charlotte	223	225*,**	242	245*,**	261	265*,**
Chicago	196	195*,**	214	215*,**	232	236*,**
Cleveland	197	202*,**	215***	221*,**	232	237*,**
District of Columbia	185***	192*,**	204***	210*,**	224***	230*,**
Houston	210***	216*,**	226***	233*,**	243***	250**
Los Angeles	196	198*,**	215***	221*,**	235***	242*,**
New York City	207***	212*,**	226***	231*,**	246	250**
San Diego	207***	213*,**	226***	234*,**	244***	252*,**
Grade 8						
Nation	253***	254*	278***	279*	301***	303*
Large central city[1]	237	240**	262***	265**	287***	291**
Atlanta	220	221*,**	244	245*,**	267	268*,**
Austin	–	255*	–	281*	–	308*,**
Boston	236***	243**	260***	270*,**	287***	296*,**
Charlotte	252	254*	280	282*	307	308*,**
Chicago	233	236*,**	255	258*,**	277	281*,**
Cleveland	233	228*,**	252	251*,**	272	270*,**
District of Columbia	219	222*,**	243	244*,**	267	267*,**
Houston	244	246*,**	263***	268*,**	283***	289**
Los Angeles	219	225*,**	245***	250*,**	270***	275*,**
New York City	241	241**	266	266**	293	292**
San Diego	239***	247*,**	265***	272*,**	290***	295**

– Not available. The district did not participate in 2003.
* Significantly different from large central city public schools in 2005.
** Significantly different from nation (public schools) in 2005.
*** Significantly different from 2005.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Table A-5. Average scale scores and achievement-level results in mathematics, by race/ethnicity, grade 4 public schools: By urban district, 2003 and 2005

District	Average scale score		Percentage of students in each race/ethnicity category					
			Below *Basic*		At or above *Basic*		At or above *Proficient*	
	2003	2005	2003	2005	2003	2005	2003	2005
White								
Nation	243***	246	13***	11	87***	89	42***	47*
Large central city[1]	243***	247	14	12	86	88	42***	50**
Atlanta	258	263*,**	11	4*,**	89	96*,**	70	72*,**
Austin	–	262*,**	–	1*,**	–	99*,**	–	75*,**
Boston	234***	244	23	12	77	88	32	43
Charlotte	257	261*,**	4	3*,**	96	97*,**	66	70*,**
Chicago	235	243	18	12	82	88	31	43
Cleveland	233	233*,**	20	19	80	81	27	25*,**
District of Columbia	262	266*,**	3	1	97	99	71	78*,**
Houston	254***	262*,**	4	3*,**	96	97*,**	63	73*,**
Los Angeles	241	247	17	13	83	87	44	49
New York City	244	245	12	13	88	87	42	46
San Diego	243***	249	13***	6*,**	87***	94*,**	41	50
Black								
Nation	216***	220*	46***	40*	54***	60*	10***	13*
Large central city[1]	212***	217**	53***	45**	47***	55**	8***	11**
Atlanta	211***	215**	55	49**	45	51**	7	9**
Austin	–	228*,**	–	26*,**	–	74*,**	–	18
Boston	216***	223*,**	45***	35*	55***	65*	6***	13
Charlotte	229	230*,**	27	26*,**	73	74*,**	20	21*,**
Chicago	207	208*,**	61	59*,**	39	41*,**	4	6*,**
Cleveland	210***	215**	56***	48**	44***	52**	5	8**
District of Columbia	202***	207*,**	67***	59*,**	33***	41*,**	4	5*,**
Houston	221	224*	38	33*,**	62	67*,**	12	14
Los Angeles	208	209*,**	58	58*,**	42	42*,**	6	9
New York City	219	222*	42	37*	58	63*	12	14
San Diego	216	221	46	40	54	60	8	15
Hispanic								
Nation	221***	225*	38***	33*	62***	67*	15***	19*
Large central city[1]	219***	223**	41***	36**	59***	64**	13***	17**
Atlanta	‡	‡	‡	‡	‡	‡	‡	‡
Austin	–	234*,**	–	20*,**	–	80*,**	–	27*,**
Boston	215***	225	49***	30	51***	70	7***	14
Charlotte	233	234*,**	20	19*,**	80	81*,**	26	27
Chicago	217	217*,**	45	45*,**	55	55*,**	10	13
Cleveland	220	224	42	32	58	68	14	18
District of Columbia	205***	215*,**	61***	49*,**	39***	51*,**	7	11*,**
Houston	226***	232*,**	30	22*,**	70	78*,**	15***	23*
Los Angeles	211***	216*,**	54***	47*,**	46***	53*,**	7***	13*,**
New York City	220***	226*	40***	30*	60***	70*	13	18
San Diego	216***	222**	47***	37**	53***	63**	9***	16
Asian/Pacific Islander								
Nation	246***	251*	13***	11	87***	89	48***	54*
Large central city[1]	246	247**	14	13	86	87	47	49**
Atlanta	‡	‡	‡	‡	‡	‡	‡	‡
Austin	–	‡	–	‡	–	‡	–	‡
Boston	243***	256*	13***	2*,**	87***	98*,**	43***	65*
Charlotte	252	256*	10	4	90	96	60	62
Chicago	‡	‡	‡	‡	‡	‡	‡	‡
Cleveland	‡	‡	‡	‡	‡	‡	‡	‡
District of Columbia	‡	‡	‡	‡	‡	‡	‡	‡
Houston	‡	‡	‡	‡	‡	‡	‡	‡
Los Angeles	241	246	14	12	86	88	38	45
New York City	247	253*	11	8*	89	92*	47	60*
San Diego	238***	245**	16	13	84	87	32***	46

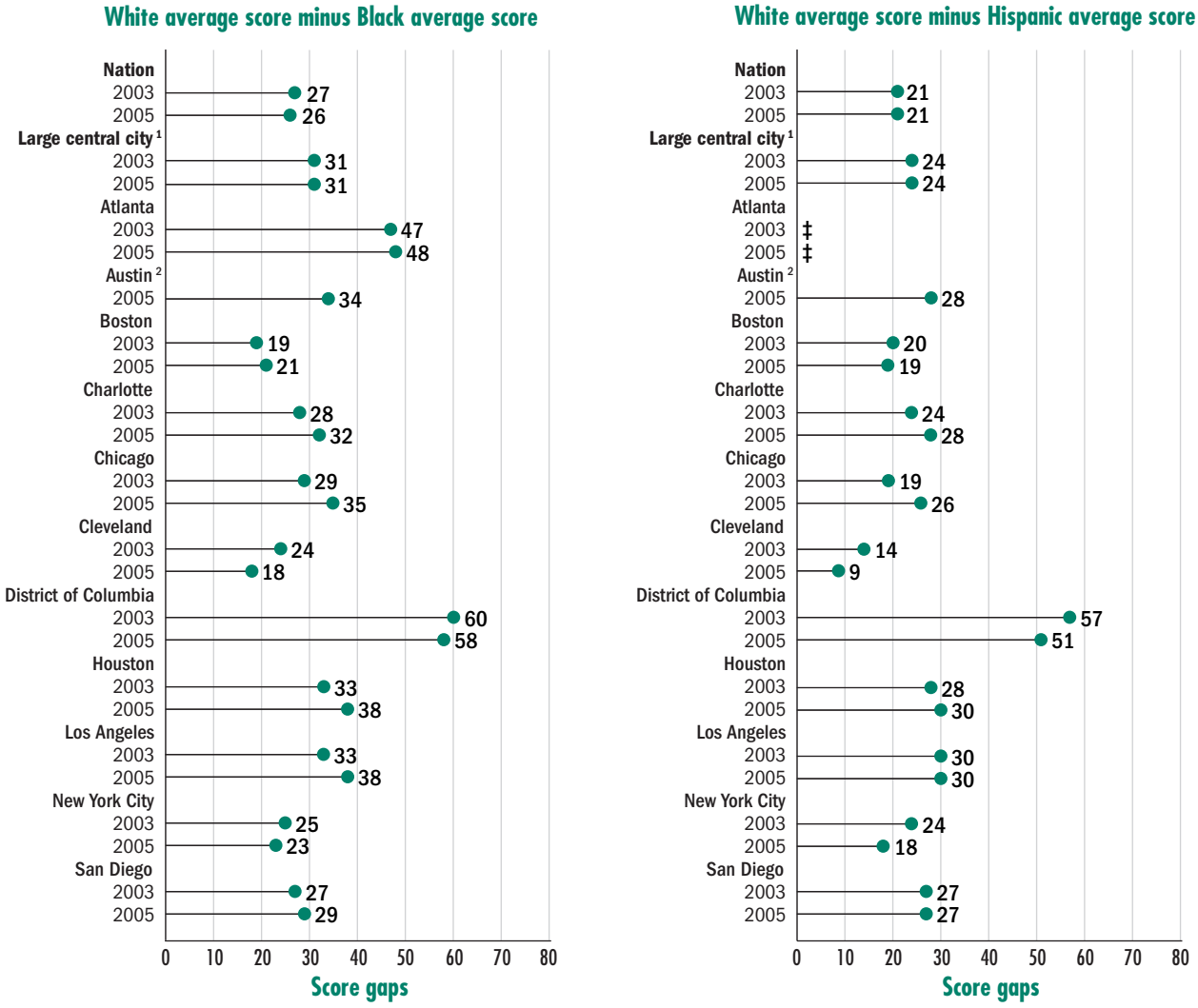
– Not available. The district did not participate in 2003.
‡ Reporting standards not met.
* Significantly different from large central city public schools in 2005.
** Significantly different from nation (public schools) in 2005.
*** Significantly different from 2005.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
NOTE: Detail may not sum to totals because of rounding. Results are not shown for students whose race/ethnicity was "American Indian/Alaska Native" or "unclassified."
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Table A-6. Average scale scores and achievement-level results in mathematics, by race/ethnicity, grade 8 public schools: By urban district, 2003 and 2005

	Average scale score		Percentage of students in each race/ethnicity category					
			Below *Basic*		At or above *Basic*		At or above *Proficient*	
District	2003	2005	2003	2005	2003	2005	2003	2005
White								
Nation	287***	288	21	21	79	79	36***	37
Large central city[1]	285	288	23	22	77	78	36	39
Atlanta	298	‡	17	‡	83	‡	54	‡
Austin	–	305*,**	–	10*,**	–	90*,**	–	61*,**
Boston	289	299*,**	23	17	77	83	48	54*,**
Charlotte	301	304*,**	9	10*,**	91	90*,**	55	60*,**
Chicago	276	281	32	29	68	71	25	33
Cleveland	269	265*,**	37	46*,**	63	54*,**	14	17*,**
District of Columbia	‡	317*,**	‡	6*,**	‡	94*,**	‡	69*,**
Houston	293	294	20	15	80	85	47	50
Los Angeles	277	280*	33	32	67	68	29	32
New York City	289	286	21	23	79	77	40	38
San Diego	284***	292	24	17	76	83	35	42
Black								
Nation	252***	254*	61***	59*	39***	41*	7***	8*
Large central city[1]	247	250**	66	64**	34	36**	5	7**
Atlanta	241	242*,**	74	72*,**	26	28*,**	3	4*,**
Austin	–	262*	–	48*	–	52*	–	12
Boston	251	256*	64***	55*	36***	45*	6	9
Charlotte	258***	264*,**	53	46*,**	47	54*,**	11	14*,**
Chicago	245	245*,**	71	72*,**	29	28*,**	4	3*,**
Cleveland	249	244*,**	68	71*,**	32	29*,**	5	3*,**
District of Columbia	240	241*,**	74	73*,**	26	27*,**	3	4*,**
Houston	259	257*	53	53*	47	47*	7	7
Los Angeles	234	239*,**	79	71**	21	29**	2	7
New York City	253	257*	60	56*	40	44*	9	10
San Diego	252	253	61	60	39	40	7	8
Hispanic								
Nation	258***	261*	53***	50*	47***	50*	11***	13*
Large central city[1]	256	258**	57	54**	43	46**	10	11**
Atlanta	‡	‡	‡	‡	‡	‡	‡	‡
Austin	–	267*,**	–	44*	–	56*	–	17*
Boston	252***	261	62***	49	38***	51	7	12
Charlotte	262	262	54	47	46	53	18	15
Chicago	259	263*	52	48*	48	52*	8	11
Cleveland	249	251	65	67**	35	33**	2	7
District of Columbia	246	252**	67	61	33	39	3	9
Houston	261***	265*,**	51	44*	49	56*	9	12
Los Angeles	240***	245*,**	74	68*,**	26	32*,**	3	6*,**
New York City	260	259	52	53	48	47	15	12
San Diego	248***	258	66***	51	34***	49	6	11
Asian/Pacific Islander								
Nation	289***	294*	23***	19*	77***	81*	42***	46*
Large central city[1]	281	289**	29	24**	71	76**	33	40**
Atlanta	‡	‡	‡	‡	‡	‡	‡	‡
Austin	–	‡	–	‡	–	‡	–	‡
Boston	300	309*,**	13	8*	87	92*	57	61*,**
Charlotte	293	‡	19	‡	81	‡	43	‡
Chicago	286	292	22	17	78	83	36	38
Cleveland	‡	‡	‡	‡	‡	‡	‡	‡
District of Columbia	‡	‡	‡	‡	‡	‡	‡	‡
Houston	‡	299	‡	15	‡	85	‡	55
Los Angeles	275***	291	36	18	64	82	25***	43
New York City	286	295	26	21	74	79	38	50
San Diego	278	282**	31	26	69	74	28	31**

– Not available. The district did not participate in 2003.
‡ Reporting standards not met.
* Significantly different from large central city public schools in 2005.
** Significantly different from nation (public schools) in 2005.
*** Significantly different from 2005.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
NOTE: Detail may not sum to totals because of rounding. Results are not shown for students whose race/ethnicity was "American Indian/Alaska Native" or "unclassified."
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Figure A-7. Gaps in average mathematics scores, by race/ethnicity, grade 4 public schools: By urban district, 2003 and 2005



‡ Reporting standards not met.

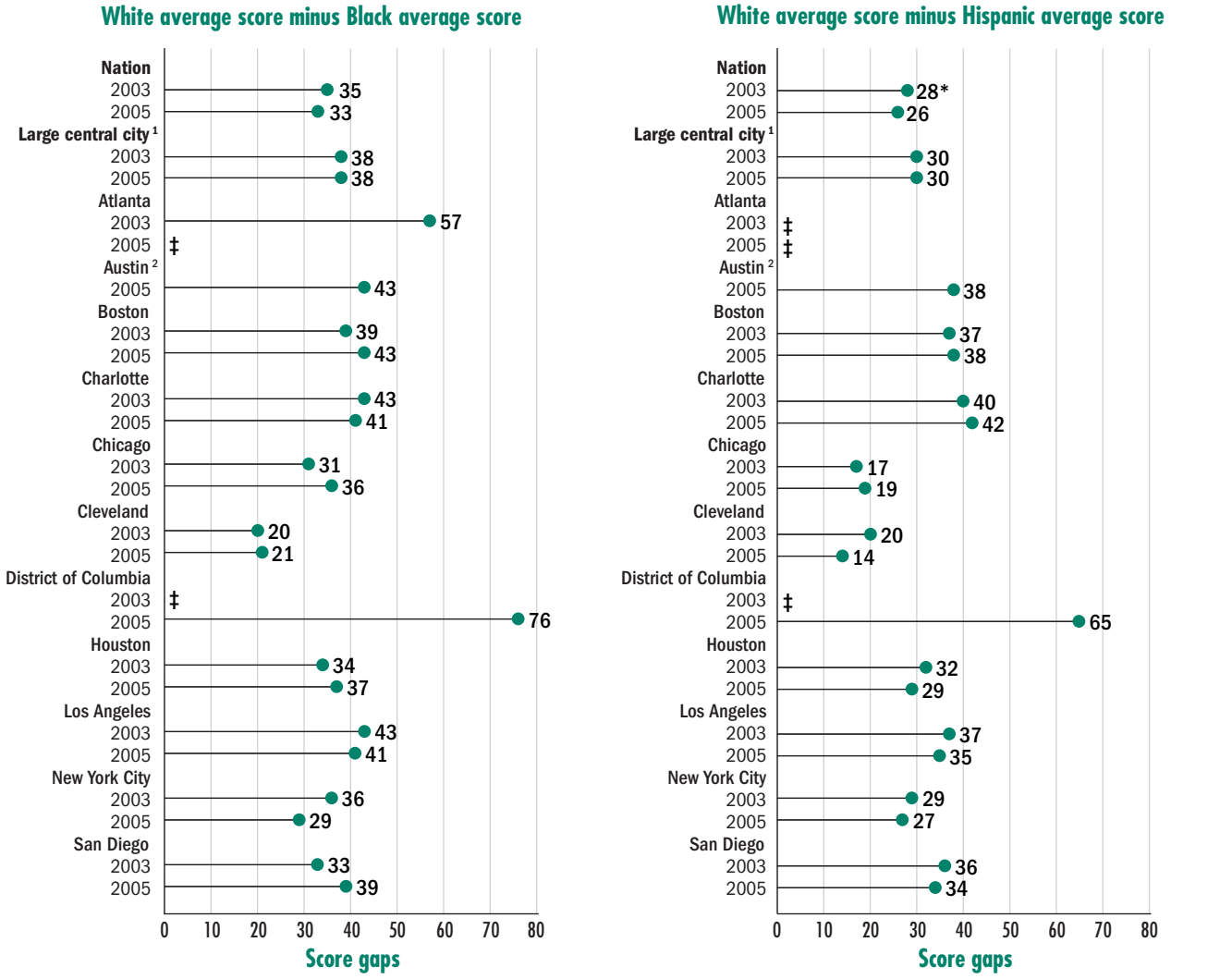
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.

[2] The district did not participate in 2003.

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

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Figure A-8. Gaps in average mathematics scores, by race/ethnicity, grade 8 public schools: By urban district, 2003 and 2005



‡ Reporting standards not met.
* Significantly different from 2005.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
[2] The district did not participate in 2003.
NOTE: Score gaps are calculated based on differences between unrounded average scale scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Table A-7. Average scale scores and achievement-level results in mathematics, by student-reported highest level of education of either parent, grade 8 public schools: By urban district, 2003 and 2005

	Average scale score		Percentage of students in each parental education category					
			Below *Basic*		At or above *Basic*		At or above *Proficient*	
District	2003	2005	2003	2005	2003	2005	2003	2005
Less than high school								
Nation	256***	259*	56***	52*	44***	48*	9***	11*
Large central city[1]	253	255**	60	58**	40	42**	7	9**
Atlanta	240	237*,**	74	84*,**	26	16*,**	3	2
Austin	–	264*	–	48	–	52	–	11
Boston	253***	270*,**	63***	45	37***	55	13	22*,**
Charlotte	‡	264	‡	48	‡	52	‡	18
Chicago	256	252**	57	64**	43	36**	10	6**
Cleveland	255	250**	58	64	42	36	5	6
District of Columbia	236	243*,**	75	73*,**	25	27*,**	2	4**
Houston	259	264*,**	54	44*	46	56*	7	12
Los Angeles	242	244*,**	72	68*,**	28	32*,**	5	4*,**
New York City	260	262*	51	52	49	48	14	16
San Diego	250	260	64	50	36	50	6	12
Graduated from high school								
Nation	267	267*	42	42*	58	58*	16	17*
Large central city[1]	254	256**	59	56**	41	44**	10	11**
Atlanta	238	237*,**	80	77*,**	20	23*,**	2	3*,**
Austin	–	267*	–	45	–	55	–	18*
Boston	256***	266*	61***	45*	39***	55*	11	17*
Charlotte	255	264*	59	46*	41	54*	11	15
Chicago	250	251*,**	63	62**	37	38**	6	7**
Cleveland	252	247*,**	63	69*,**	37	31*,**	4	6*,**
District of Columbia	235	238*,**	81	78*,**	19	22*,**	1	2*,**
Houston	257	262*	56	51**	44	49**	7	11
Los Angeles	240	245*,**	73	69*,**	27	31*,**	4	5*,**
New York City	260	264*	52	49*	48	51*	16	17*
San Diego	256	255**	57	55**	43	45**	9	11
Some education after high school								
Nation	280	280*	27	27*	73	73*	28	28*
Large central city[1]	268	269**	42	40**	58	60**	19	19**
Atlanta	253	257*,**	60	58*,**	40	42*,**	6	8*,**
Austin	–	283*	–	24*	–	76*	–	30*
Boston	268	272**	43	36	57	64	19	21
Charlotte	281	282*	28	27*	72	73*	29	31*
Chicago	262	262*,**	50	48*,**	50	52*,**	11	12*,**
Cleveland	260	258*,**	52	56*,**	48	44*,**	10	9*,**
District of Columbia	252	252*,**	63	61*,**	37	39*,**	6	6*,**
Houston	270	273**	41	34	59	66	13	18**
Los Angeles	253	259*,**	58	54*,**	42	46*,**	10	16**
New York City	272	270**	36	39**	64	61**	23	21**
San Diego	270	273**	39	33	61	67	18	20
Graduated from college								
Nation	287***	289*	23***	22*	77***	78*	39***	41*
Large central city[1]	272***	277**	39	35**	61	65**	26***	31**
Atlanta	250	252*,**	65	61*,**	35	39*,**	10	11*,**
Austin	–	300*,**	–	15*,**	–	85*,**	–	55*,**
Boston	273	278**	41	37**	59	63**	26	31**
Charlotte	289	291*	24	22*	76	78*	43	45*
Chicago	257	265*,**	57	48*,**	43	52*,**	12	18*,**
Cleveland	251	252*,**	67	62*,**	33	38*,**	6	7*,**
District of Columbia	250	253*,**	64	62*,**	36	38*,**	11	13*,**
Houston	274	277**	38	33**	62	67**	23	28**
Los Angeles	257	266*,**	54	45*,**	46	55*,**	15	22*,**
New York City	275	272**	38	42*,**	62	58*,**	27	26**
San Diego	278***	286*	33	24*	67	76*	32	38*

– Not available. The district did not participate in 2003.
‡ Reporting standards not met.
* Significantly different from large central city public schools in 2005.
** Significantly different from nation (public schools) in 2005.
*** Significantly different from 2005.
[1] Some of the TUDA districts include a few public schools located outside of large central cities as defined by the Census Bureau (population of 250,000 or more within metropolitan areas). These schools were included in the category of "large central city" in the present report for all years, but were not included in results published in previous reports. As a result, some numbers reported in this report may differ slightly from those reported in earlier ones.
NOTE: Detail may not sum to totals because of rounding. Prior to 2005, parental education questions were presented to students at grade 4, but were not reported because their responses were highly variable. In 2005, parental education questions were not presented to students at grade 4.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2005 Trial Urban District Mathematics Assessments.

Table A-8. Percentage of students by student-reported highest level of education of either parent, grade 8 public schools: By urban district, 2005

District	Less than high school	Graduated from high school	Some education after high school	Graduated from college	Unknown
Nation	8	18	18	45	11
Large central city	12	18	17	36	18
Atlanta	7	26	16	40	11
Austin	14	17	13	41	14
Boston	10	18	18	36	17
Charlotte	5	16	18	52	9
Chicago	13	21	19	29	18
Cleveland	12	27	20	28	13
District of Columbia	6	27	17	35	15
Houston	21	18	11	30	21
Los Angeles	19	13	14	25	30
New York City	9	16	15	39	21
San Diego	12	14	18	37	20

NOTE: Detail may not sum to totals because of rounding. Parental education questions were not presented to students at grade 4.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Table A-9. Average scale scores and achievement-level results in mathematics, by students with disabilities who could be assessed, grades 4 and 8 public schools: By urban district, 2005

	SD				Not SD			
		Percentage of SD students				Percentage of not SD students		
District	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*
Grade 4								
Nation	218*	44*	56*	16*	240*	17*	83*	38*
Large central city	209**	58**	42**	11**	230**	29**	71**	26**
Atlanta	198*,**	72*,**	28*,**	5**	223*,**	41*,**	59*,**	18*,**
Austin	227*,**	26*,**	74*,**	18	243*,**	14*,**	86*,**	42*,**
Boston	210**	57**	43**	6**	234*,**	21*,**	79*,**	26**
Charlotte	228*,**	34*	66*	26*,**	247*,**	12*,**	88*,**	46*,**
Chicago	198**	70**	30**	7**	218*,**	46*,**	54*,**	14*,**
Cleveland	204**	65**	35**	4**	222*,**	37*,**	63*,**	14*,**
District of Columbia	188*,**	83*,**	17*,**	4*,**	214*,**	52*,**	48*,**	10*,**
Houston	214	54	46	12	235*,**	20*	80*	28**
Los Angeles	195*,**	70*,**	30*,**	5*,**	223*,**	40*,**	60*,**	20*,**
New York City	207**	60**	40**	7**	234*,**	23*,**	77*,**	28**
San Diego	214	51	49	17	234*,**	23*,**	77*,**	30**
Grade 8								
Nation	244*	69*	31*	7*	281*	28*	72*	31*
Large central city	230**	81**	19**	4**	269**	43**	57**	21**
Atlanta	202*,**	95*,**	5*,**	#	250*,**	66*,**	34*,**	7*,**
Austin	250*	64*	36*	9	283*	29*	71*	34*,**
Boston	233**	83**	17**	3	275*,**	36*,**	64*,**	25*,**
Charlotte	242*	74	26	8	285*,**	26*	74*	36*,**
Chicago	226**	86**	14**	2	264*,**	50*,**	50*,**	13*,**
Cleveland	216*,**	96*,**	4*,**	#	253*,**	62*,**	38*,**	7*,**
District of Columbia	208*,**	94*,**	6*,**	#	250*,**	66*,**	34*,**	8*,**
Houston	232**	83**	17**	4	270**	39*,**	61*,**	17*,**
Los Angeles	210*,**	93*,**	7*,**	2**	255*,**	59*,**	41*,**	11*,**
New York City	231**	84**	16**	3	271**	41**	59**	22**
San Diego	234**	76	24	5	274*,**	36*,**	64*,**	24**

The estimate rounds to zero.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: SD = students with disabilities. The results for students with disabilities are based on students who were assessed and cannot be generalized to the total population of such students. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

Table A-10. Average scale scores and achievement-level results in mathematics, by English language learners who could be assessed, grades 4 and 8 public schools: By urban district, 2005

District	ELL				Non-ELL				Formerly ELL			
		Percentage of ELL students				Percentage of non-ELL students				Percentage of formerly ELL students		
	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*
Grade 4												
Nation	216*	46*	54*	11*	239*	18*	82*	38*	240	15	85	35
Large central city	214**	50**	50**	10**	231**	29**	71**	27**	242	13	87	38
Atlanta	‡	‡	‡	‡	221*,**	43*,**	57*,**	17*,**	‡	‡	‡	‡
Austin	225*,**	32*,**	68*,**	14	247*,**	10*,**	90*,**	48*,**	‡	‡	‡	‡
Boston	221*,**	39*	61*	14	229**	29**	71**	22*,**	237*	16	84	29
Charlotte	228*,**	24*,**	76*,**	16	246*,**	14*,**	86*,**	46*,**	‡	‡	‡	‡
Chicago	201*,**	72*,**	28*,**	3*,**	218*,**	44*,**	56*,**	15*,**	‡	‡	‡	‡
Cleveland	‡	‡	‡	‡	220*,**	40*,**	60*,**	13*,**	‡	‡	‡	‡
District of Columbia	206**	64*,**	36*,**	7	211*,**	55*,**	45*,**	10*,**	‡	‡	‡	‡
Houston	228*,**	27*,**	73*,**	16*	236*	21*	79*	31**	243	12	88	41
Los Angeles	210*,**	55*,**	45*,**	8**	232**	28**	72**	30**	‡	‡	‡	‡
New York City	211**	52	48	5**	231**	27**	73**	26**	241	14	86	39
San Diego	217*	45*	55*	11	240*	17*	83*	38*	‡	‡	‡	‡
Grade 8												
Nation	244*	71*	29*	6*	280*	30*	70*	30*	276	34	66	24
Large central city	238**	77**	23**	4**	268**	43**	57**	21**	277	33	67	23
Atlanta	‡	‡	‡	‡	245*,**	69*,**	31*,**	7*,**	‡	‡	‡	‡
Austin	240	79	21	2	286*,**	26*,**	74*,**	37*,**	‡	‡	‡	‡
Boston	233	78	22	5	274*,**	37*,**	63*,**	25*,**	255*,**	60*,**	40*,**	11*,**
Charlotte	252*	62	38	9	282*,**	29*	71*	35*,**	‡	‡	‡	‡
Chicago	235**	85**	15**	1	259*,**	53*,**	47*,**	12*,**	‡	‡	‡	‡
Cleveland	‡	‡	‡	‡	250*,**	65*,**	35*,**	7*,**	‡	‡	‡	‡
District of Columbia	‡	‡	‡	‡	246*,**	69*,**	31*,**	7*,**	‡	‡	‡	‡
Houston	245*	71	29	6	270**	40**	60**	19**	273	32	68	16*,**
Los Angeles	225*,**	90*,**	10*,**	#*,**	263*,**	49*,**	51*,**	15*,**	‡	‡	‡	‡
New York City	232**	84**	16**	2	267**	45**	55**	20**	279	32	68	28*
San Diego	236**	78	22	2**	279*	30*	70*	30*	274	31	69	17

The estimate rounds to zero.
‡ Reporting standards not met.
* Significantly different from large central city public schools.
** Significantly different from nation (public schools).
NOTE: ELL = English language learners. Formerly ELL= students who passed their state's English-language proficiency examination within the past two years. The results for English language learners are based on students who were assessed and cannot be generalized to the total population of such students. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Trial Urban District Mathematics Assessment.

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