

The 
Nation's
Report Card

Science 2005

TRIAL URBAN DISTRICT ASSESSMENT OF GRADES 4 AND 8

National Assessment of Educational Progress

Contents

NOVEMBER 2006

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

Executive Summary

In 2005, NAEP conducted its first Trial Urban District Assessment (TUDA) in science. The assessment included public school students in the following districts:

Atlanta	Cleveland
Austin	Houston
Boston	Los Angeles
Charlotte	New York City
Chicago	San Diego

Fourth-Grade Results

- In 7 of the 10 districts, fourth-graders scored as well as, or better than, students in large central cities across the country.
- The percentage of fourth-graders performing at or above *Basic* ranged from 35 to 60 percent in the districts, compared to 66 percent for the nation.
- The percentage of fourth-graders performing at or above *Proficient* ranged from 6 to 26 percent in the districts, compared to 27 percent for the nation.

A fourth-grade student whose score falls in the *Basic* achievement-level range would likely be able to identify two organs that work together to supply oxygen to the body. Relating the relative amount of time a candle burns to the amount of air available is an example of the type of skill that falls in the *Proficient* range.

Eighth-Grade Results

- In 6 of the 10 districts, eighth-graders scored as well as, or better than, students in large central cities across the country.
- The percentage of eighth-graders performing at or above *Basic* ranged from 22 to 52 percent in the districts, compared to 57 percent for the nation.
- The percentage of eighth-graders performing at or above *Proficient* ranged from 5 to 27 percent in the districts, compared to 27 percent for the nation.

An eighth-grade student whose score falls within the *Basic* achievement-level range would likely be able to identify changes that occur in heart rate before, during, and after exercise. Identifying the energy conversions that occur in an electric fan is the type of skill that falls in the *Proficient* range.



Comparisons by Race/Ethnicity and Income Level

All of the 10 participating districts have a majority of students who are not White, and nearly all have high proportions of low-income students. Because the demographic makeup of these districts differs from that of public schools in the nation overall, it is important to compare student groups in the districts with their peers in large central cities and in the nation.

- In many of the districts, average scores for White, Black, Hispanic, and Asian/Pacific Islander students were either higher or not significantly different from the national average for their peers.
- At both grades 4 and 8, the gap in average scores between the nation and the individual districts for all students ranged from 2 to 30 points, with the nation's score higher.
- When the comparison between nation and district at both grades is based only on low-income students, the gaps in average scores ranged from almost none to 19 points, with the nation's score higher.

About this report

Only public schools participated, so throughout the report scores for the 10 participating districts are compared to public school averages for the nation and large central cities. Large central cities (population 250,000 or more) provide a comparison that is more reflective of these student populations than the nation as a whole. Because this is the first science TUDA assessment, NAEP cannot compare student performance in the districts to prior years to determine whether districts are making progress.

The Trial Urban District Assessment

In 2005, ten urban public school districts participated in a part of the NAEP science assessment at grades 4 and 8 called the Trial Urban District Assessment (TUDA). The participating districts were Atlanta, Austin, Boston, Charlotte-Mecklenburg, Chicago, Cleveland, Houston, Los Angeles, New York City, and San Diego. Representative samples of public schools and students from each district participated at each grade. The data from these same schools and students were also included as a part of the sample for their state and for the nation.

About 1,000 to 2,000 students in each TUDA district participated in the science assessment at each grade. The results provide estimates of the performance of students for each urban district and are compared to the performance of their peers attending public schools in the nation and large central cities. Large central cities have populations of 250,000 or more. The comparison with large central cities is made because these schools represent a peer group that is similar to these urban districts (see tables 1 and 2 on pages 24 and 25). As this was the first science TUDA assessment, NAEP cannot compare student performance in the districts to prior years to determine whether the districts are making progress.

Reporting Science Results

In this report, NAEP science results are reported in two ways: as average scale scores and as a percentage of students performing at or above three performance standards called “achievement levels.” NAEP science scores are reported on a 0–300 scale for each grade. Percentages are presented for three achievement levels: *Basic*, *Proficient*, and *Advanced*. Percentages below *Basic* are also reported. Descriptions of the NAEP science achievement levels for each grade can be found in the grade sections of this report.

The National Assessment Governing Board sets specific achievement levels for each subject area and grade assessed, based on recommendations from panels of educators and members of the public, to provide a context for interpreting student performance on NAEP. 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 the Governing Board 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.



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.

The Science Framework

Like every NAEP assessment, the science assessment is based on a blueprint called a “framework,” which specifies what should be assessed. Under the direction of the Governing Board, the framework was developed in a comprehensive and inclusive process, including subject experts, scientists, school administrators, policymakers, teachers, parents, and others.

The framework requires assessment in three broad fields (Earth science, physical science, and life science) and three elements of knowing and doing science (conceptual understanding, scientific investigation, and practical reasoning). More detail on the assessment content can be found on page 10 for grade 4 and page 20 for grade 8.

The current science framework was used to guide the national and state 1996, 2000, and 2005 assessments. A new framework, approved in 2005, will be used to direct future science assessments. For more information on the framework, see <http://www.nagb.org/pubs/pubs.html>.

The Fields of Science

Earth science includes concepts related to solid Earth, water, air, and Earth in space.

Physical science (physics and chemistry) includes matter and its transformations, energy and its transformations, and motion.

Life science includes the nature and function of living things.

Elements of Knowing and Doing Science

Conceptual understanding means understanding the principles of science used to explain and predict observations of the natural world.

Scientific investigation means using scientific knowledge and skills to plan investigations and acquire new knowledge.

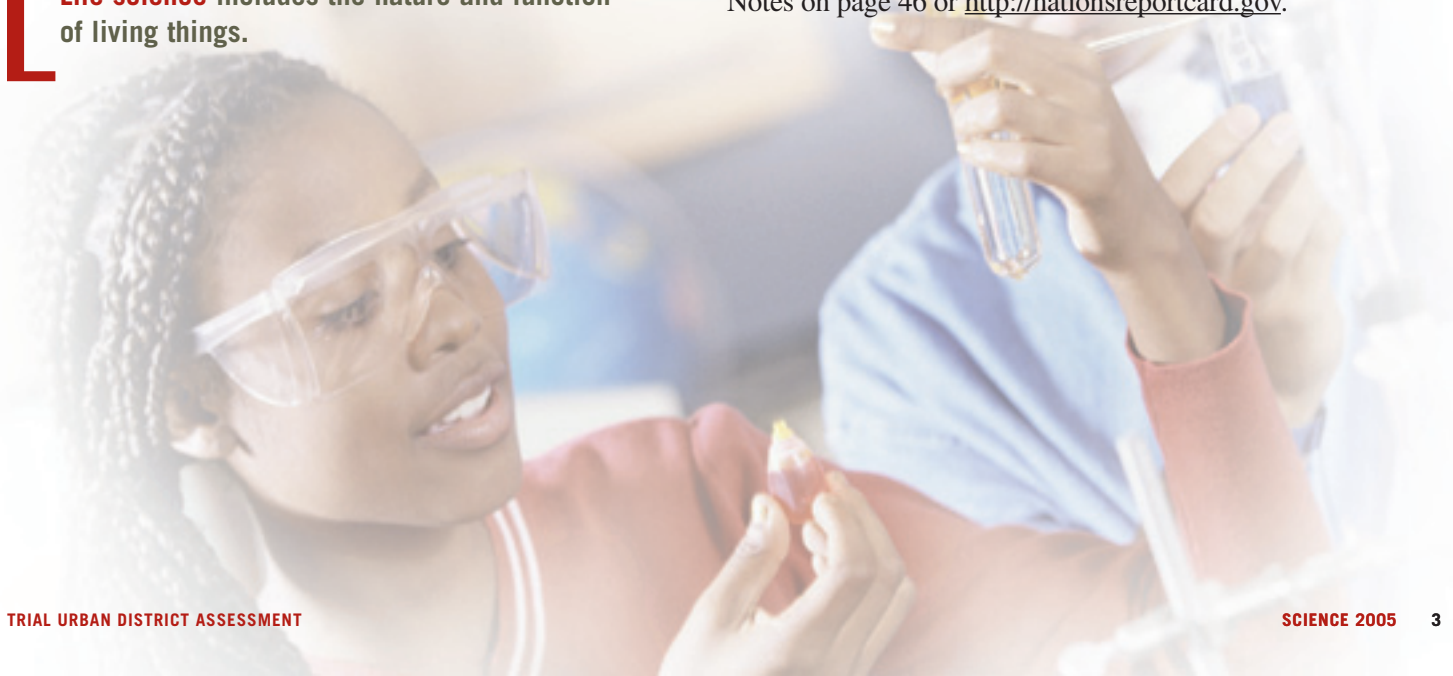
Practical reasoning means using science understanding to solve everyday problems.

Interpreting Results

NAEP uses widely accepted statistical standards in analyzing data. The text of this report discusses only findings that are statistically significant at the .05 level. In the tables and charts of this report, the symbol (*) is used to indicate that scores or percentages are significantly different from each other.

In addition to overall results, performance at the district level is presented for students categorized by different demographic and educational background characteristics (for example, by race/ethnicity). Results of more variables for the urban districts are available on the NAEP website (<http://nces.ed.gov/nationsreportcard/nde/>).

Simple associations between background characteristics and achievement cannot be used to establish cause-and-effect relationships. A complex mix of educational and socioeconomic factors may interact to affect student performance. For additional information, see the Technical Notes on page 46 or <http://nationsreportcard.gov>.





4th Grade

Overall, district performance is comparable to that of large central cities nationwide

Fourth-grade students in 7 of the 10 participating districts scored at least as well, on average, as students attending public schools in large central cities nationally. In many cases, the same was true when students from the TUDA districts were compared with their peers from the same racial/ethnic groups in large central cities nationally. Although the science scores in nearly all the participating districts were lower than the national average, when only the scores of students from low-income families were compared, there were fewer score differences among districts.

Similar to or above large central cities, but below the nation

In all but three participating districts, average scores were higher than, or not significantly different from, the average score for large central city schools. When compared to public schools nationwide, however, fourth-graders in all but one of the 10 districts had lower average scores (figure 1).

All of the districts had students scoring in the *Proficient* achievement level and some students in the *Advanced* achievement level (figure 2)—that is, districts with low average scores also had students performing at higher levels.

Compared to public schools nationally, nearly all of the participating districts had lower percentages of students at or above *Basic* and at or above *Proficient*. In one-half of these districts, however, the percentages of students performing at or above the *Basic* level were about the same as or higher than the percentage in large central cities.

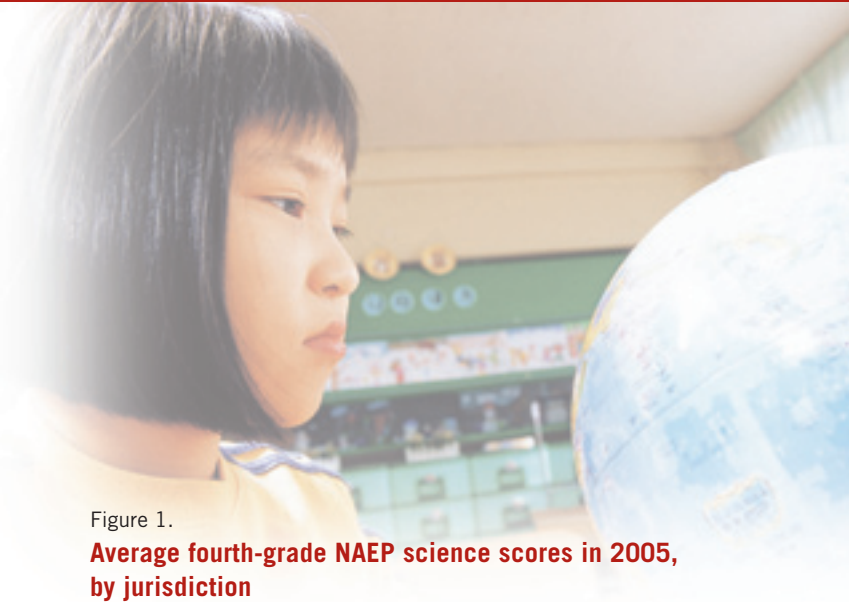


Figure 1. **Average fourth-grade NAEP science scores in 2005, by jurisdiction**

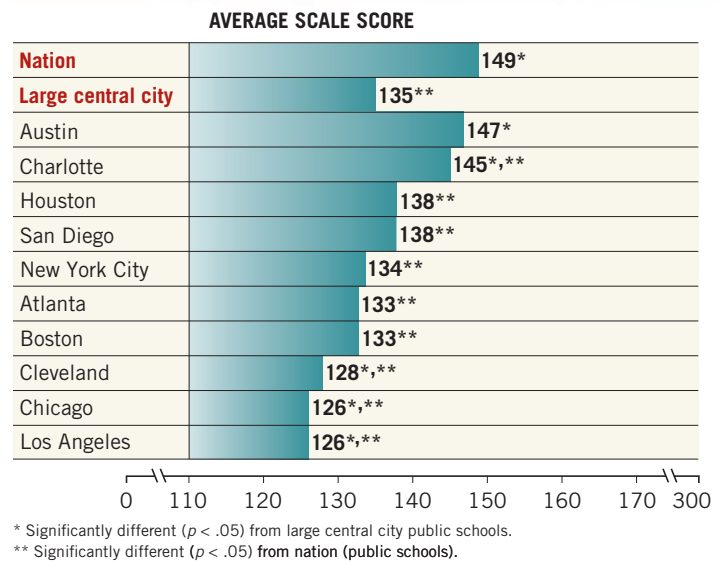
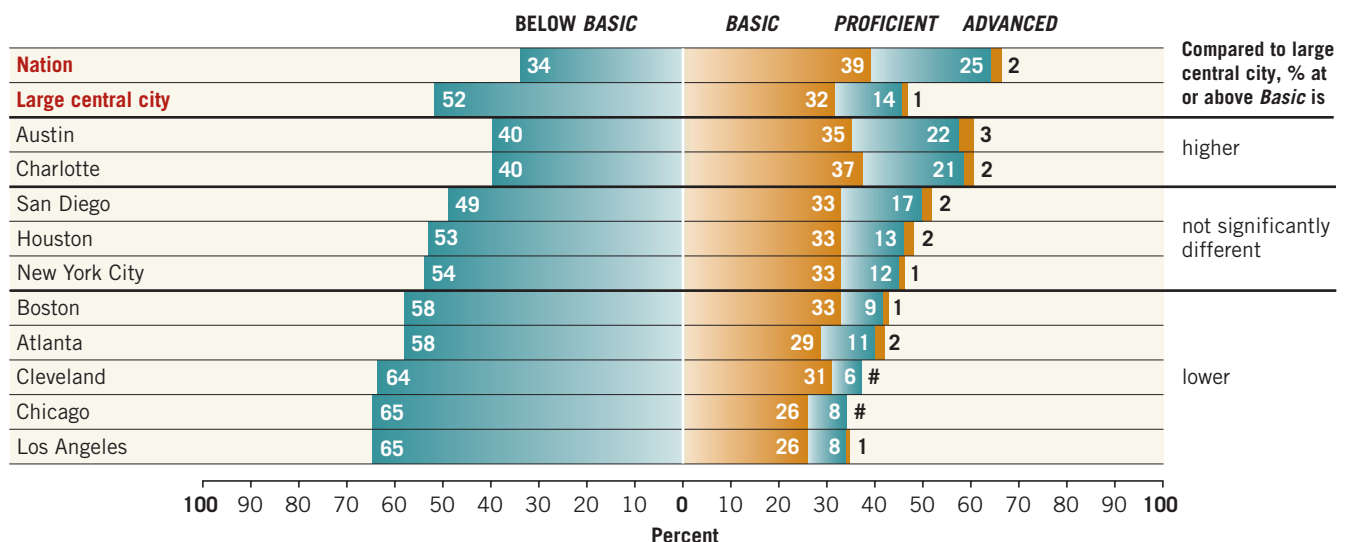


Figure 2. **Percentage of fourth-grade public school students, by NAEP science achievement level and jurisdiction in 2005**



For low-income students, relative district performance differs from overall results

Figure 3 shows comparisons among districts based on all public school students. Austin and Charlotte were in the top tier, while Chicago and Los Angeles were in the lowest tier.

The participating districts typically have greater percentages of low-income students than public schools nationally. (See the demographic profiles in table 1 on page 24.) NAEP uses students' eligibility for free or reduced-price school lunch as an indicator of socioeconomic status.¹ Typically, eligible students are from low-income families and have average scores that are significantly below those of students from higher-income families.

The highest-scoring districts when all public school students are considered have some of the smallest percentages of low-income students. The lowest-performing districts, however, have some of the largest

percentages. This contrast helps in understanding why the overall average scores for most districts are below that of the nation.

Figure 4 shows the cross-district comparisons for only low-income students. Here, the ranking among districts differs from that for all students. For example, Houston, Boston, New York City, and Cleveland move up in the rankings, and fewer differences are seen in performance across districts.

¹ Under the guidelines of the National School Lunch Program, children from families with incomes below 130 percent of the poverty level are eligible for free meals. 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. See <http://www.fns.usda.gov/cnd/lunch> for more information.)

Read across each district's row to determine whether the average score of that district was higher than, not significantly different from, or lower than the jurisdiction in the column heading. The direction of the arrow indicates whether the jurisdiction in the row is higher than (up arrow), lower than (down arrow), or not significantly different from (no arrow) the district in the column heading.

Figure 3.
Cross-district comparisons of average fourth-grade NAEP science scores for all public school students in 2005

DISTRICT (Average score)	Nation	Large central city	Austin	Charlotte	Houston	San Diego	New York City	Boston	Atlanta	Cleveland	Chicago	Los Angeles
Austin (147)	▲	▲			▲	▲	▲	▲	▲	▲	▲	▲
Charlotte (145)	▼	▲			▲	▲	▲	▲	▲	▲	▲	▲
Houston (138)	▼		▼	▼					▲	▲	▲	▲
San Diego (138)	▼		▼	▼					▲	▲	▲	▲
New York City (134)	▼		▼	▼							▲	▲
Boston (133)	▼		▼	▼							▲	▲
Atlanta (133)	▼		▼	▼	▼	▼					▲	▲
Cleveland (128)	▼	▼	▼	▼	▼	▼						
Chicago (126)	▼	▼	▼	▼	▼	▼	▼	▼	▼			
Los Angeles (126)	▼	▼	▼	▼	▼	▼	▼	▼	▼			

- ▲ ▲ District had higher average scale score than the district listed at the top of the column.
- No statistically significant difference detected from the district listed at the top of the column.
- ▼ ▼ District had lower average scale score than the district listed at the top of the column.

Figure 4.
Cross-district comparisons of average fourth-grade NAEP science scores for low-income public school students in 2005

DISTRICT (Average score)	Nation	Large central city	Austin	Houston	Boston	New York City	Charlotte	Cleveland	San Diego	Atlanta	Chicago	Los Angeles
Austin (135)	▲	▲							▲	▲	▲	▲
Houston (131)	▼	▲								▲	▲	▲
Boston (130)	▼									▲	▲	▲
New York City (130)	▼	▲								▲	▲	▲
Charlotte (129)	▼										▲	▲
Cleveland (128)	▼											▲
San Diego (127)	▼		▼									▲
Atlanta (124)	▼	▼	▼	▼	▼	▼						
Chicago (122)	▼	▼	▼	▼	▼	▼	▼					
Los Angeles (121)	▼	▼	▼	▼	▼	▼	▼	▼	▼			

NOTE: The average score for all students in the nation was 149 and was 135 for low-income students. The average score for all students in large central cities was 135 and was 127 for low-income students. In NAEP, low-income students are students identified as eligible for free or reduced-price school lunch.

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 Science Assessment.

Nation – district gaps narrower for low-income students

Figure 5 below shows how the picture of district performance in comparison to the nation changes when looking at only low-income students. Gaps in average scores between the nation and the districts when all public school students are included range from 2 to 24 points (shown by the bars on the left side of the figure).

These gaps in overall scores may be related, in part, to the greater percentages of low-performing, low-income students in the districts. The right side of the figure

shows that the gaps between low-income students in the nation and in each district range from almost none to 14 points.

Using Cleveland (which identifies all of its students as low-income) as an example, the district's average score was 21 points lower than the national average. Cleveland's average score for low-income students, however, was 6 points lower than the average for low-income students nationally.

Figure 5.

NAEP fourth-grade public school science score gaps between nation and districts for all students and for low-income students in 2005, by urban district

DISTRICT (Average score)	ALL STUDENTS		LOW-INCOME STUDENTS	
	SCORE GAP Nation minus district		SCORE GAP Nation minus district	DISTRICT (Average score)
Atlanta (133)	16		11	Atlanta (124)
Austin (147) ¹	2		#	Austin (135) ¹
Boston (133)	16		5	Boston (130)
Charlotte (145)	4		6	Charlotte (129)
Chicago (126)	24		12	Chicago (122)
Cleveland (128)	21		6	Cleveland (128)
Houston (138)	11		4	Houston (131)
Los Angeles (126)	24		14	Los Angeles (121)
New York City (134)	16		5	New York City (130)
San Diego (138)	12		8	San Diego (127)

The estimate rounds to zero.

¹ The score point difference between Austin and the nation was not statistically significant when comparing all students or when comparing low-income students.

NOTE: The average score for all students in the nation was 149 and was 135 for low-income students. In NAEP, low-income students are students identified as eligible for free or reduced-price school lunch. Score gaps are calculated based on differences between unrounded average scores.

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

District percentile rankings vary by demographic groups

Percentile ranks provide a comparative view of student performance at higher, middle, and lower levels on the NAEP science scale. Figure 6 displays the national percentile ranking of the TUDA districts and their subgroups, as well as that of the comparable groups in the nation and in large central cities. For example, the

average score for Black students in Austin was at the 29th percentile. This means that they performed as well as or better than 29 percent of all students nationwide, including their Black counterparts in large central cities whose average score was at the 21st percentile.

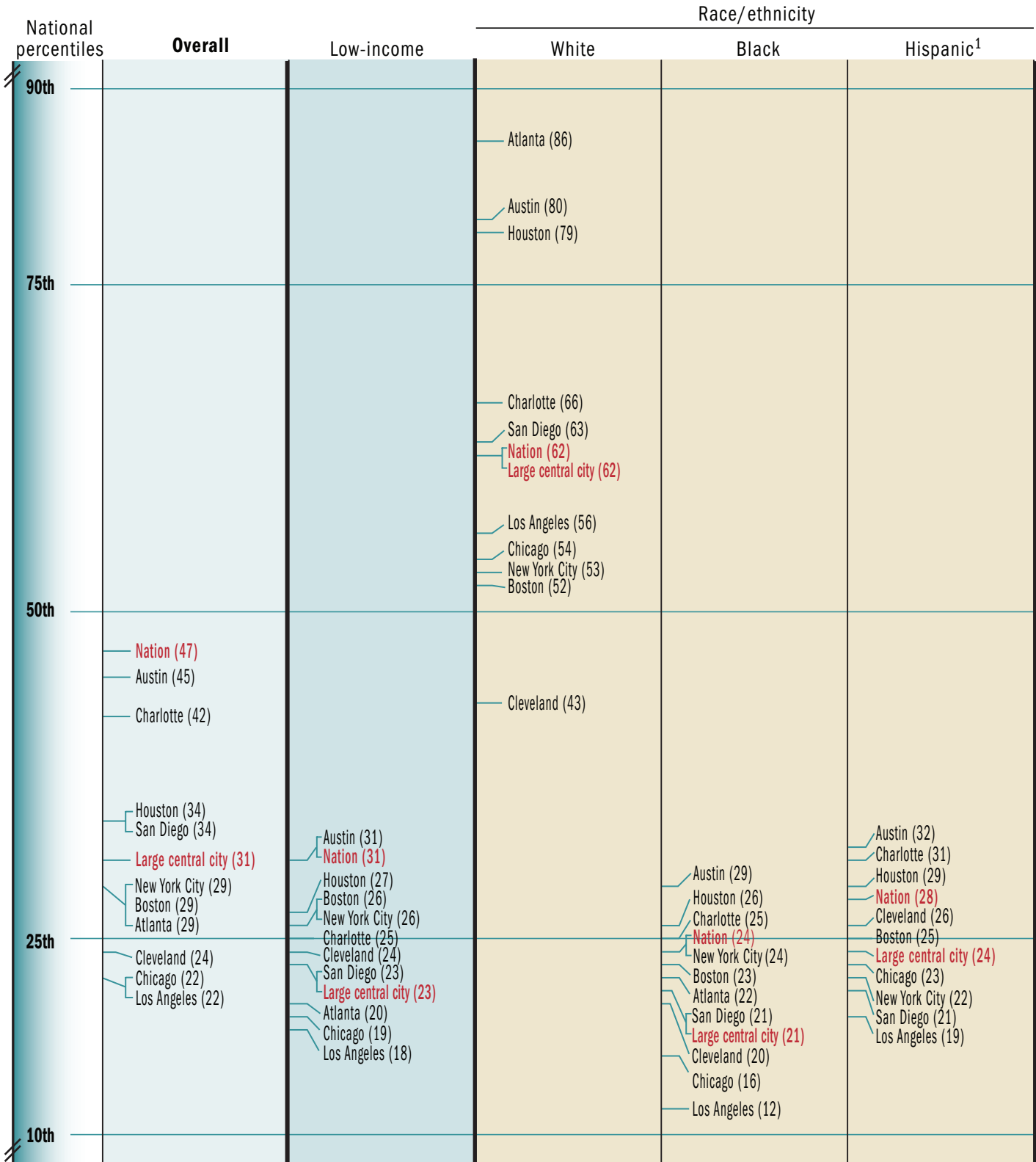


A Note on Percentiles

The figure on the next page shows groups of students within each participating urban district ranked against the NAEP national public school percentiles. The average score for the group was used to determine its percentile rank compared with public schools nationally. A percentile indicates the percentage of students whose scores fell at or below a particular score. The 10th and 25th percentiles represent lower-scoring students, the 50th percentile represents middle-scoring students, and the 75th and 90th percentiles represent higher-scoring students.

Figure 6.

National percentile rankings for districts based on average scores in NAEP fourth-grade science, by low-income status and race/ethnicity: 2005



¹ Sample size is insufficient to permit a reliable estimate for Hispanic students in Atlanta.

NOTE: Groups not shown are included in overall. In NAEP, low-income students are students identified as eligible for free or reduced-price school lunch. Race categories exclude Hispanic origin. The 50th percentile represents the middle score in the distribution of scores for public school students nationally. The average score for these students, however, fell below that point at the 47th percentile because there was a greater concentration of scores toward the lower end of the scale compared to the higher end.

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 Science Assessment.

Assessment Content at Grade 4

The content of the assessment varies for each grade to reflect what students should know and be able to do. The percentage of the assessment dedicated to each of the fields of science and the elements of knowing and doing science is specified for each grade. To interpret the overall results and the student group results presented in this report, it is important to understand the content of the assessment.

At grade 4, one-third of the assessment was devoted to each of three science fields—Earth, physical, and life science. The framework specifies that 45 percent of assessment time should be devoted to conceptual understanding, 45 percent to scientific investigation, and 10 percent to practical reasoning.

Fourth-graders were presented with two 25-minute sections, each containing 9 to 17 multiple-choice questions and constructed-response questions, which require students to produce their own answers. One-half of the students in each school spent an additional 20 minutes to complete the hands-on portion of the assessment.

An example of one of the hands-on tasks administered in 1996 asked students to determine whether an unknown sample of water was fresh water or salt water after observing the levels at which a pencil floated in each type of water. Examples of hands-on tasks from the 2005 assessment have not yet been released.

Science Achievement Levels at Grade 4

The science achievement levels at grade 4 represent what fourth-graders know and can do in science at each level. The following are excerpts of the science achievement-level descriptions with the corresponding minimum scores noted in parentheses. The full descriptions can be found at <http://www.nagb.org/pubs/pubs.html>.

Basic (138): Students performing at the *Basic* level demonstrate some of the knowledge and reasoning required for understanding the Earth, physical, and life sciences at a level appropriate to grade 4. For example, they can carry out simple investigations and read uncomplicated graphs and diagrams. Students at this level also show a beginning understanding of classification, simple relationships, and energy.

Proficient (170): Students performing at the *Proficient* level demonstrate the knowledge and reasoning required for understanding the Earth, physical, and life sciences at a level appropriate to grade 4. For example, they understand concepts relating to the Earth's features, physical properties, structure, and function. In addition, students can formulate solutions to familiar problems as well as show a beginning awareness of issues associated with technology.

Advanced (205): Students performing at the *Advanced* level demonstrate a solid understanding of the Earth, physical, and life sciences as well as the ability to apply their understanding to practical situations at a level appropriate to grade 4. For example, they can perform and critique simple investigations, make connections from one or more of the sciences to predict or conclude, and apply fundamental concepts to practical applications.

Sample Grade 4 Multiple-Choice Question

The multiple-choice question on the right assesses conceptual understanding in the field of Earth science.

The percentages below the sample question indicate how students performed on the question. In addition to the overall percentage of students who answered the question correctly, the percentage of the students at each achievement level who answered correctly is presented.

As an example of how to interpret these percentages, 46 percent of the students overall answered this question correctly. When just the students in the *Proficient* category are considered, 73 percent answered correctly.

The surface of the Moon is covered with craters. Most of these craters were formed by

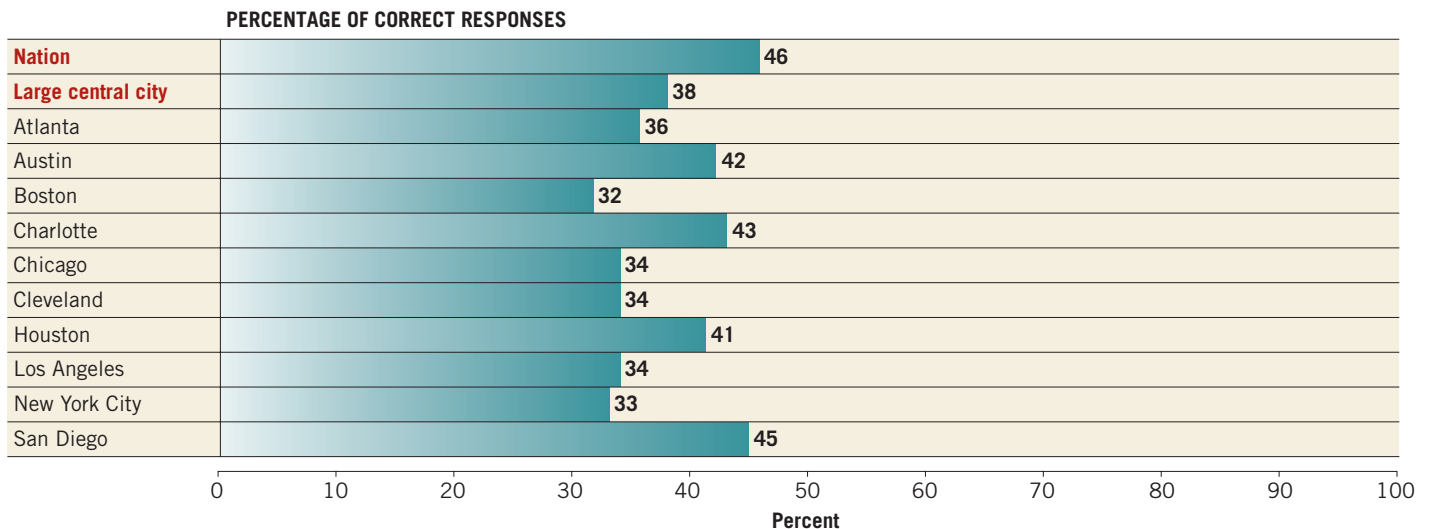
- (A) eruptions of active volcanoes
- (B) the impacts of many meteoroids
- (C) shifting rock on the Moon's surface ("moonquakes")
- (D) tidal forces caused by the Earth and Sun

Percentage correct in nation's public schools in 2005

Overall	Below Basic	At Basic	At Proficient	At Advanced
46	22	46	73	92



Percentage of correct fourth-grade public school student responses on the question above in 2005, by jurisdiction



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 Science Assessment.

Sample Grade 4 Constructed-Response Question

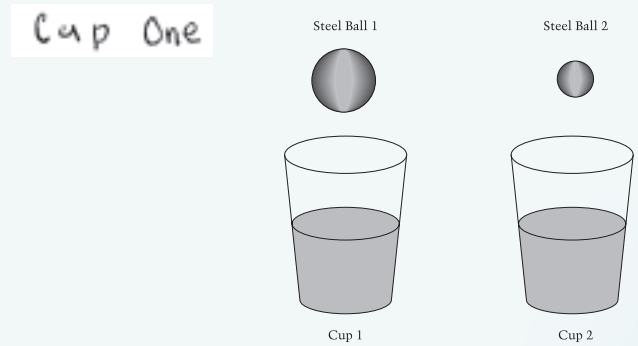
The constructed-response question on the right requires practical reasoning in the field of physical science. Responses were rated using a three-level scoring guide.

Responses that stated that the water level goes up more in cup 1 and gave a correct explanation were rated “Complete.” Responses that stated that the water level goes up more in cup 1, but had an inadequate explanation were rated “Partial.” Responses that stated that the water level goes up more in cup 2, or that ball 2 pushes the water level higher in cup 2 were rated as “Incorrect.” The sample student response shown here was “Complete.”



As shown in the picture, Christina has two identical cups that are filled to the same level with water. She also has two solid steel balls.

Christina puts ball 1 in cup 1 and ball 2 in cup 2. In which cup will the water level rise the most?



Tell why you think so

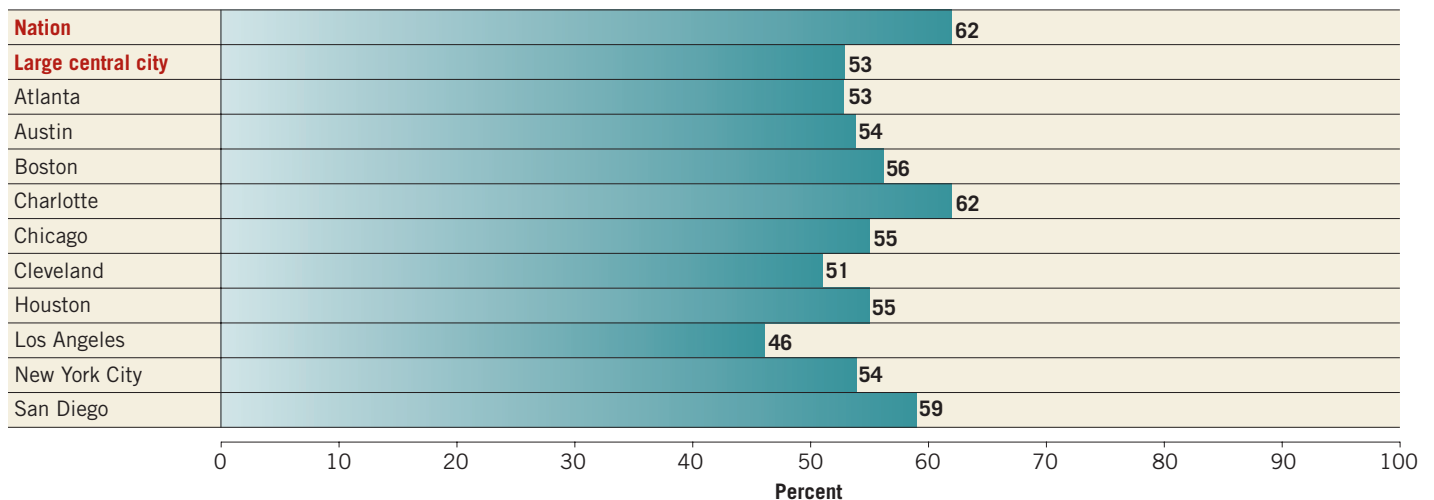
Cup ones water level will rise more because the steel ball one takes up more space because it is bigger then ball two.

Percentage “Complete” in nation’s public schools in 2005

Overall	Below Basic	At Basic	At Proficient	At Advanced
62	50	64	73	79

Percentage of fourth-grade public school student responses rated “Complete” on the question above in 2005, by jurisdiction

PERCENTAGE OF RESPONSES RATED “COMPLETE”



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 Science Assessment.

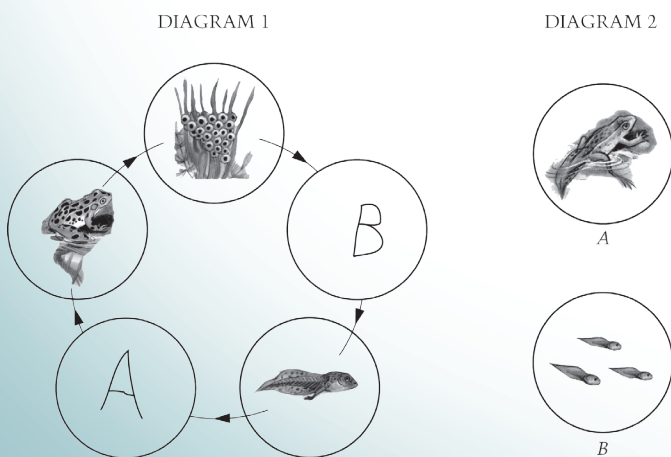
Sample Grade 4 Constructed-Response Question

The following constructed-response question assesses conceptual understanding in the field of life science. A student response was judged “Complete” if both stages *A* and *B* were placed correctly, and a valid explanation of the placement of both diagrams was provided.

A response was judged “Partial” if the student provided an acceptable explanation for stage *A* or *B*, OR a partially acceptable explanation for one stage or both stages. (Stages *A* and *B* may be placed correctly or incorrectly or left blank.) Responses were judged “Unsatisfactory/Incorrect” when a student did not provide a valid explanation for either placement. The sample student response below was “Complete.”

Diagram 1 shows a frog’s life cycle with two missing stages.

Explain why you placed the letters *A* and *B* where you did.



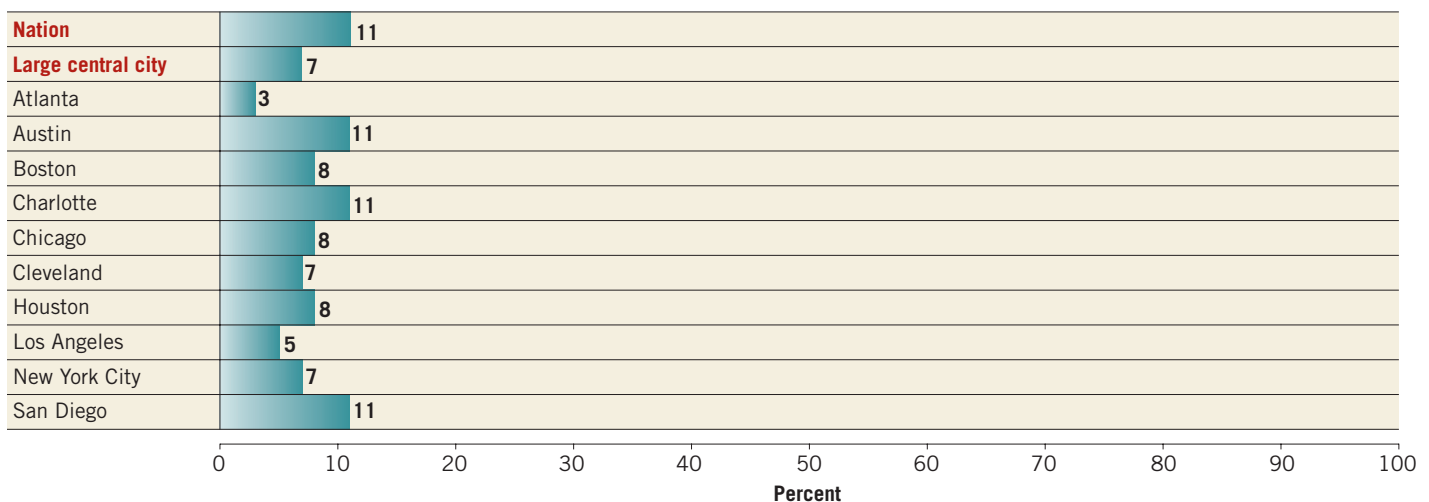
I placed them there because after the eggs hatch they turn into tadpoles and more mature tadpole grow front and back legs the crawls up on land and loses tadpole tail and becomes a frog.

Percentage “Complete” in nation’s public schools in 2005

Overall	Below Basic	At Basic	At Proficient	At Advanced
11	3	10	19	34

Percentage of fourth-grade public school student responses rated “Complete” on the question above in 2005, by jurisdiction

PERCENTAGE OF RESPONSES RATED “COMPLETE”



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 Science Assessment.



8th
Grade

Many districts' overall performance similar to large central cities' performance; some do better

Students in more than one-half of the districts scored at least as well, on average, as public school students in large central cities. However, all districts scored below the average score for the nation. In most cases, White, Black, and Hispanic students across the districts performed as well as, or better than, their peers in large central cities. Gaps between each district's overall average score and the national average ranged from 3 to 30 points. When only students from low-income families were compared, the score gaps between the districts and the nation ranged from 4 to 19 points.

Performance comparable to large central cities, but below nation

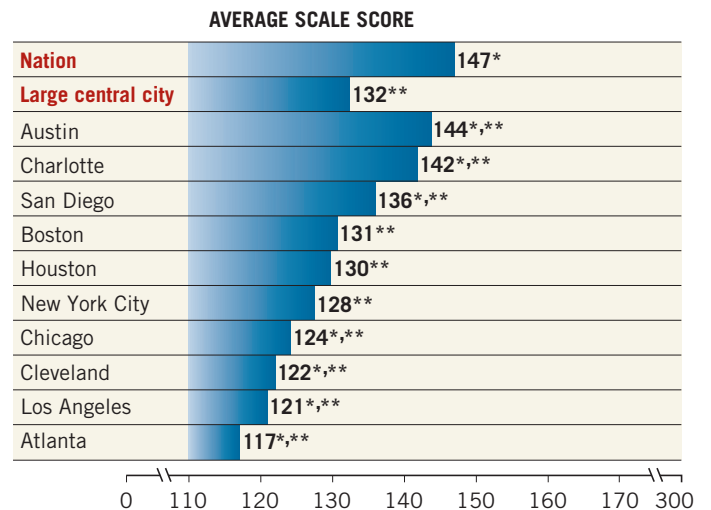
Eighth-grade students in 6 of the 10 participating districts scored at least as well, on average, as public school students in large central cities. Students in three of those districts—Austin, Charlotte, and San Diego—scored higher (figure 7). However, the average scores in all districts were below the average for public school students nationwide.

All districts had students performing at the *Proficient* achievement level and some students in the *Advanced* achievement level (figure 8). The pattern for achievement levels is similar to the average score results: the same three districts with higher average scores had higher percentages of students at or above *Basic* than in large central cities.

When compared to public schools nationally, all the participating districts had lower percentages of students performing at or above *Basic*. Only Austin did not have lower percentages at or above *Proficient*. The percentages of students at or above *Basic* in five districts, however, were about the same as or higher than the percentage in large central cities.

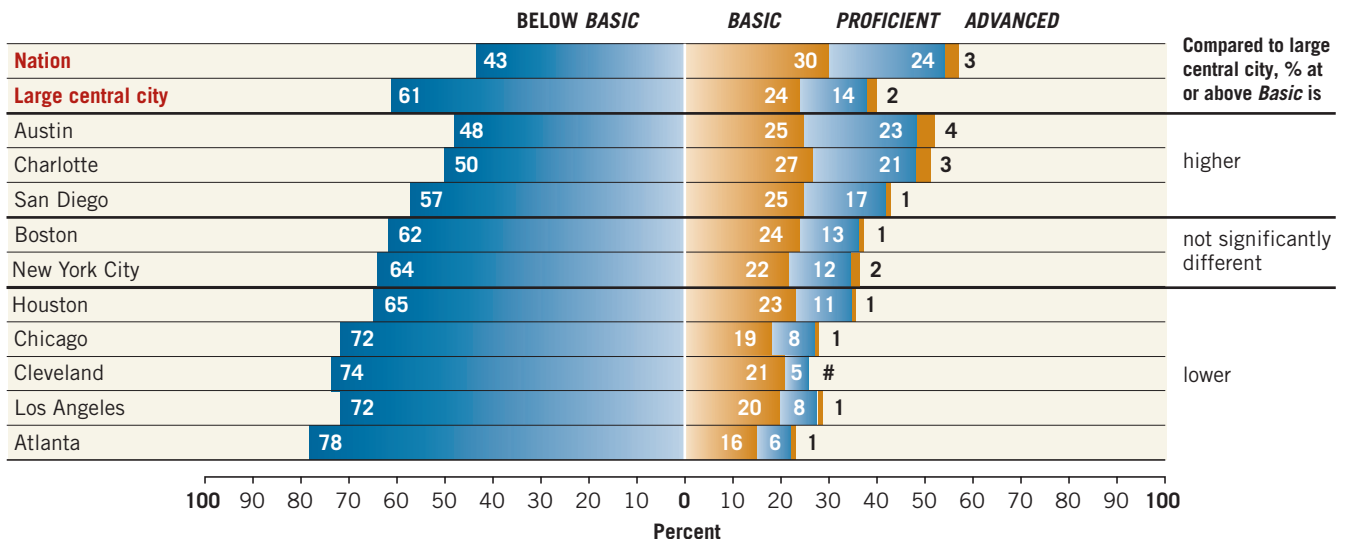


Figure 7. Average eighth-grade NAEP science scores in 2005, by jurisdiction



* Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

Figure 8. Percentage of eighth-grade public school students, by NAEP science achievement level and jurisdiction in 2005



The estimate rounds to zero.

NOTE: The shaded bars are graphed using unrounded numbers. Percentages may not add to 100 due to 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 Science Assessment.

For low-income students, fewer performance differences among districts

Figure 9 shows comparisons among districts based on all students. As in grade 4, Austin and Charlotte were in the top tier at grade 8, while eighth-graders in Atlanta were in the bottom tier.

The participating districts typically have greater percentages of low-income students than public schools nationally. (See the demographic profiles in table 2 on page 25.) NAEP uses students' eligibility for free or reduced-price school lunch as an indicator of socioeconomic status. Eligible students (see definitional note on page 6) are typically from low-income families and have average scores that are significantly below those of students from higher-income families.

The highest-scoring districts when all students are considered have some of the smallest percentages of low-income students. The lowest-performing districts, however, have some of the largest percentages. This contrast helps in understanding why the overall average scores for most districts are below that of the nation.

Figure 10 shows the cross-district comparisons for only low-income students. Here, similar to the pattern in grade 4, the ranking among districts differs from that for all students. For example, Boston, New York City, and Houston move up in the rankings, and fewer differences are seen in performance across districts.

Read across each district's row to determine whether the average score of that district was higher than, not significantly different from, or lower than the jurisdiction in the column heading. The direction of the arrow indicates whether the jurisdiction in the row is higher than (up arrow), lower than (down arrow), or not significantly different from (no arrow) the district in the column heading.

Figure 9.
Cross-district comparisons of average eighth-grade NAEP science scores for all public school students in 2005

DISTRICT (Average score)	Nation	Large central city	Austin	Charlotte	San Diego	Boston	Houston	New York City	Chicago	Cleveland	Los Angeles	Atlanta
Austin (144)	↓	↑			↑	↑	↑	↑	↑	↑	↑	↑
Charlotte (142)	↓	↑			↑	↑	↑	↑	↑	↑	↑	↑
San Diego (136)	↓	↑	↓	↓		↑	↑	↑	↑	↑	↑	↑
Boston (131)	↓		↓	↓	↓				↑	↑	↑	↑
Houston (130)	↓		↓	↓	↓				↑	↑	↑	↑
New York City (128)	↓		↓	↓	↓				↑	↑	↑	↑
Chicago (124)	↓	↓	↓	↓	↓	↓	↓					↑
Cleveland (122)	↓	↓	↓	↓	↓	↓	↓					↑
Los Angeles (121)	↓	↓	↓	↓	↓	↓	↓					↑
Atlanta (117)	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	






-   District had higher average scale score than the district listed at the top of the column.
-  No statistically significant difference detected from the district listed at the top of the column.
-   District had lower average scale score than the district listed at the top of the column.

Figure 10.
Cross-district comparisons of average eighth-grade NAEP science scores for low-income public school students in 2005

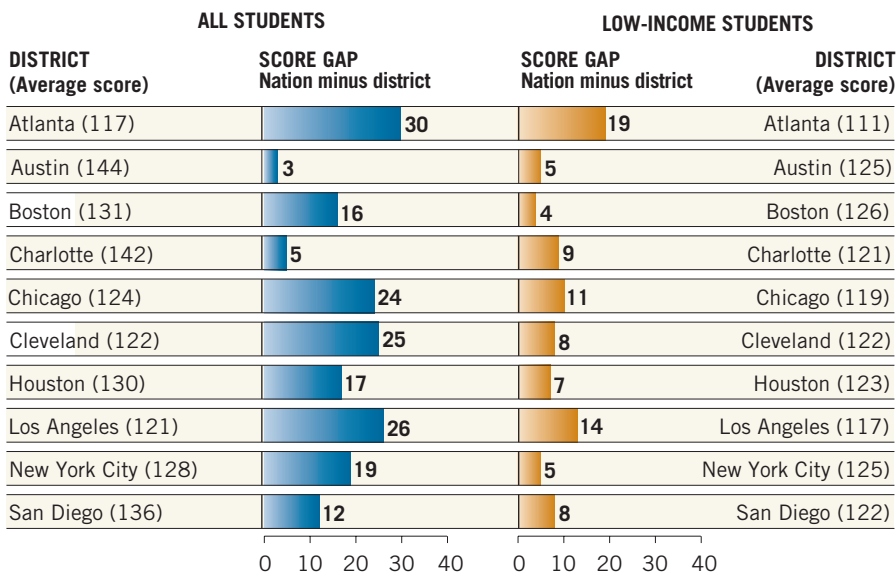
DISTRICT (Average score)	Nation	Large central city	Boston	Austin	New York City	Houston	Cleveland	San Diego	Charlotte	Chicago	Los Angeles	Atlanta
Boston (126)	↓	↑							↑	↑	↑	↑
Austin (125)	↓									↑	↑	↑
New York City (125)	↓									↑	↑	↑
Houston (123)	↓										↑	↑
Cleveland (122)	↓										↑	↑
San Diego (122)	↓											↑
Charlotte (121)	↓		↓									↑
Chicago (119)	↓		↓	↓	↓							↑
Los Angeles (117)	↓	↓	↓	↓	↓	↓	↓					↑
Atlanta (111)	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	

NOTE: The average score for all students in the nation was 147 and was 130 for low-income students. The average score for all students in large central cities was 132 and was 122 for low-income students. In NAEP, low-income students are students identified as eligible for free or reduced-price lunch.
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 Science Assessment.

Nation – district gaps narrower when comparing low-income students

Figure 11.

NAEP eighth-grade public school science score gaps between nation and districts for all students and for low-income students in 2005, by urban district



NOTE: The average score for all students in the nation was 147 and was 130 for low-income students. In NAEP, low-income students are students identified as eligible for free or reduced-price school lunch. Score gaps are calculated based on differences between unrounded average scores.

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

Gaps in average scores between the nation and the districts range from 3 to 30 points for all students (shown by the bars on the left side of figure 11). These gaps in overall scores may be related, in part, to the greater percentages of low-performing, low-income students in the districts. The right side of the figure shows that the gaps between low-income students in the nation and in each district range from 4 to 19 points.

Using Cleveland (which identifies all of its students as low-income) as an example, the district's average score was 25 points lower than the national average. Cleveland's average score for low-income students, however, was 8 points lower than the average for low-income students nationally.



District percentile rankings vary by demographic groups

Percentile ranks provide a comparative view of student performance at higher, middle, and lower levels on the NAEP science scale. Figure 12 displays the national percentile ranking of TUDA districts and their subgroups, as well as that of the comparable groups in the nation and in large central cities. For example, the average score for

Hispanic students in Cleveland was at the 30th percentile. This means that they performed as well as or better than 30 percent of all students nationwide, including their Hispanic counterparts in large central cities whose average score was at the 24th percentile.

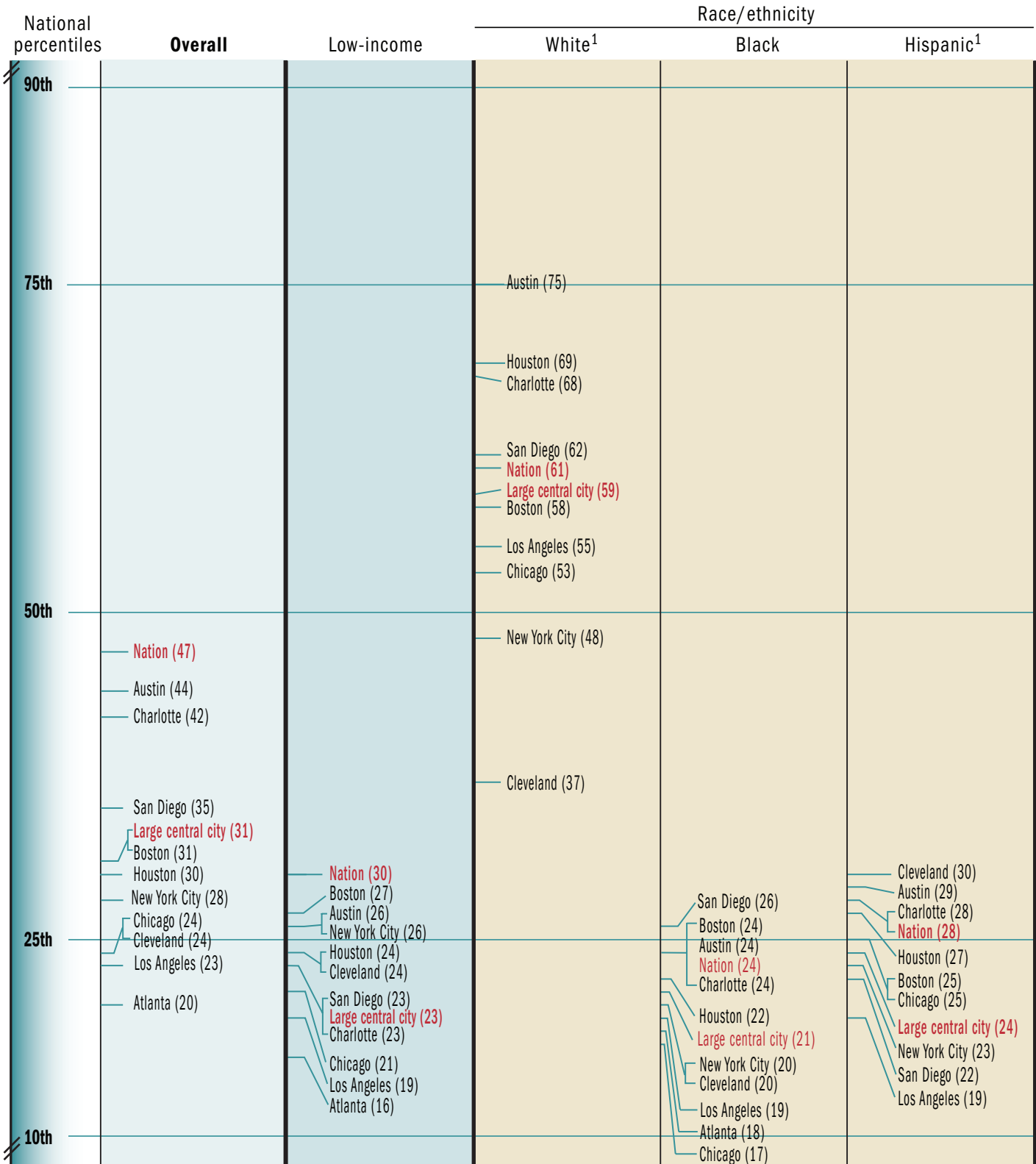


A Note on Percentiles

The table on the next page shows groups of students within each participating urban district ranked against the NAEP national public school percentiles. The average score for the group was used to determine its percentile rank compared with public schools nationally. A percentile indicates the percentage of students whose scores fell at or below a particular score. The 10th and 25th percentiles represent lower-scoring students, the 50th percentile represents middle-scoring students, and the 75th and 90th percentiles represent higher-scoring students.

Figure 12.

National percentile rankings for districts based on average scores in NAEP eighth-grade science, by low-income status and race/ethnicity: 2005



¹ Sample sizes are insufficient to permit reliable estimates for White and Hispanic students in Atlanta.

NOTE: Groups not shown are included in overall. In NAEP, low-income students are students identified as eligible for free or reduced-price school lunch. Race categories exclude Hispanic origin. The 50th percentile represents the middle score in the distribution of scores for public school students nationally. The average score for these students, however, fell below that point at the 47th percentile because there was a greater concentration of scores toward the lower end of the scale compared to the higher end.

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 Science Assessment.

Assessment Content at Grade 8

While the assessment at each grade focuses on the Earth, physical, and life sciences, the emphasis on the fields of science and ways of knowing and doing science shifts from grade 4 to grade 8. The content of the grade 8 assessment reflects the targets established by the Governing Board in the assessment framework for that grade.

As compared to grade 4, a larger proportion of the eighth-grade assessment focused on life science (40 percent). Thirty percent was devoted to Earth science and 30 percent to physical science. The framework specifies that 45 percent of the assessment should be devoted to conceptual understanding, 30 percent to scientific investigation, and 25 percent to practical reasoning.

Eighth-graders were presented with two 25-minute sections, each containing 10 to 19 multiple-choice and constructed-response questions. One-half of the eighth-graders assessed spent an additional 30 minutes on a hands-on activity.

An example of one of the hands-on tasks administered in 1996 asked students to estimate the unknown concentration of salt in a solution after plotting the data obtained by observing the levels at which a pencil floats in distilled water and in the same amount of a 25 percent salt solution. Examples of hands-on tasks from the 2005 assessment have not yet been released.

Science Achievement Levels at Grade 8

The science achievement levels at grade 8 represent what eighth-graders know and can do in science at each level. The following are excerpts of the science achievement-level descriptions with the corresponding minimum scores noted in parentheses. The full descriptions can be found at <http://www.nagb.org/pubs/pubs.html>.

Basic (143): Students performing at the *Basic* level demonstrate some of the knowledge and reasoning required for understanding the Earth, physical, and life sciences at a level appropriate to grade 8. For example, they can carry out investigations and obtain information from graphs, diagrams, and tables. In addition, they demonstrate some understanding of concepts relating to the solar system and relative motion. Students at this level also have a beginning understanding of cause-and-effect relationships.

Proficient (170): Students performing at the *Proficient* level demonstrate much of the knowledge and many of the reasoning abilities essential for understanding the Earth, physical, and life sciences at a level appropriate to grade 8. For example, students can interpret graphic information, design simple investigations, and explain such scientific concepts as energy transfer. Students at this level also show an awareness of environmental issues, especially those addressing energy and pollution.

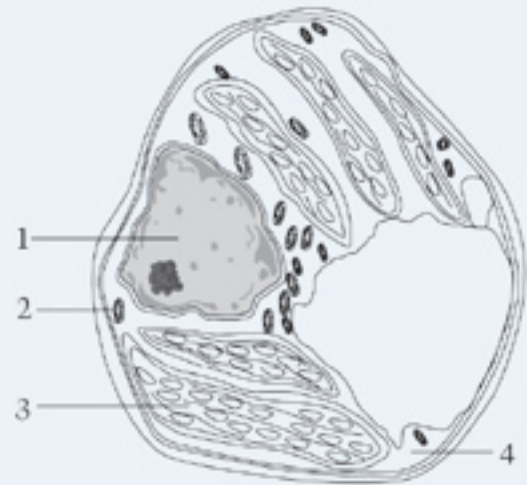
Advanced (208): Students performing at the *Advanced* level demonstrate a solid understanding of the Earth, physical, and life sciences as well as the abilities required to apply their understanding to practical situations at a level appropriate to grade 8. For example, students can perform and critique the design of investigations, relate scientific concepts to each other, explain their reasoning, and discuss the impact of human activities on the environment.

Sample Grade 8 Multiple-Choice Question

The multiple-choice question to the right assesses conceptual understanding in the field of life science.

The percentages below the sample question indicate how students performed on the question. In addition to the overall percentage of students who answered the question correctly, the percentage of the students at each achievement level who answered the question correctly is presented.

As an example of how to interpret these percentages, 52 percent of the students overall answered this question correctly. When only the students in the *Proficient* category are considered, 68 percent answered correctly.



In the picture of a cell, which label indicates the part of the cell that contains most of the cell's genetic material?

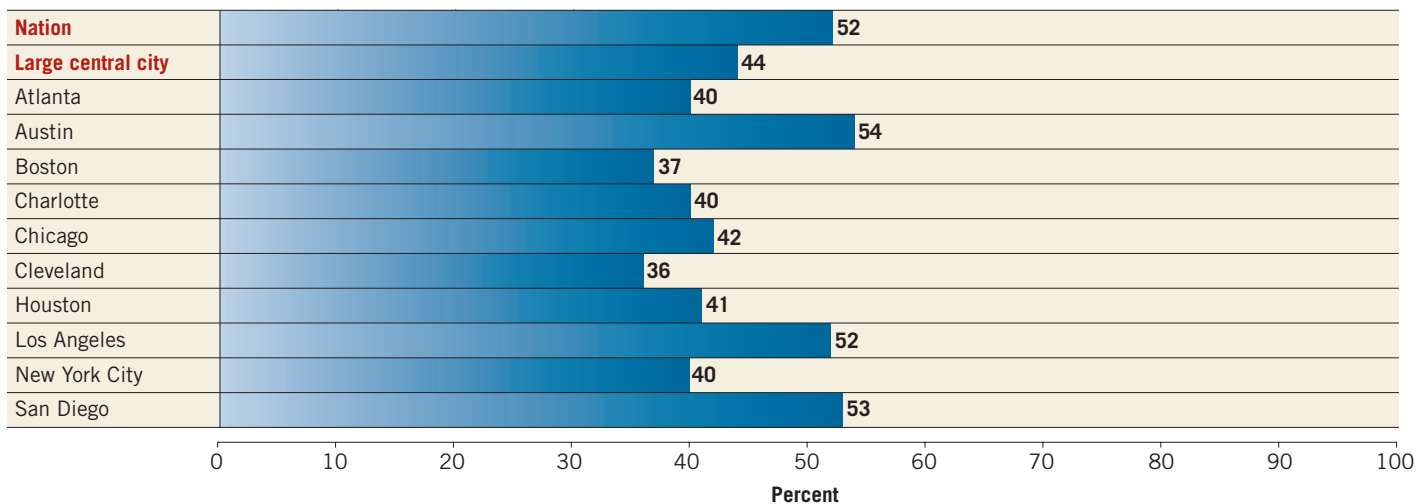
- 1
- 2
- 3
- 4

Percentage correct in nation's public schools in 2005

Overall	Below Basic	At Basic	At Proficient	At Advanced
52	40	53	68	85

Percentage of correct eighth-grade public school student responses on the question above in 2005, by jurisdiction

PERCENTAGE OF CORRECT RESPONSES



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 Science Assessment.

Sample Grade 8 Constructed-Response Question

The following constructed-response question assesses scientific investigation in physical science. Responses were rated using a three-level scoring guide.

Responses that showed an understanding of how to distinguish fresh water from salt water by describing both a method for determining the difference and a result were rated “Complete.” Responses that showed some understanding of the difference between fresh and salt water but provided no practical method for distinguishing them, or gave a correct method but no result, were rated “Partial.” Responses that showed no understanding of how to distinguish between fresh and salt water were rated “Incorrect.” The sample student response below was “Complete.”



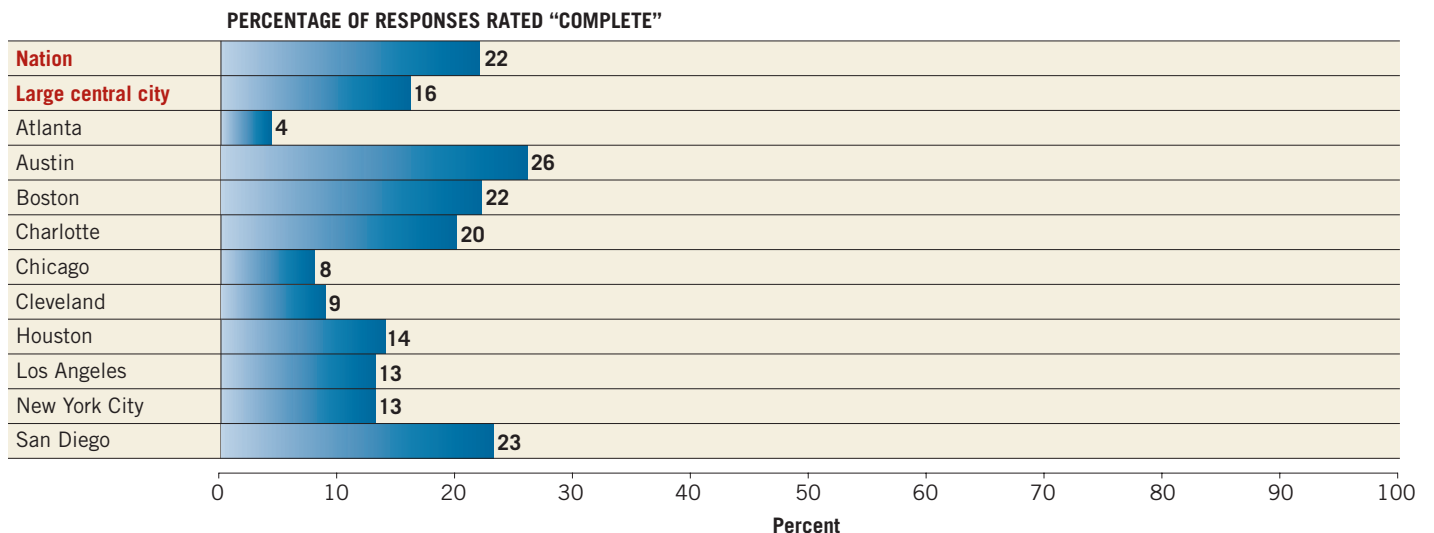
Maria has one glass of pure water and one glass of salt water, which look exactly alike. Explain what Maria could do, without tasting the water, to find out which glass contains the salt water.

Percentage “Complete” in nation’s public schools in 2005

Overall	Below Basic	At Basic	At Proficient	At Advanced
22	7	22	41	68

One thing she could do is evaporate each glass of water. The glass with salt water in it should have salt left in it when the water has evaporated.

Percentage of eighth-grade public school student responses rated “Complete” on the question above in 2005, by jurisdiction



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 Science Assessment.

Sample Grade 8 Constructed-Response Question

The following constructed-response question assesses conceptual understanding in the field of Earth science. A response was rated as “Complete” when the student listed three correct ways that satellites are used. A response was rated as “Partial” when one or two ways were listed. A response was judged unsatisfactory/incorrect when a student did not list any correct ways that satellites are used. The student response below was judged “Complete.” In the scaling process for this question, the “partial” and “complete” responses were added to produce the percentages in the chart.

There are many different kinds of human-made satellites orbiting the Earth. List three things that these satellites are used for.

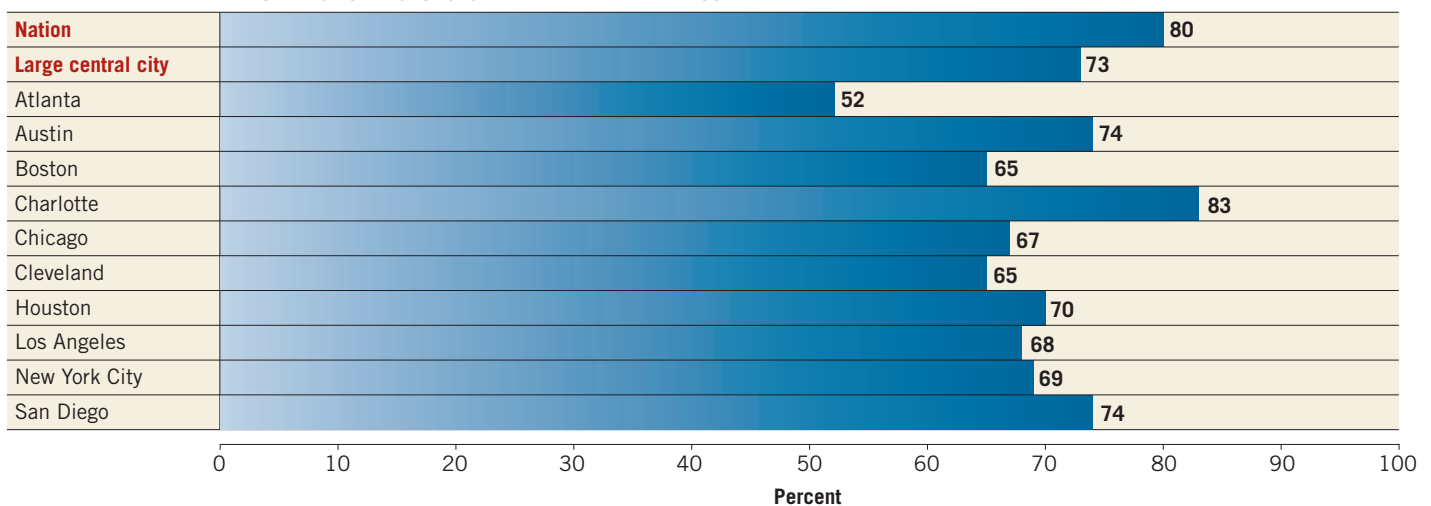
① is for your television, ② weather to tell if there's a storm coming, ③ landsat to help make maps, to show the elevation.

Percentage “Partial” and “Complete” in nation’s public schools in 2005

Overall	Below Basic	At Basic	At Proficient	At Advanced
80	65	88	94	98

Percentage of eighth-grade public school student responses rated “Partial” and “Complete” on the question above in 2005, by jurisdiction

PERCENTAGE OF RESPONSES RATED “PARTIAL” AND “COMPLETE”



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 Science Assessment.

A Closer Look at Individual Districts

In order to set the context for a closer look at individual districts, the demographic characteristics of participating districts are shown in tables 1 and 2. The percentage of minority (not White) students ranges from about 60 percent to more than 90 percent in the participating districts, compared to about 40 percent nationally in public schools at both grades 4 and 8. The percentage of low-income students (those eligible for free or reduced-price school lunch) ranges from 43 percent to

100 percent in the districts, compared with 45 and 39 percent nationally in public schools at grades 4 and 8, respectively. Most of the districts also have numerically higher percentages of students identified as English language learners than do public schools nationally.



Table 1. Characteristics of fourth-grade public school students in 2005, by jurisdiction

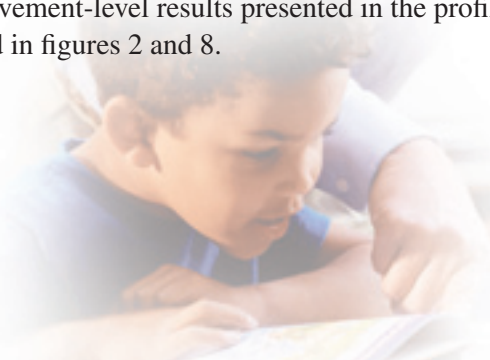
Student characteristics	Nation	Large central city	Atlanta	Austin	Boston	Charlotte	Chicago	Cleveland	Houston	Los Angeles	New York City	San Diego
Number of fourth-graders	3,745,000	563,000	6,000	7,000	5,000	9,000	36,000	7,000	18,000	63,000	81,000	12,000
Number of students assessed	142,700	26,900	1,200	1,300	1,200	1,400	2,000	1,000	2,000	2,000	2,000	1,400
Percent White students	57	21	11	27	12	40	9	18	10	9	13	23
Percent Black students	17	32	83	15	47	40	47	70	28	11	35	14
Percent Hispanic students	20	38	4	56	30	13	42	10	59	74	39	45
Percent Asian/Pacific Islander students	4	6	1	2	9	4	3	#	3	6	12	18
Percent eligible for free/reduced-price lunch	45	69	75	63	83	46	85	100	79	85	86	61
Percent students with disabilities	14	13	9	17	22	13	13	16	12	10	14	12
Percent English language learners	10	21	1	27	15	9	18	5	36	55	12	35

The estimate rounds to zero.

NOTE: The number of fourth-graders is rounded to the nearest 1,000. The number of students assessed is rounded to the nearest 100. Race categories exclude Hispanic origin.

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

In the next section, profiles of selected NAEP results from the 2005 Trial Urban District Assessment in science are presented for each participating district. The profiles present a closer look at some key findings for each district's student groups by race/ethnicity and by income level (eligibility for free or reduced-price school lunch). In addition, results for a few, selected test questions are provided to give the reader a more concrete sense of how the district's students performed.² The data for the achievement-level results presented in the profiles can be found in figures 2 and 8.



More Information on the 2005 Trial Urban District Assessment in Science

For general information and results
<http://nationsreportcard.gov>.

For an interactive database including student, teacher, and school variables for all participating districts, the nation, and large central city schools, see the NAEP Data Explorer at
<http://nces.ed.gov/nationsreportcard/nde/>.

All released NAEP sample test questions with associated performance results by nation, state, and district are available at
<http://nces.ed.gov/nationsreportcard/itmrls/>.

Table 2. Characteristics of eighth-grade public school students in 2005, by jurisdiction

Student characteristics	National	Large central city	Atlanta	Austin	Boston	Charlotte	Chicago	Cleveland	Houston	Los Angeles	New York City	San Diego
Number of eighth-graders	3,662,000	543,000	4,000	6,000	5,000	8,000	35,000	5,000	14,000	50,000	70,000	10,000
Number of students assessed	139,000	24,700	1,000	1,200	1,100	1,400	2,000	900	1,800	1,900	1,800	1,400
Percent White students	60	23	4	33	15	41	13	18	10	9	16	25
Percent Black students	17	33	92	12	47	45	47	71	30	13	34	14
Percent Hispanic students	17	35	3	52	28	9	37	9	56	71	35	43
Percent Asian/Pacific Islander students	4	8	#	3	9	4	3	#	3	7	14	17
Percent eligible for free/reduced-price lunch	39	62	75	51	76	43	81	100	72	78	84	52
Percent students with disabilities	13	13	11	13	19	12	17	19	13	12	10	11
Percent English language learners	6	14	2	14	9	7	7	3	14	33	10	21

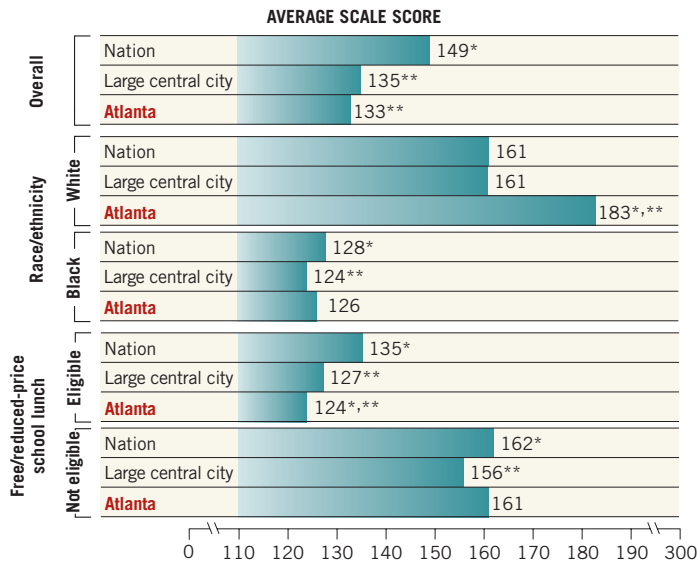
The estimate rounds to zero.

NOTE: The number of eighth-graders is rounded to the nearest 1,000. The number of students assessed is rounded to the nearest 100. Race categories exclude Hispanic origin.

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

² In the table at the bottom of the following district profile pages for each grade, the “score location” of a test 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. The scale score ranges for the science achievement levels (*Basic*, *Proficient*, and *Advanced*) are also displayed in the table. For constructed-response questions, the data shown is the percentage of students' responses rated as completely correct.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

Percentage of fourth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	ATLANTA	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
30	26	32	ADVANCED	219	<i>Interpret readings from rain gauges</i>
33	27	22		205	<i>Interpret data to conclude conditions needed for seed germination</i>
36	29	30	PROFICIENT	203	Explain what can be learned from fossils
44	32	27		170	185
65	62	64	BASIC	174	<i>Interpret melting point data to determine which item melts first</i>
66	57	53		165	<i>Use data table to determine which day has the most daylight</i>
62	53	53	138	159	Predict and explain water displacement by two objects
76	71	69		139	<i>Identify function of a human structure</i>
75	68	62	0	136	<i>Identify process fish use to obtain oxygen</i>
87	78	77		103	<i>Compare weather data to tell which city has warmer temperatures</i>

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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



For Atlanta Fourth-Graders,

...the overall score was not significantly different from that in large central cities, but lower than it was in the nation.

...the percentage at or above *Basic* was lower than it was in large central cities, but the percentage at or above *Proficient* was not significantly different from that in large central cities.

Compared with their peers...

...White students scored higher than those in large central cities and the nation.

...Black students had an average score that was not significantly different from those in large central cities and the nation.

The score gap between...

...White and Black students was 57 points—which was wider than the gaps in large central cities and the nation.

...higher- and lower-income students was 38 points—which was not significantly different from the gap in large central cities, but wider than the gap in the nation.



For Atlanta Eighth-Graders,

...the overall score was lower than it was in large central cities and the nation.

...the percentages at or above *Basic* and at or above *Proficient* were lower than they were in large central cities.

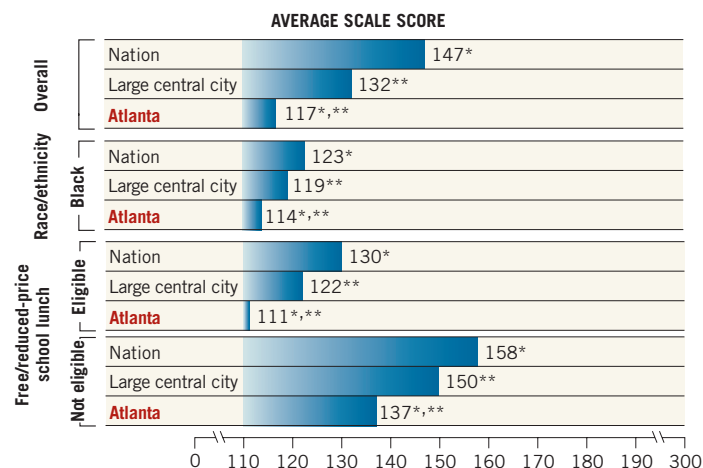
Compared with their peers...

...Black students scored lower than those in large central cities and the nation.

The score gap between...

...higher- and lower-income students was 26 points—which was not significantly different from the gaps in large central cities and the nation.

Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of eighth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

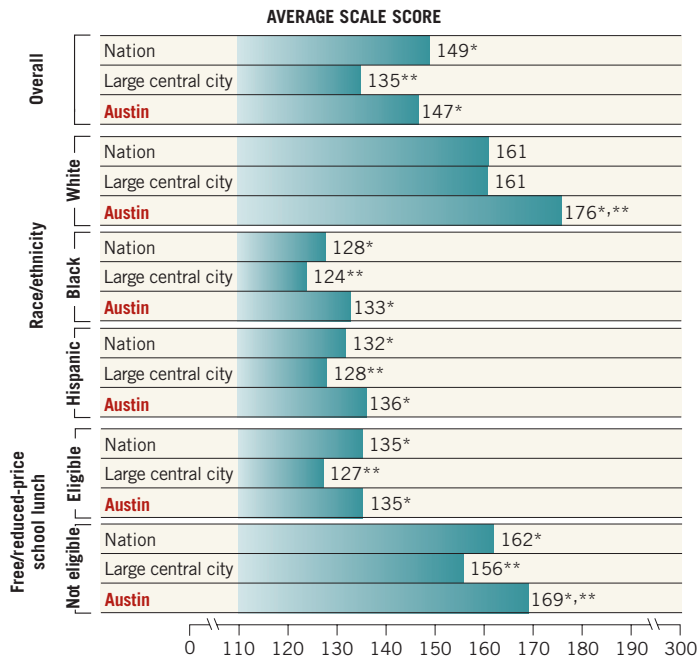
NATION	LARGE CENTRAL CITY	ATLANTA	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION	
			300			
22	16	4	ADVANCED	230	Explain how to find out if a glass contains salt water	
16	9	2		208	218	Describe means by which plants prevent erosion
52	44	40	PROFICIENT	198	Identify location of cell's genetic material	
51	42	47		170	188	Identify zone on a map with a temperate climate
43	32	26		178	178	Describe experiment to measure the volume of an object
53	43	28	BASIC	162	162	Explain relative motion of two vehicles
54	44	27		143	160	Describe effect of pollutant on food web
72	64	52		147	147	Identify an action to reduce carbon dioxide in the atmosphere
77	71	60		136	136	Identify relationship between rainfall and seed production
80	73	52		111	111	List three uses for human-made satellites ¹

¹ Percentages for this question combine "Partial" and "Complete" responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was White, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).



For Austin Fourth-Graders,

- ...the overall score was higher than it was in large central cities, but not significantly different from that in the nation.
- ...the percentages at or above *Basic* and at or above *Proficient* were higher than they were in large central cities.

Compared with their peers...

- ...White students scored higher than those in large central cities and the nation.
- ...Black and Hispanic students had average scores that were higher than those in large central cities, but not significantly different from those in the nation.

The score gap between...

- ...White and Black students was 43 points—which was not significantly different from the gaps in large central cities and the nation.
- ...White and Hispanic students was 40 points—which was not significantly different from the gap in large central cities, but wider than the gap in the nation.
- ...higher- and lower-income students was 34 points—which was not significantly different from the gap in large central cities, but wider than the gap in the nation.

Percentage of fourth-grade student responses rated correct or “Complete” on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	AUSTIN	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			ADVANCED	300	
30	26	30		219	<i>Interpret readings from rain gauges</i>
33	27	36	PROFICIENT	205	
36	29	33		203	Explain what can be learned from fossils
44	32	46	BASIC	170	
65	62	74		174	<i>Interpret melting point data to determine which item melts first</i>
66	57	62	0	165	<i>Use data table to determine which day has the most daylight</i>
62	53	54		159	Predict and explain water displacement by two objects
76	71	74	138	139	<i>Identify function of a human structure</i>
75	68	75	136	<i>Identify process fish use to obtain oxygen</i>	
87	78	87	103	<i>Compare weather data to tell which city has warmer temperatures</i>	

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was Asian/Pacific Islander, American Indian/Alaska Native, or “unclassified” because of small sample sizes. Race categories exclude Hispanic origin. “Score location” is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.



For Austin Eighth-Graders,

...the overall score was higher than it was in large central cities, but lower than it was in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were higher than they were in large central cities.

Compared with their peers...

...White students scored higher than those in large central cities and the nation.

...Black students had an average score that was not significantly different from the scores in large central cities and the nation.

...Hispanic students had an average score that was higher than the score in large central cities, but not significantly different from the score in the nation.

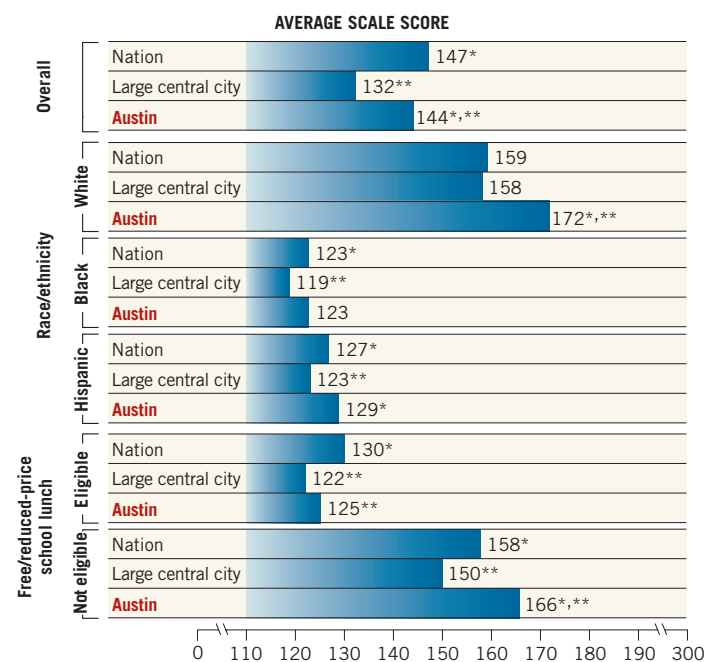
The score gap between...

...White and Black students was 49 points—which was wider than the gaps in large central cities and the nation.

...White and Hispanic students was 43 points—which was wider than the gaps in large central cities and the nation.

...higher- and lower-income students was 41 points—which was wider than the gaps in large central cities and the nation.

Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

Percentage of eighth-grade student responses rated correct or “Complete” on selected NAEP science questions in 2005, by jurisdiction

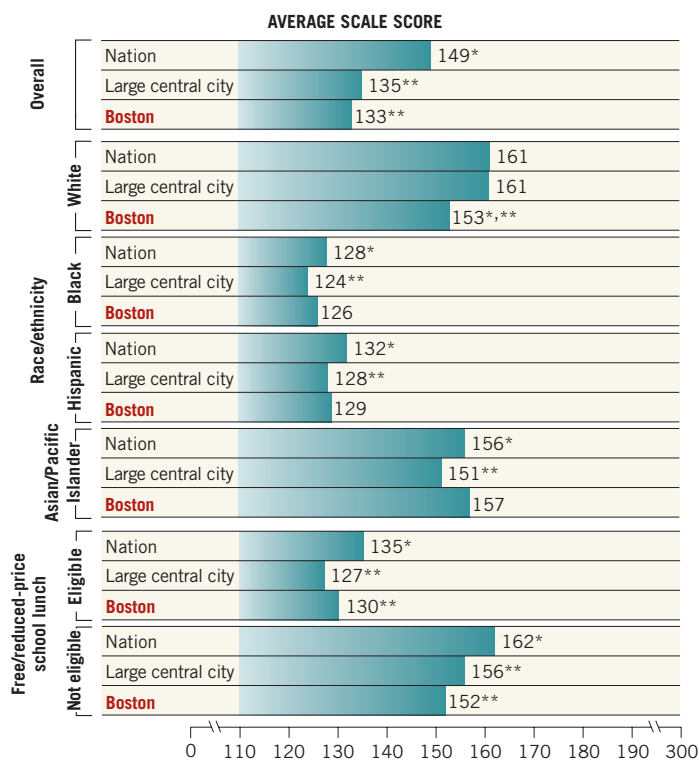
NATION	LARGE CENTRAL CITY	AUSTIN	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
			ADVANCED	230	Explain how to find out if a glass contains salt water
				218	Describe means by which plants prevent erosion
			208		
			PROFICIENT	198	<i>Identify location of cell's genetic material</i>
				188	<i>Identify zone on a map with a temperate climate</i>
				178	Describe experiment to measure the volume of an object
			170		
			BASIC	162	Explain relative motion of two vehicles
				160	Describe effect of pollutant on food web
				147	<i>Identify an action to reduce carbon dioxide in the atmosphere</i>
				143	<i>Identify relationship between rainfall and seed production</i>
			0		
				111	List three uses for human-made satellites ¹

¹ Percentages for this question combine “Partial” and “Complete” responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was Asian/Pacific Islander, American Indian/Alaska Native, or “unclassified” because of small sample sizes. Race categories exclude Hispanic origin. “Score location” is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of fourth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	BOSTON	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION	
			300			
			ADVANCED			
30	26	25		219	<i>Interpret readings from rain gauges</i>	
33	27	31	205	208	<i>Interpret data to conclude conditions needed for seed germination</i>	
36	29	21	PROFICIENT	203	Explain what can be learned from fossils	
44	32	29		185	Relate air (oxygen) supply to burning time	
65	62	64		170	174	<i>Interpret melting point data to determine which item melts first</i>
66	57	61	BASIC	165	<i>Use data table to determine which day has the most daylight</i>	
62	53	56		159	Predict and explain water displacement by two objects	
76	71	75		138	139	<i>Identify function of a human structure</i>
75	68	71		136	<i>Identify process fish use to obtain oxygen</i>	
87	78	81	0	103	<i>Compare weather data to tell which city has warmer temperatures</i>	

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.



For Boston Fourth-Graders,

...the overall score was not significantly different from that in large central cities, but lower than it was in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were lower than they were in large central cities.

Compared with their peers...

...White students scored lower than those in large central cities and the nation.

...Black, Hispanic, and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities and the nation.

The score gap between...

...White and Black students was 27 points—which was narrower than the gap in large central cities, but not significantly different from the gap in the nation.

...White and Hispanic students was 25 points—which was not significantly different from the gaps in large central cities and the nation.

...higher- and lower-income students was 22 points—which was not significantly different from the gaps in large central cities and the nation.



For Boston Eighth-Graders,

...the overall score was not significantly different from that in large central cities, but lower than it was in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were not significantly different than they were in large central cities.

Compared with their peers...

...White, Black, Hispanic, and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities and the nation.

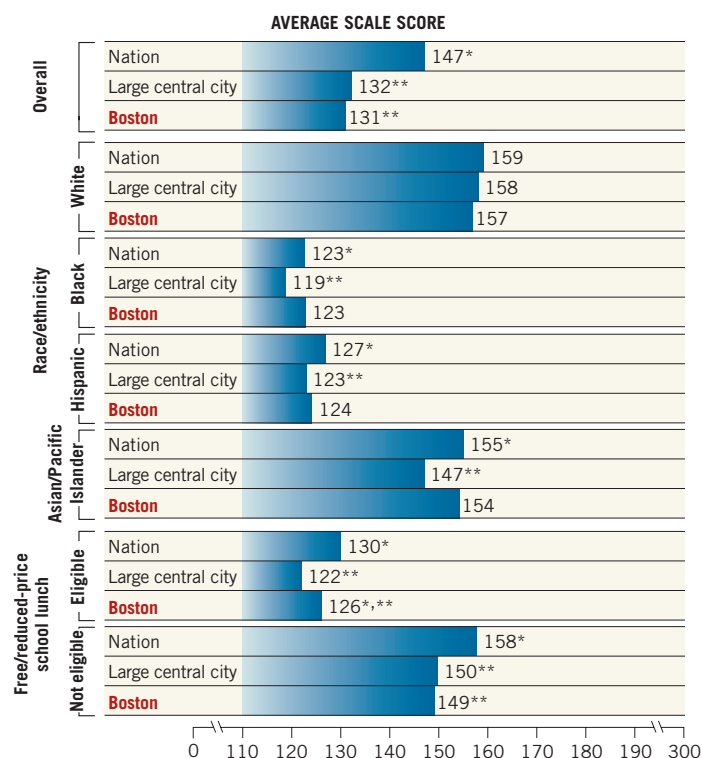
The score gap between...

...White and Black students was 33 points—which was not significantly different from the gaps in large central cities and the nation.

...White and Hispanic students was 32 points—which was not significantly different from the gaps in large central cities and the nation.

...higher- and lower-income students was 23 points—which was not significantly different from the gaps in large central cities and the nation.

Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of eighth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

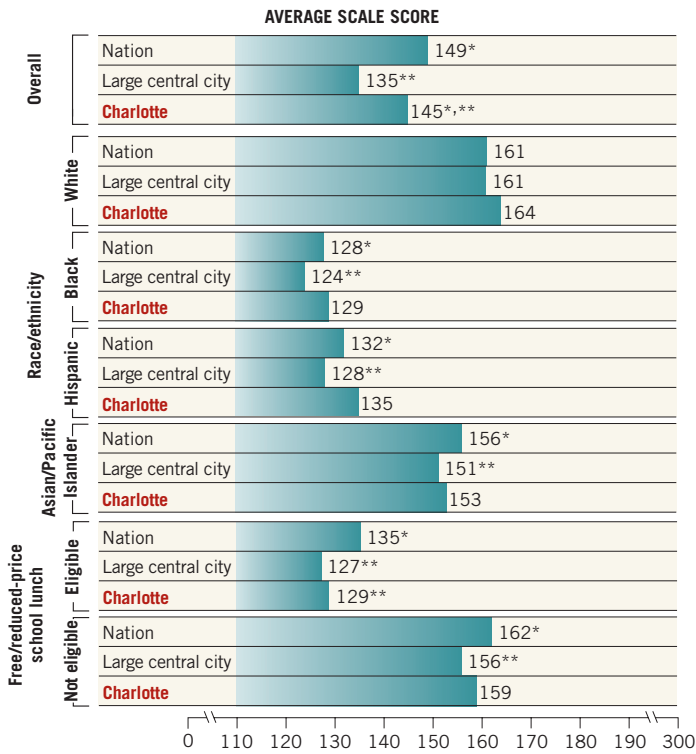
NATION	LARGE CENTRAL CITY	BOSTON	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION	
			300			
22	16	22	ADVANCED	230	Explain how to find out if a glass contains salt water	
16	9	3		208	218	Describe means by which plants prevent erosion
52	44	37	PROFICIENT	198	Identify location of cell's genetic material	
51	42	39		188	Identify zone on a map with a temperate climate	
43	32	20		170	178	Describe experiment to measure the volume of an object
53	43	39	BASIC	162	Explain relative motion of two vehicles	
54	44	49		160	Describe effect of pollutant on food web	
72	64	69		143	147	Identify an action to reduce carbon dioxide in the atmosphere
77	71	74		136	Identify relationship between rainfall and seed production	
80	73	65	0	111	List three uses for human-made satellites ¹	

¹ Percentages for this question combine "Partial" and "Complete" responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of fourth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	CHARLOTTE	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
30	26	32	ADVANCED	219	<i>Interpret readings from rain gauges</i>
33	27	36		205	<i>Interpret data to conclude conditions needed for seed germination</i>
36	29	38	PROFICIENT	203	Explain what can be learned from fossils
44	32	45		185	Relate air (oxygen) supply to burning time
65	62	68	BASIC	174	<i>Interpret melting point data to determine which item melts first</i>
66	57	66		165	<i>Use data table to determine which day has the most daylight</i>
62	53	62	138	159	Predict and explain water displacement by two objects
76	71	77		139	<i>Identify function of a human structure</i>
75	68	73	0	136	<i>Identify process fish use to obtain oxygen</i>
87	78	87		103	<i>Compare weather data to tell which city has warmer temperatures</i>

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.



For Charlotte Fourth-Graders,

...the overall score was higher than that in large central cities, but lower than it was in the nation.

...the percentages of students at or above *Basic* and at or above *Proficient* were higher than they were in large central cities.

Compared with their peers...

...White, Black, Hispanic, and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities and the nation.

The score gap between...

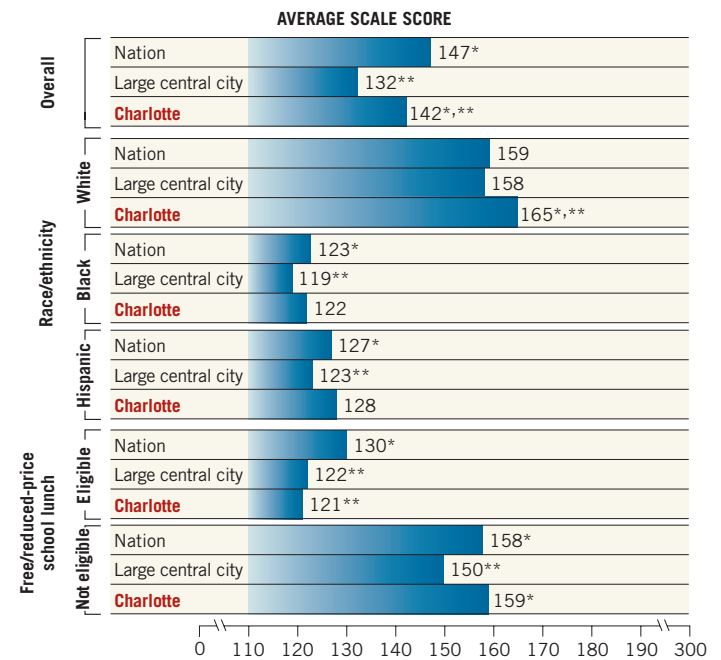
...White and Black students was 35 points—which was not significantly different from the gaps in large central cities and the nation.

...White and Hispanic students was 29 points—which was not significantly different from the gaps in large central cities and the nation.

...higher- and lower-income students was 30 points—which was not significantly different from the gaps in large central cities and the nation.



Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

For Charlotte Eighth-Graders,

- ...the overall score was higher than that in large central cities, but lower than it was in the nation.
- ...the percentages at or above *Basic* and at or above *Proficient* were higher than they were in large central cities.

Compared with their peers...

- ...White students scored higher than those in large central cities and the nation.
- ...Black and Hispanic students had average scores that were not significantly different from those in large central cities and the nation.

The score gap between...

- ...White and Black students was 43 points—which was not significantly different from the gap in large central cities, but wider than the gap in the nation.
- ...White and Hispanic students was 37 points—which was not significantly different from the gaps in large central cities and the nation.
- ...higher- and lower-income students was 37 points—which was wider than the gaps in large central cities and the nation.

Percentage of eighth-grade student responses rated correct or “Complete” on selected NAEP science questions in 2005, by jurisdiction

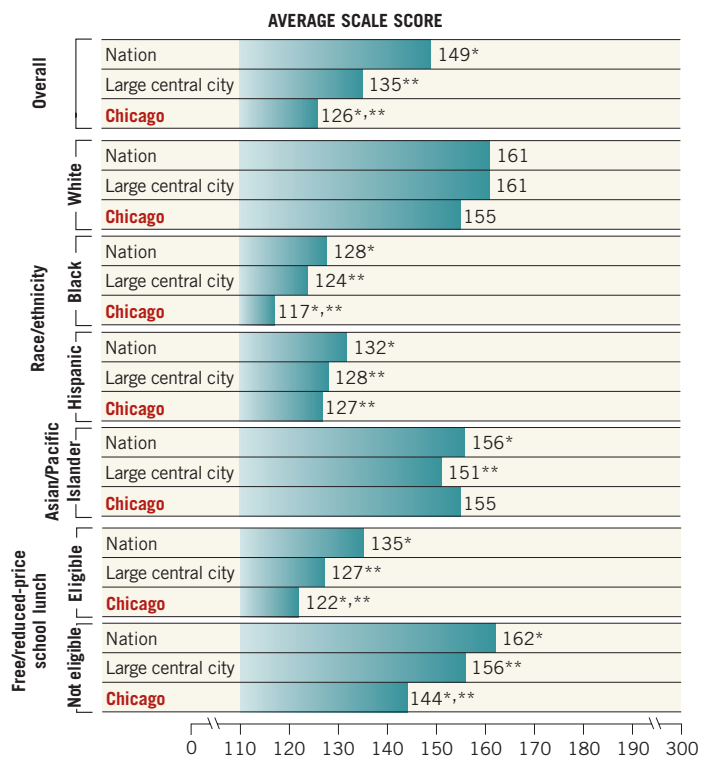
NATION	LARGE CENTRAL CITY	CHARLOTTE	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
			ADVANCED		
22	16	20		230	Explain how to find out if a glass contains salt water
16	9	18	208	218	Describe means by which plants prevent erosion
52	44	40	PROFICIENT		198 <i>Identify location of cell's genetic material</i>
51	42	52		188	<i>Identify zone on a map with a temperate climate</i>
43	32	28		178	Describe experiment to measure the volume of an object
53	43	54	BASIC		162 Explain relative motion of two vehicles
54	44	53		160	Describe effect of pollutant on food web
72	64	66		143	147 <i>Identify an action to reduce carbon dioxide in the atmosphere</i>
77	71	74		136	<i>Identify relationship between rainfall and seed production</i>
80	73	83	0	111	List three uses for human-made satellites ¹

¹ Percentages for this question combine “Partial” and “Complete” responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was Asian/Pacific Islander, American Indian/Alaska Native, or “unclassified” because of small sample sizes. Race categories exclude Hispanic origin. “Score location” is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of fourth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	CHICAGO	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
			ADVANCED	219	<i>Interpret readings from rain gauges</i>
30	26	27		205	<i>Interpret data to conclude conditions needed for seed germination</i>
33	27	18	PROFICIENT	203	Explain what can be learned from fossils
36	29	24		185	Relate air (oxygen) supply to burning time
44	32	24		174	<i>Interpret melting point data to determine which item melts first</i>
65	62	56	BASIC	165	<i>Use data table to determine which day has the most daylight</i>
66	57	50		159	Predict and explain water displacement by two objects
62	53	55	138	139	<i>Identify function of a human structure</i>
76	71	71		136	<i>Identify process fish use to obtain oxygen</i>
75	68	67		103	<i>Compare weather data to tell which city has warmer temperatures</i>
87	78	86	0		

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.



For Chicago Fourth-Graders,

...the overall score was lower than it was in large central cities and in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were lower than they were in large central cities.

Compared with their peers...

...White and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities and the nation.

...Black students scored lower than those in large central cities and the nation.

...Hispanic students had an average score that was not significantly different from the score in large central cities, but was lower than the score in the nation.

The score gap between...

...White and Black students was 38 points—which was not significantly different from the gaps in large central cities and the nation.

...White and Hispanic students was 28 points—which was not significantly different from the gaps in large central cities and the nation.

...higher- and lower-income students was 21 points—which was not significantly different from the gaps in large central cities and the nation.



For Chicago Eighth-Graders,

...the overall score was lower than it was in large central cities and in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were lower than they were in large central cities.

Compared with their peers...

...White and Hispanic students had average scores that were not significantly different from those in large central cities and the nation.

...Black students scored lower than those in large central cities and the nation.

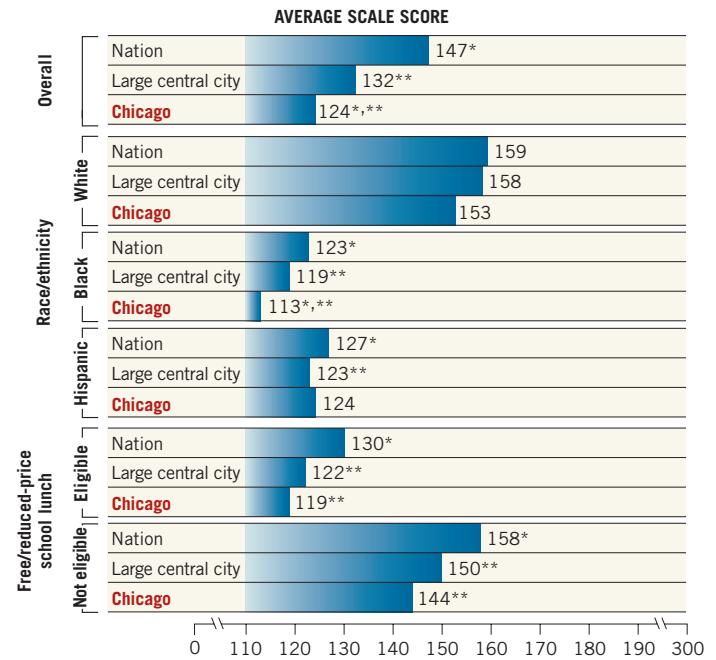
The score gap between...

...White and Black students was 40 points—which was not significantly different from the gaps in large central cities and the nation.

...White and Hispanic students was 29 points—which was not significantly different from the gaps in large central cities and the nation.

...higher- and lower-income students was 25 points—which was not significantly different from the gaps in large central cities and the nation.

Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

Percentage of eighth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

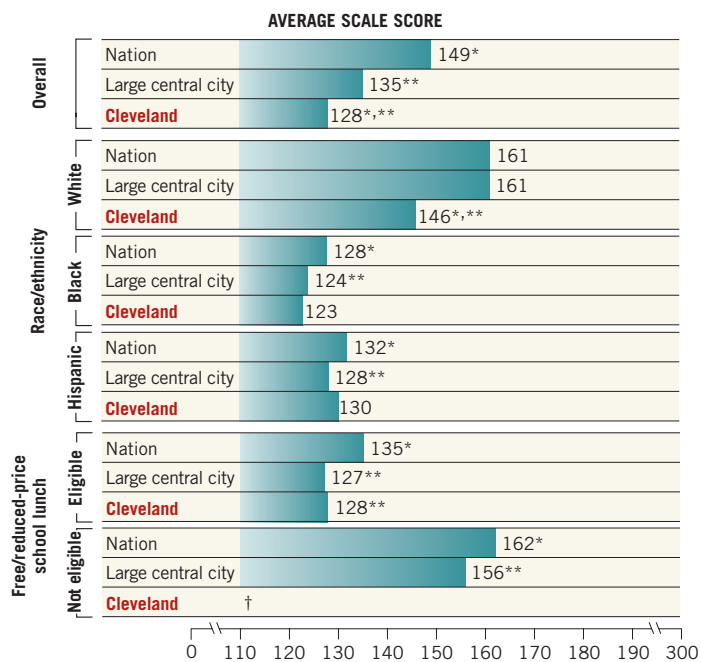
NATION	LARGE CENTRAL CITY	CHICAGO	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION	
			300			
22	16	8	ADVANCED	230	Explain how to find out if a glass contains salt water	
16	9	4		208	218	Describe means by which plants prevent erosion
52	44	42	PROFICIENT	198	<i>Identify location of cell's genetic material</i>	
51	42	35		170	188	<i>Identify zone on a map with a temperate climate</i>
43	32	19		170	178	Describe experiment to measure the volume of an object
53	43	35	BASIC	162	162	Explain relative motion of two vehicles
54	44	38		143	160	Describe effect of pollutant on food web
72	64	60		143	147	<i>Identify an action to reduce carbon dioxide in the atmosphere</i>
77	71	69		0	136	<i>Identify relationship between rainfall and seed production</i>
80	73	67	0	111	List three uses for human-made satellites ¹	

¹ Percentages for this question combine "Partial" and "Complete" responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was Asian/Pacific Islander, American Indian/Alaska Native, or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



† Not applicable. In Cleveland, all students were categorized as eligible for free/reduced-price school lunch.
 * Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

Percentage of fourth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	CLEVELAND	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			ADVANCED	300	
30	26	26		219	<i>Interpret readings from rain gauges</i>
33	27	22	PROFICIENT	205	208 <i>Interpret data to conclude conditions needed for seed germination</i>
36	29	26		203 Explain what can be learned from fossils	
44	32	19	BASIC	170	185 Relate air (oxygen) supply to burning time
65	62	59		174 <i>Interpret melting point data to determine which item melts first</i>	
66	57	47	BASIC	138	165 <i>Use data table to determine which day has the most daylight</i>
62	53	51		159 Predict and explain water displacement by two objects	
76	71	73	BASIC	138	139 <i>Identify function of a human structure</i>
75	68	69		136 <i>Identify process fish use to obtain oxygen</i>	
87	78	83	0	103 <i>Compare weather data to tell which city has warmer temperatures</i>	

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was Asian/Pacific Islander, American Indian/Alaska Native, or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.



For Cleveland Fourth-Graders,

...the overall score was lower than it was in large central cities and the nation.

...the percentages at or above *Basic* and at or above *Proficient* were lower than they were in large central cities.

Compared with their peers...

...White students scored lower than those in large central cities and the nation.

...Black and Hispanic students had average scores that were not significantly different from those in large central cities and the nation.

The score gap between...

...White and Black students was 23 points—which was narrower than the gap in large central cities, but not significantly different from the gap in the nation.

...White and Hispanic students was 16 points—which was narrower than the gaps in large central cities and the nation.



For Cleveland Eighth-Graders,

- ...the overall score was lower than it was in large central cities and the nation.
- ...the percentages at or above *Basic* and at or above *Proficient* were lower than they were in large central cities.

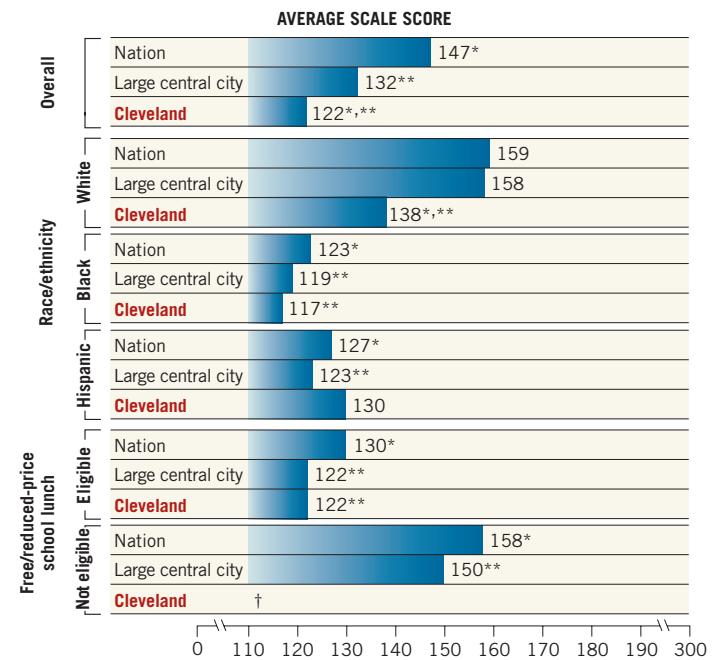
Compared with their peers...

- ...White students scored lower than those in large central cities and the nation.
- ...Black students had an average score that was not significantly different from the score in large central cities, but was lower than the score in the nation.
- ...Hispanic students' average score was not significantly different from the scores in large central cities and the nation.

The score gap between...

- ...White and Black students was 21 points—which was narrower than the gaps in large central cities and the nation.
- ...White and Hispanic students was 8 points—which was narrower than the gaps in large central cities and the nation.

Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



† Not applicable. In Cleveland, all students were categorized as eligible for free/reduced-price school lunch.
 * Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

Percentage of eighth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

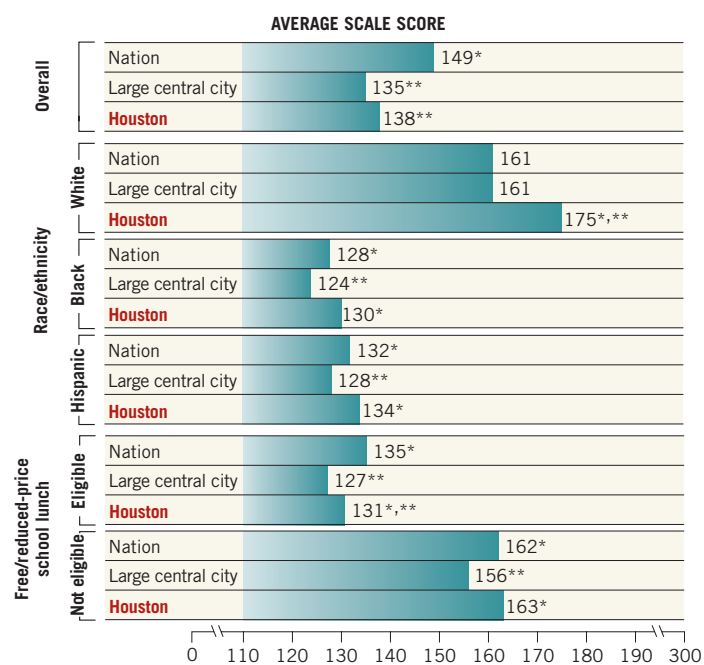
NATION	LARGE CENTRAL CITY	CLEVELAND	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
			208	230	Explain how to find out if a glass contains salt water
				218	Describe means by which plants prevent erosion
			170	198	Identify location of cell's genetic material
				188	Identify zone on a map with a temperate climate
				178	Describe experiment to measure the volume of an object
			143	162	Explain relative motion of two vehicles
				160	Describe effect of pollutant on food web
				147	Identify an action to reduce carbon dioxide in the atmosphere
				136	Identify relationship between rainfall and seed production
				111	List three uses for human-made satellites ¹

¹ Percentages for this question combine "Partial" and "Complete" responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was Asian/Pacific Islander, American Indian/Alaska Native, or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

Percentage of fourth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	HOUSTON	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
			ADVANCED		
30	26	26	205	219	<i>Interpret readings from rain gauges</i>
33	27	25		208	<i>Interpret data to conclude conditions needed for seed germination</i>
36	29	33	PROFICIENT	203	Explain what can be learned from fossils
44	32	30		185	Relate air (oxygen) supply to burning time
65	62	68	170	174	<i>Interpret melting point data to determine which item melts first</i>
66	57	59		BASIC	165
62	53	55	159		Predict and explain water displacement by two objects
76	71	67	138	139	<i>Identify function of a human structure</i>
75	68	73	0	136	<i>Identify process fish use to obtain oxygen</i>
87	78	75		103	<i>Compare weather data to tell which city has warmer temperatures</i>

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was Asian/Pacific Islander, American Indian/Alaska Native, or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.



For Houston Fourth-Graders,

...the overall score was not significantly different from that in large central cities, but lower than it was in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were not significantly different than they were in large central cities.

Compared with their peers...

...White students scored higher than those in large central cities and the nation.

...Black and Hispanic students had average scores that were higher than those in large central cities, but not significantly different from those in the nation.

The score gap between...

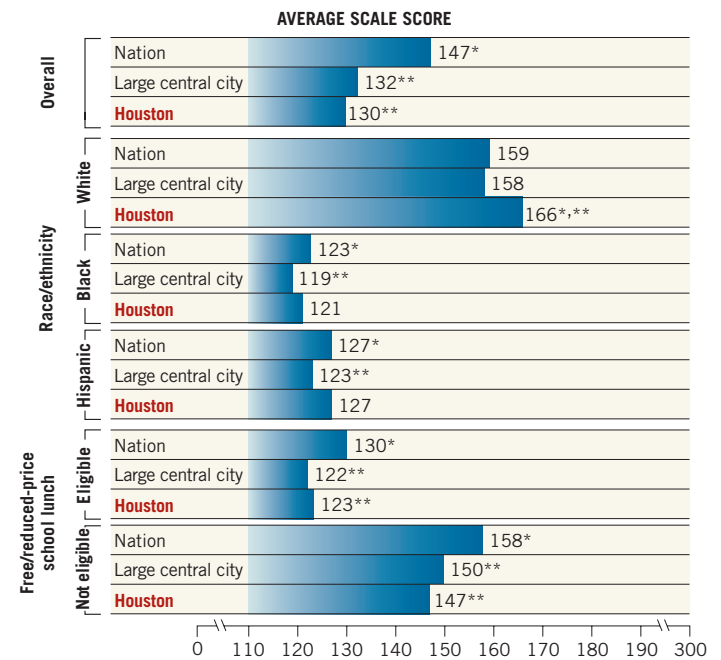
...White and Black students was 45 points—which was wider than the gaps in large central cities and the nation.

...White and Hispanic students was 42 points—which was wider than the gaps in large central cities and the nation.

...higher- and lower-income students was 32 points—which was not significantly different from the gaps in large central cities and the nation.



Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

For Houston Eighth-Graders,

- ...the overall science score was not significantly different from that in large central cities, but lower than it was in the nation.
- ...the percentages at or above *Basic* and at or above *Proficient* were lower than they were in large central cities.

Compared with their peers...

- ...White students scored higher than those in large central cities and the nation.
- ...Black and Hispanic students had average scores that were not significantly different from those in large central cities and the nation.

The score gap between...

- ...White and Black students was 46 points—which was not significantly different from the gap in large central cities, but wider than the gap in the nation.
- ...White and Hispanic students was 39 points—which was not significantly different from the gaps in large central cities and the nation.
- ...higher- and lower-income students was 24 points—which was not significantly different from the gaps in large central cities and the nation.

Percentage of eighth-grade student responses rated correct or “Complete” on selected NAEP science questions in 2005, by jurisdiction

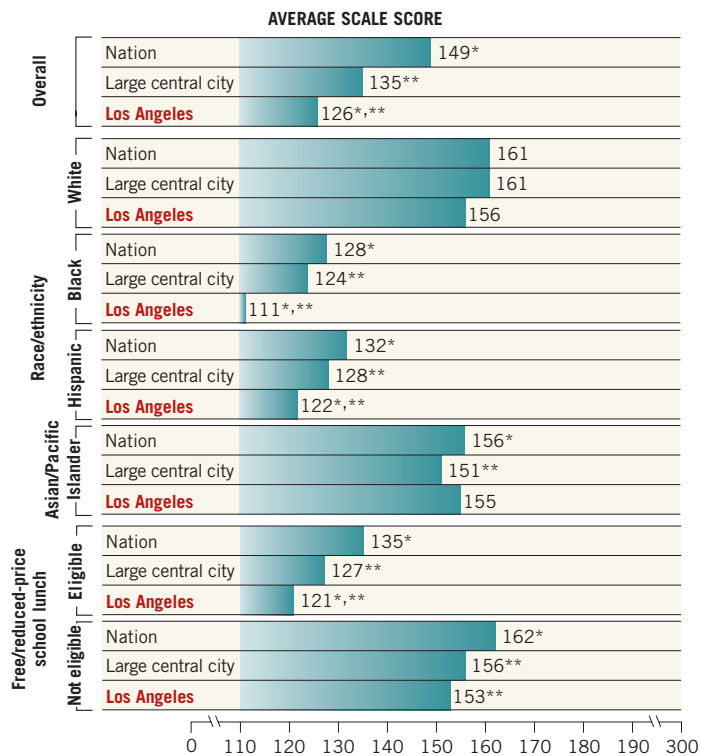
NATION	LARGE CENTRAL CITY	HOUSTON	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
			ADVANCED	230	Explain how to find out if a glass contains salt water
22	16	14		218	Describe means by which plants prevent erosion
			PROFICIENT		
52	44	41		198	Identify location of cell's genetic material
51	42	34		188	Identify zone on a map with a temperate climate
			BASIC		
43	32	34		178	Describe experiment to measure the volume of an object
53	43	39		162	Explain relative motion of two vehicles
54	44	41		160	Describe effect of pollutant on food web
72	64	61		143	Identify an action to reduce carbon dioxide in the atmosphere
			0		
77	71	70		136	Identify relationship between rainfall and seed production
80	73	70		111	List three uses for human-made satellites ¹

¹ Percentages for this question combine “Partial” and “Complete” responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was Asian/Pacific Islander, American Indian/Alaska Native, or “unclassified” because of small sample sizes. Race categories exclude Hispanic origin. “Score location” is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of fourth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	LOS ANGELES	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
			ADVANCED	219	<i>Interpret readings from rain gauges</i>
30	26	30		205	<i>Interpret data to conclude conditions needed for seed germination</i>
33	27	22	PROFICIENT	203	Explain what can be learned from fossils
36	29	28		185	Relate air (oxygen) supply to burning time
44	32	24		174	<i>Interpret melting point data to determine which item melts first</i>
65	62	63	BASIC	165	<i>Use data table to determine which day has the most daylight</i>
66	57	53		159	Predict and explain water displacement by two objects
62	53	46		138	<i>Identify function of a human structure</i>
76	71	64	0	136	<i>Identify process fish use to obtain oxygen</i>
75	68	67		103	<i>Compare weather data to tell which city has warmer temperatures</i>
87	78	61			

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.



For Los Angeles Fourth-Graders,

...the overall score was lower than it was in large central cities and the nation.

...the percentages at or above *Basic* and at or above *Proficient* were lower than they were in large central cities.

Compared with their peers...

...White and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities and the nation.

...Black and Hispanic students scored lower than those in large central cities and the nation.

The gap between...

...White and Black students was 45 points—which was not significantly different from the gap in large central cities, but wider than the gap in the nation.

...White and Hispanic students was 35 points—which was not significantly different from the gaps in large central cities and the nation.

...higher- and lower-income students was 32 points—which was not significantly different from the gaps in large central cities and the nation.



For Los Angeles Eighth-Graders,

...the overall score was lower than it was in large central cities and the nation.

...the percentages at or above *Basic* and at or above *Proficient* were lower than they were in large central cities.

Compared with their peers...

...White, Black, and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities and the nation.

...Hispanic students scored lower than those in large central cities and the nation.

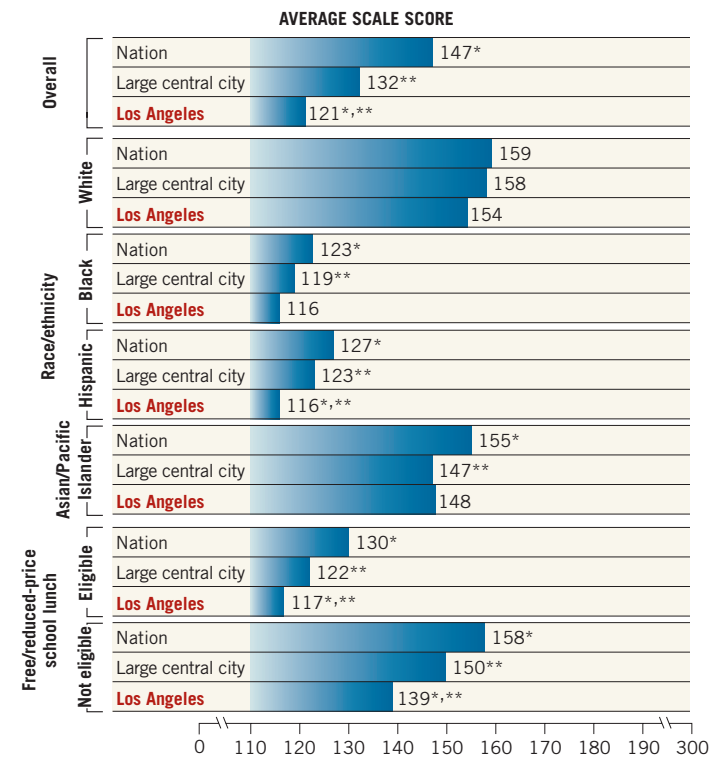
The score gap between...

...White and Black students was 38 points—which was not significantly different from the gaps in large central cities and the nation.

...White and Hispanic students was 38 points—which was not significantly different from the gaps in large central cities and the nation.

...higher- and lower-income students was 22 points—which was not significantly different from the gaps in large central cities and the nation.

Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.
 ** Significantly different ($p < .05$) from nation (public schools).

Percentage of eighth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

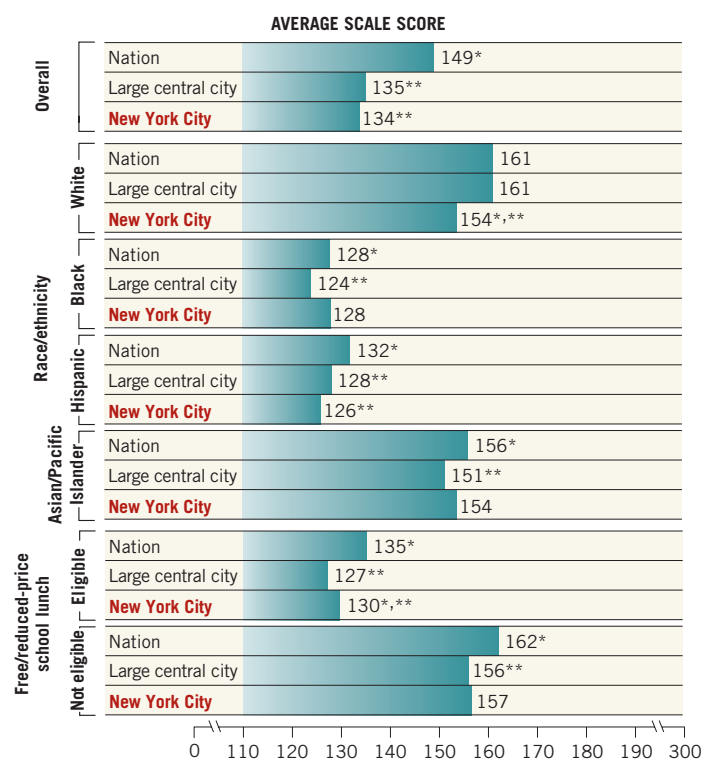
NATION	LARGE CENTRAL CITY	LOS ANGELES	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION	
			300			
22	16	13	ADVANCED	230	Explain how to find out if a glass contains salt water	
16	9	3		208	218	Describe means by which plants prevent erosion
52	44	52	PROFICIENT	198	Identify location of cell's genetic material	
51	42	31		170	188	Identify zone on a map with a temperate climate
43	32	28		170	178	Describe experiment to measure the volume of an object
53	43	40	BASIC	162	Explain relative motion of two vehicles	
54	44	34		143	160	Describe effect of pollutant on food web
72	64	59		143	147	Identify an action to reduce carbon dioxide in the atmosphere
77	71	63		0	136	Identify relationship between rainfall and seed production
80	73	68	0	111	List three uses for human-made satellites ¹	

¹ Percentages for this question combine "Partial" and "Complete" responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of fourth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	NEW YORK CITY	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
			ADVANCED	219	<i>Interpret readings from rain gauges</i>
30	26	17		205	208
36	29	27	PROFICIENT	203	Explain what can be learned from fossils
44	32	28		170	185
65	62	58	BASIC	174	<i>Interpret melting point data to determine which item melts first</i>
66	57	55		165	159
62	53	54	138	139	<i>Identify function of a human structure</i>
76	71	71		136	103
75	68	68	0	103	<i>Compare weather data to tell which city has warmer temperatures</i>
87	78	84			

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.



For New York City Fourth-Graders,

...the overall score was not significantly different from that in large central cities, but lower than it was in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were not significantly different than they were in large central cities.

Compared with their peers...

...White students scored lower than those in large central cities and the nation.

...Black and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities and the nation.

...Hispanic students had an average score that was not significantly different from the score in large central cities, but was lower than the score in the nation.

The score gap between...

...White and Black students was 26 points—which was narrower than the gap in large central cities, but not significantly different from the gap in the nation.

...White and Hispanic students was 28 points—which was not significantly different from the gaps in large central cities and the nation.

...higher- and lower-income students was 27 points—which was not significantly different from the gaps in large central cities and the nation.



For New York City Eighth-Graders,

...the overall score was not significantly different from that in large central cities, but lower than it was in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were not significantly different than they were in large central cities.

Compared with their peers...

...White students scored lower than those in large central cities and the nation.

...Black, Hispanic, and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities and the nation.

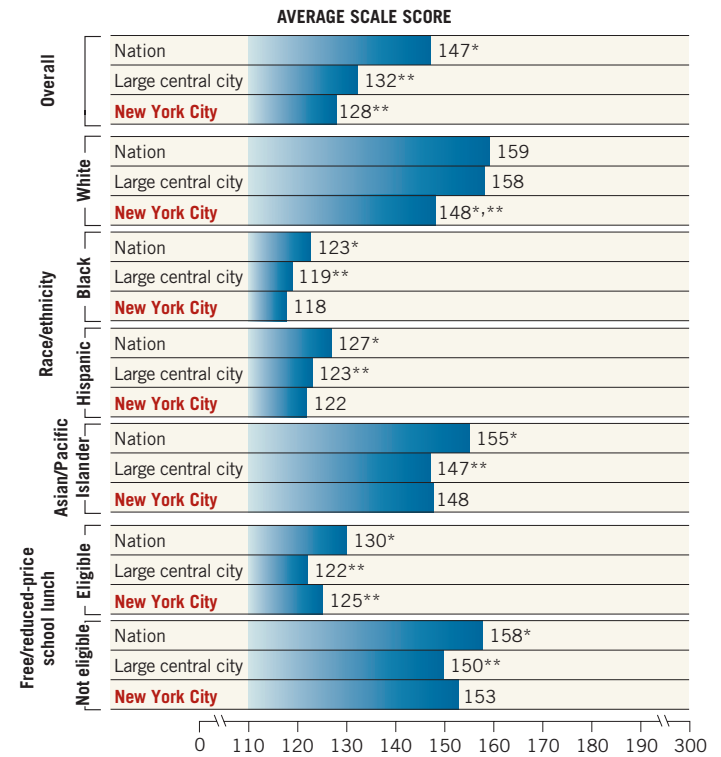
The score gap between...

...White and Black students was 31 points—which was not significantly different from the gaps in large central cities and the nation.

...White and Hispanic students was 27 points—which was not significantly different from the gaps in large central cities and the nation.

...higher- and lower-income students was 28 points—which was not significantly different from the gaps in large central cities and the nation.

Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of eighth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

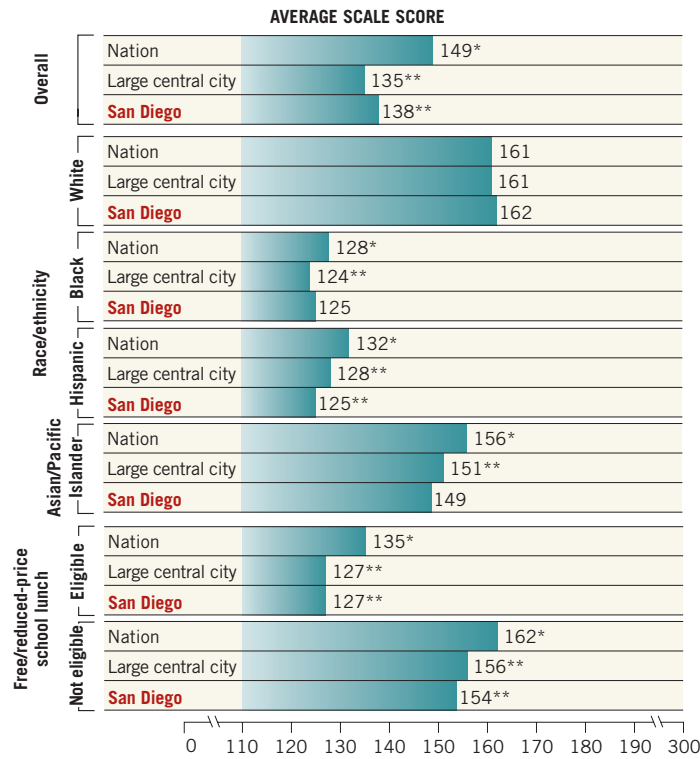
NATION	LARGE CENTRAL CITY	NEW YORK CITY	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION	
			300			
			ADVANCED	230	Explain how to find out if a glass contains salt water	
22	16	13		218	Describe means by which plants prevent erosion	
16	9	8	208			
52	44	40	PROFICIENT	198	Identify location of cell's genetic material	
51	42	50		188	Identify zone on a map with a temperate climate	
43	32	35		178	Describe experiment to measure the volume of an object	
53	43	42	BASIC	162	Explain relative motion of two vehicles	
54	44	45		160	Describe effect of pollutant on food web	
72	64	62		143	147	Identify an action to reduce carbon dioxide in the atmosphere
77	71	75		136	136	Identify relationship between rainfall and seed production
80	73	69	0	111	111	List three uses for human-made satellites ¹

¹ Percentages for this question combine "Partial" and "Complete" responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Average fourth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of fourth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	SAN DIEGO	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION
			300		
			ADVANCED		
30	26	33	205	219	<i>Interpret readings from rain gauges</i>
33	27	29		208	<i>Interpret data to conclude conditions needed for seed germination</i>
36	29	35	PROFICIENT	203	Explain what can be learned from fossils
44	32	34	170	185	Relate air (oxygen) supply to burning time
65	62	63		174	<i>Interpret melting point data to determine which item melts first</i>
66	57	57	BASIC	165	<i>Use data table to determine which day has the most daylight</i>
62	53	59	138	159	Predict and explain water displacement by two objects
76	71	75		139	<i>Identify function of a human structure</i>
75	68	81		136	<i>Identify process fish use to obtain oxygen</i>
87	78	72	0	103	<i>Compare weather data to tell which city has warmer temperatures</i>

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.



For San Diego Fourth-Graders,

...the overall score was not significantly different from that in large central cities, but lower than it was in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were not significantly different than they were in large central cities.

Compared with their peers...

...White, Black, and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities and the nation.

...Hispanic students had an average score that was not significantly different than the score in large central cities, but was lower than the score in the nation.

The score gap between...

...White and Black students was 37 points—which was not significantly different from the gaps in large central cities and the nation.

...White and Hispanic students was 37 points—which was not significantly different from the gap in large central cities, but wider than the gap in the nation.

...higher- and lower-income students was 27 points—which was not significantly different from the gaps in large central cities and the nation.



For San Diego Eighth-Graders,

...the overall score was higher than that in large central cities, but lower than it was in the nation.

...the percentages at or above *Basic* and at or above *Proficient* were higher than they were in large central cities.

Compared with their peers...

...White and Black students had average scores that were not significantly different from those in large central cities and the nation.

...Hispanic and Asian/Pacific Islander students had average scores that were not significantly different from those in large central cities, but were lower than those in the nation.

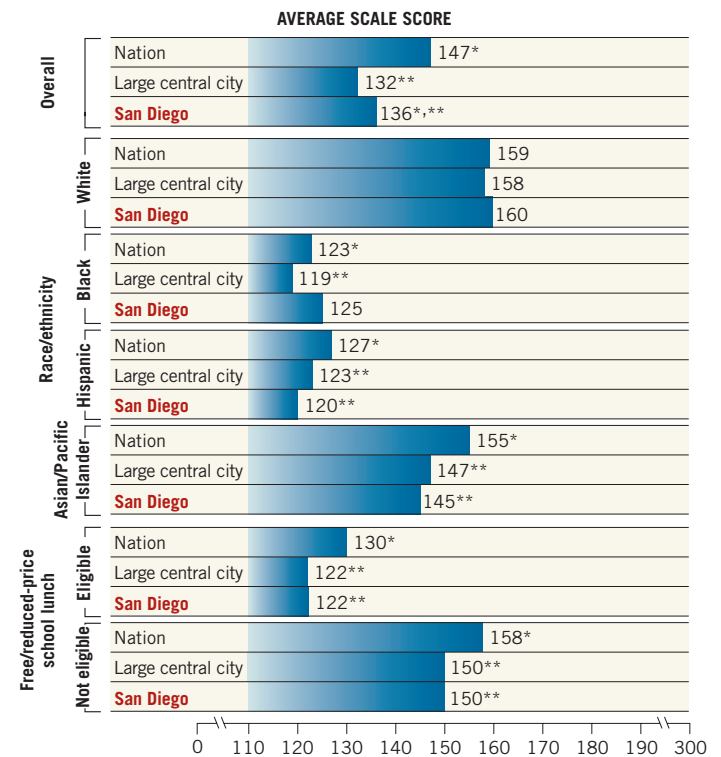
The score gap between...

...White and Black students was 35 points—which was not significantly different from the gaps in large central cities and the nation.

...White and Hispanic students was 40 points—which was not significantly different from the gap in large central cities, but wider than the gap in the nation.

...higher- and lower-income students was 28 points—which was not significantly different from the gaps in large central cities and the nation.

Average eighth-grade NAEP science scores in 2005, by jurisdiction and selected student groups



* Significantly different ($p < .05$) from large central city public schools.

** Significantly different ($p < .05$) from nation (public schools).

Percentage of eighth-grade student responses rated correct or "Complete" on selected NAEP science questions in 2005, by jurisdiction

NATION	LARGE CENTRAL CITY	SAN DIEGO	ACHIEVEMENT LEVEL	SCORE LOCATION	QUESTION DESCRIPTION	
			300			
			ADVANCED	230	Explain how to find out if a glass contains salt water	
				218	Describe means by which plants prevent erosion	
			PROFICIENT	198	Identify location of cell's genetic material	
				188	Identify zone on a map with a temperate climate	
				178	Describe experiment to measure the volume of an object	
			BASIC	162	Explain relative motion of two vehicles	
				160	Describe effect of pollutant on food web	
				143	147	Identify an action to reduce carbon dioxide in the atmosphere
				136	Identify relationship between rainfall and seed production	
			0	111	List three uses for human-made satellites ¹	

¹ Percentages for this question combine "Partial" and "Complete" responses to locate its position on the score scale.

NOTE: Groups not shown are included in overall. Results are not shown for students whose race/ethnicity was American Indian/Alaska Native or "unclassified" because of small sample sizes. Race categories exclude Hispanic origin. "Score location" is described in the footnote on page 25. Multiple-choice questions are shown in *italic* type. Score gaps mentioned in the report are calculated based on differences between unrounded average scores. Cross-jurisdiction significance results are calculated using a multiple-comparison procedure based on all participating districts. Results may vary from those obtained using single-district comparisons, such as those in the single-district snapshot reports.

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 Science Assessment.

Technical Notes and Data Appendix

Participating Districts

In 2005, ten urban public school districts participated in the Trial Urban District Assessment in science at grades 4 and 8. The school district names, as listed 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
- San Diego Unified School District

The results for these districts are for public school students only. The District of Columbia, which participated in the reading and mathematics TUDAs, was unable to participate in the 2005 science assessment because the samples for the mandatory reading and mathematics assessments took up most of their student population. Only a few schools in the District of Columbia participated in the science assessment at each grade in order to provide data for the national sample in science.

NAEP Sampling and Weighting 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 and national samples. These augmented samples allow reliable reporting of student groups within these districts. Students in the TUDA samples are also included in state and national samples. For example, data from students tested in the Los Angeles sample were used to report results for Los Angeles, for California, and for the nation.

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

Table A-1.

School and student participation rates in science for public school students at grades 4 and 8, by urban district in 2005

District	School participation		Student participation rate
	Percentage of schools	Number of schools	
Grade 4			
Atlanta	100	60	94
Austin	100	60	93
Boston	99	80	93
Charlotte	100	60	93
Chicago	100	100	95
Cleveland	100	70	87
Houston	100	90	94
Los Angeles	100	80	93
New York City	100	80	90
San Diego	100	60	93
Grade 8			
Atlanta	100	20	89
Austin	100	20	91
Boston	99	30	90
Charlotte	100	30	89
Chicago	100	100	92
Cleveland	100	40	76
Houston	100	40	88
Los Angeles	99	70	89
New York City	100	80	83
San Diego	100	30	90

NOTE: The number of schools is rounded to the nearest 10.

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 Science Assessment.

school and student participation information for the urban districts for the 2005 science assessment.

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. A table that includes accommodation rates by type and district is available at <http://nces.ed.gov/nationsreportcard/science/acctype.asp>.

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 districts. Comparisons of achievement results across districts should be interpreted with caution if the exclusion rates vary widely. See table A-2 for the science assessment exclusion rates for the urban districts in 2005.

School Participation Rates

In order to ensure reportable samples, NCES and the Governing Board 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 for the original sample needed to be at least 85 percent for schools in each subject and grade. Results are not reported in any instances in which participation rates did not meet the established standards for jurisdictions. In the 2005 science assessment, all states, jurisdictions, and participating urban districts met NAEP participation rate standards at both grades 4 and 8. See table A-1 for participation rates for the urban districts.

Interpreting Statistical Significance

Comparisons 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 5-point difference between male and female students may be statistically significant, while a 6-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/nde/>).

In the tables and charts of this report, asterisks (*) are used to indicate that a score or percentage is significantly different from the comparable measure in 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 but 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 (two-tailed) with appropriate adjustments for multiple comparisons, as well as adjustments for the part-whole relationship when individual districts are compared to results for large central cities.

“Large central city” in this report includes public schools located in large central cities (population of 250,000 or more) throughout the United States within metropolitan statistical areas as defined by the federal Office of Management and Budget. It is not synonymous with “inner city.” Some districts (Austin, Charlotte, Cleveland, Houston, and Los Angeles) encompass a small percentage of schools not classified as large central city. In these cases, 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/nde/>). Selecting the variable “Large central city for urban district comparisons” when making statistical comparisons with selected urban districts will allow comparisons to the appropriate large central city data and will permit the software user to replicate results in this report and to explore additional comparisons. The “Large central city for urban district comparisons” variable includes the data from the small number of schools in the participating TUDA districts in 2005 (and prior years for the reading and mathematics assessments) that fell outside of large central cities.

Table A-2.

Fourth- and eighth-grade public school students identified as students with disabilities and/or English language learners, excluded, and assessed with accommodations in science, as a percentage of all students, by jurisdiction in 2005

Jurisdiction	Grade 4			Grade 8		
	Identified	Excluded	Assessed with accommodations	Identified	Excluded	Assessed with accommodations
SD and/or ELL						
Nation	22	3	10	18	3	9
Large central city	32	5	11	24	4	8
Atlanta	10	2	5	13	2	8
Austin	40	9	17	25	9	5
Boston	33	7	16	26	6	10
Charlotte	21	3	12	18	3	10
Chicago	28	5	9	23	3	12
Cleveland	20	6	11	21	7	12
Houston	45	7	19	24	6	5
Los Angeles	59	6	6	39	3	5
New York City	24	5	16	18	2	14
San Diego	42	5	7	28	4	8
SD						
Nation	14	3	7	13	3	7
Large central city	13	3	7	13	3	6
Atlanta	9	2	5	11	2	7
Austin	17	6	8	13	6	2
Boston	22	5	14	19	5	10
Charlotte	13	2	8	12	2	8
Chicago	13	3	6	17	2	11
Cleveland	16	6	9	19	6	10
Houston	12	5	3	13	4	3
Los Angeles	10	3	5	12	2	4
New York City	14	3	10	10	1	8
San Diego	12	3	5	11	3	4
ELL						
Nation	10	1	3	6	1	1
Large central city	21	3	4	14	2	3
Atlanta	1	#	#	2	#	1
Austin	27	4	11	14	5	4
Boston	15	4	3	9	3	1
Charlotte	9	1	4	7	1	2
Chicago	18	2	4	7	2	2
Cleveland	5	2	2	3	1	2
Houston	36	4	16	14	3	2
Los Angeles	55	5	4	33	2	3
New York City	12	3	8	10	2	7
San Diego	35	4	3	21	2	5

The estimate rounds to zero.

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), 2005 Trial Urban District Science Assessment.

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