

**2009 Science Assessment Content**

Guided by a new framework, the NAEP science assessment was updated in 2009 to keep the content current with key developments in science, curriculum standards, assessments, and research. The 2009 framework organizes science content into three broad content areas.

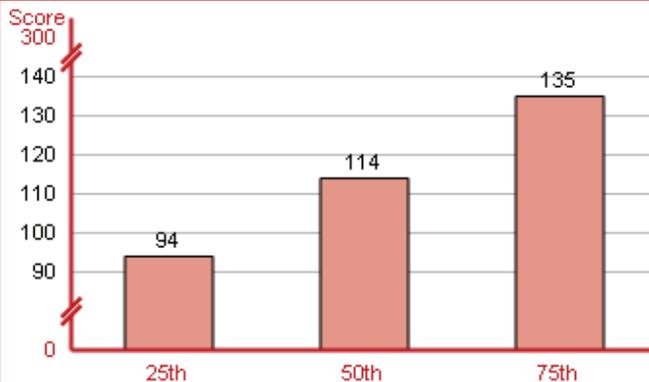
**Physical science** includes concepts related to properties and changes of matter, forms of energy, energy transfer and conservation, position and motion of objects, and forces affecting motion.

**Life science** includes concepts related to organization and development, matter and energy transformations, interdependence, heredity and reproduction, and evolution and diversity.

**Earth and space sciences** includes concepts related to objects in the universe, the history of the Earth, properties of Earth materials, tectonics, energy in Earth systems, climate and weather, and biogeochemical cycles.

The 2009 science assessment was composed of 143 questions at grade 4, 162 at grade 8, and 179 at grade 12. Students responded to only a portion of the questions, which included both multiple-choice questions and questions that required a written response.

**Scores at Selected Percentiles**

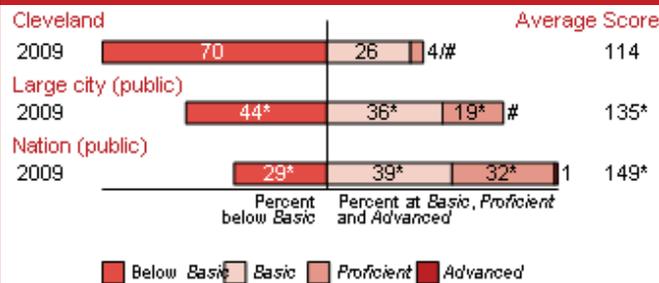


NOTE: Scores at selected percentiles on the NAEP science scale indicate how well students at lower, middle, and higher levels performed.

**Overall Results**

- In 2009, the average score of fourth-grade students in Cleveland was 114. This was lower than the average score of 135 for public school students in large cities.
- The percentage of students in Cleveland who performed at or above the NAEP *Proficient* level was 4 percent in 2009. This percentage was smaller than large cities (20 percent).
- The percentage of students in Cleveland who performed at or above the NAEP *Basic* level was 30 percent in 2009. This percentage was smaller than large cities (56 percent).

**Achievement-Level Percentages and Average Score Results**



\* Significantly different ( $p < .05$ ) from Cleveland. Significance tests were performed using unrounded numbers.  
# Rounds to zero.

NOTE: Detail may not sum to totals because of rounding. Large city (public) includes public schools located in the urbanized areas of cities with populations of 250,000 or more.

**Results for Student Groups in 2009**

Reporting Groups	Percent of students	Avg. score	Percentages at or above		Percent at Advanced
			Basic	Proficient	
<b>Gender</b>					
Male	49	115	30	5	#
Female	51	114	29	4	#
<b>Race/Ethnicity</b>					
White	16	136	61	15	#
Black	68	109	22	2	#
Hispanic	12	113	26	4	#
Asian/Pacific Islander	#	‡	‡	‡	‡
American Indian/Alaska Native	#	‡	‡	‡	‡
<b>National School Lunch Program</b>					
Eligible	100	114	30	4	#
Not eligible	#	‡	‡	‡	‡

# Rounds to zero. ‡ Reporting standards not met.

NOTE: Detail may not sum to totals because of rounding, and because the "Information not available" category for the National School Lunch Program, which provides free/reduced-price lunches, and the "Unclassified" category for race/ethnicity are not displayed.

**Score Gaps for Student Groups**

- In 2009, male students in Cleveland had an average score that was not significantly different from female students.
- In 2009, Black students had an average score that was 27 points lower than White students. This performance gap was narrower than large cities (40 points).
- In 2009, Hispanic students had an average score that was 23 points lower than White students. This performance gap was narrower than large cities (36 points).
- Data are not reported for students who were not eligible for free/reduced-price school lunch in Cleveland, because reporting standards were not met.