

**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.

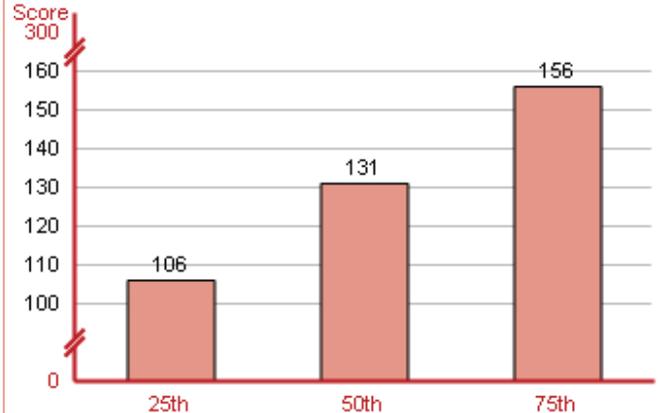
**Physical science** includes concepts related to properties and changes of matter, forms of energy, energy transfer and conservation, position and motion of objects, and forces affecting motion.

**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**

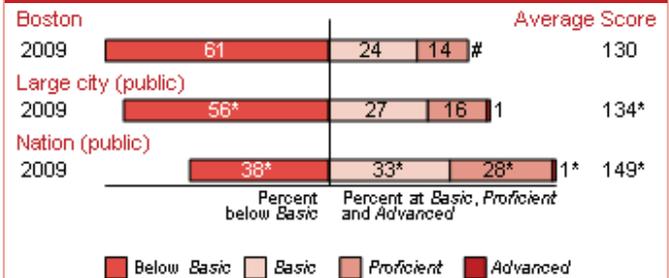


NOTE: Scores at selected percentiles on the NAEP science scale indicate how well students at lower, middle, and higher levels performed.

**Overall Results**

- In 2009, the average score of eighth-grade students in Boston was 130. This was lower than the average score of 134 for public school students in large cities.
- The percentage of students in Boston who performed at or above the NAEP *Proficient* level was 15 percent in 2009. This percentage was not significantly different from large cities (17 percent).
- The percentage of students in Boston who performed at or above the NAEP *Basic* level was 39 percent in 2009. This percentage was smaller than large cities (44 percent).

**Achievement Level Percentages and Average Score Results**



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

NOTE: The percentage at *Advanced* was higher in the Nation (0.68) than in Boston (0.48). 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	
Gender					
Male	49	132	41	18	1
Female	51	128	37	12	#
Race/Ethnicity					
White	14	160	74	44	2
Black	41	120	26	6	#
Hispanic	34	123	31	8	#
Asian/Pacific Islander	10	157	74	35	2
American Indian/Alaska Native	1	‡	‡	‡	‡
National School Lunch Program					
Eligible	73	123	31	9	#
Not eligible	24	148	59	31	2

# 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 Boston had an average score that was not significantly different from female students.
- In 2009, Black students had an average score that was 40 points lower than White students. This performance gap was not significantly different from large cities (39 points).
- In 2009, Hispanic students had an average score that was 37 points lower than White students. This performance gap was not significantly different from large cities (33 points).
- In 2009, students who were eligible for free/reduced-price school lunch, an indicator of low family income, had an average score that was 25 points lower than students who were not eligible for free/reduced-price school lunch. This performance gap was not significantly different from large cities (27 points).