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.

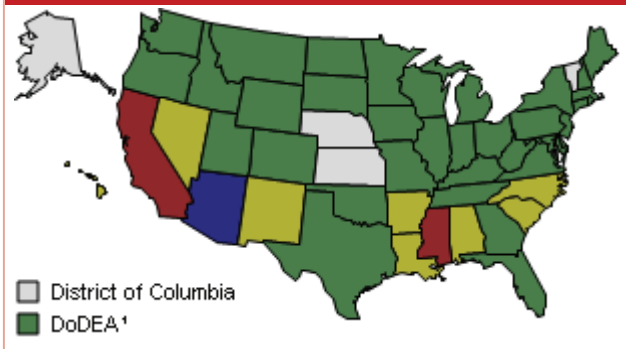
Physical science includes concepts related to properties and changes of matter, forms of energy, energy transfer and conservation, position and motion of objects, and forces affecting motion.

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.

Compare the Average Score in 2009 to Other States/Jurisdictions



[1] Department of Defense Education Activity (overseas and domestic schools).

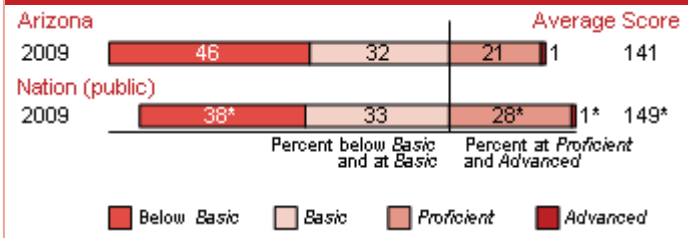
In 2009, the average score in **Arizona** was

- lower than those in 36 states/jurisdictions
- higher than those in 2 states/jurisdictions
- not significantly different from those in 8 states/jurisdictions
- 5 states/jurisdictions did not participate

Overall Results

- In 2009, the average score of eighth-grade students in Arizona was 141. This was lower than the average score of 149 for public school students in the nation.
- The percentage of students in Arizona who performed at or above the NAEP *Proficient* level was 22 percent in 2009. This percentage was smaller than the nation (29 percent).
- The percentage of students in Arizona who performed at or above the NAEP *Basic* level was 54 percent in 2009. This percentage was smaller than the nation (62 percent).

Achievement-Level Percentages and Average Score Results



* Significantly different ($p < .05$) from Arizona. Significance tests were performed using unrounded numbers.

NOTE: The percentage at *Advanced* was higher in the Nation (1.40) than in Arizona (0.81). Detail may not sum to totals because of rounding.

Results for Student Groups in 2009

Reporting Groups	Percent of students	Avg. score	Percentages at or above *Basic*	Percentages at or above *Proficient*	Percent at *Advanced*
Gender					
Male	51	143	56	26	1
Female	49	139	51	18	#
Race/Ethnicity					
White	45	157	74	35	1
Black	5	126	37	8	#
Hispanic	42	127	36	10	#
Asian/Pacific Islander	3	159	68	43	5
American Indian/Alaska Native	5	126	35	7	#
National School Lunch Program					
Eligible	47	127	36	10	#
Not eligible	51	154	69	32	1

Rounds to zero.

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 Arizona had an average score that was higher than female students.
- In 2009, Black students had an average score that was 32 points lower than White students. This performance gap was not significantly different from the nation (36 points).
- In 2009, Hispanic students had an average score that was 31 points lower than White students. This performance gap was not significantly different from the nation (30 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 26 points lower than students who were not eligible for free/reduced-price school lunch. This performance gap was not significantly different from the nation (28 points).

NOTE: Statistical comparisons are calculated on the basis of unrounded scale scores or percentages.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.