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.

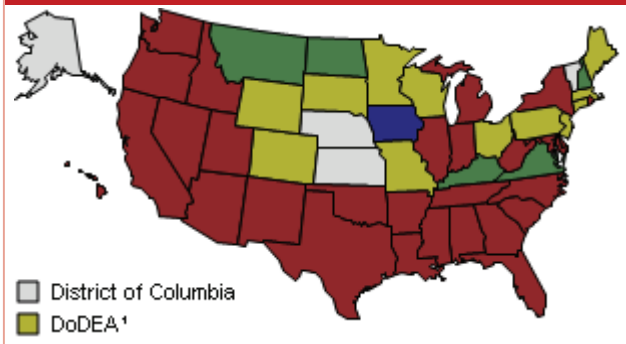
Physical science includes concepts related to properties and changes of matter, forms of energy, energy transfer and conservation, position and motion of objects, and forces affecting motion.

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).

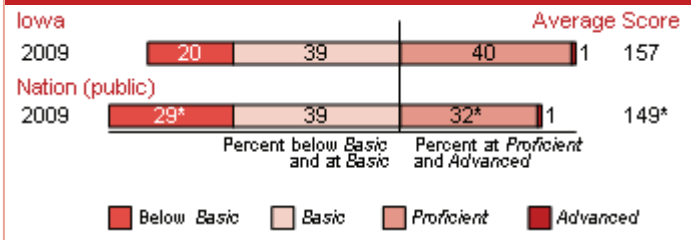
In 2009, the average score in **Iowa** was

- lower than those in 5 states/jurisdictions
- higher than those in 28 states/jurisdictions
- not significantly different from those in 13 states/jurisdictions
- 5 states/jurisdictions did not participate

Overall Results

- In 2009, the average score of fourth-grade students in Iowa was 157. This was higher than the average score of 149 for public school students in the nation.
- The percentage of students in Iowa who performed at or above the NAEP *Proficient* level was 41 percent in 2009. This percentage was greater than the nation (32 percent).
- The percentage of students in Iowa who performed at or above the NAEP *Basic* level was 80 percent in 2009. This percentage was greater than the nation (71 percent).

Achievement-Level Percentages and Average Score Results



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

NOTE: 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	158	80	42	1
Female	49	157	80	40	1
Race/Ethnicity					
White	84	161	85	45	1
Black	5	130	50	14	#
Hispanic	8	134	60	15	#
Asian/Pacific Islander	2	156	76	43	1
American Indian/Alaska Native	#	‡	‡	‡	‡
National School Lunch Program					
Eligible	37	142	66	21	#
Not eligible	63	167	89	53	1

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 Iowa had an average score that was not significantly different from female students.
- In 2009, Black students had an average score that was 31 points lower than White students. This performance gap was not significantly different from the nation (35 points).
- In 2009, Hispanic students had an average score that was 27 points lower than White students. This performance gap was narrower than the nation (32 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 narrower than the nation (29 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.