This report provides selected results for Wyoming's public school students at grades 4 and 8 from the National Assessment of Educational Progress (NAEP) assessment in science. Results are reported by average scale scores and by achievement levels (*Basic, Proficient*, and *Advanced*).

Forty-six states and the Department of Defense Education Activity schools (DoDEA) participated in the 2009 science assessment at grades 4 and 8.

For more information about the assessment, see the NAEP website http://nces.ed.gov/nationsreportcard/ that contains
• *The Nation's Report Card: Science 2009*
• The full set of national and state results in an interactive database
• Released test questions, scoring guides, and question-level performance data

NAEP is a project of the National Center for Education Statistics (NCES), reporting on the academic achievement of elementary and secondary students in the United States.

KEY FINDINGS FOR 2009

Grade 4:

- In 2009, the average science score for fourth-grade students in Wyoming was 156. This was higher than that of the nation's public schools (149).
- In 2009, the percentage of students in Wyoming who performed at or above *Proficient* was 37 percent. This was greater than that for the nation's public schools (32 percent).
- In 2009, the percentage of students in Wyoming who performed at or above *Basic* was 80 percent. This was greater than that for the nation's public schools (71 percent).

Grade 8:

- In 2009, the average science score for eighth-grade students in Wyoming was 158. This was higher than that of the nation's public schools (149).
- In 2009, the percentage of students in Wyoming who performed at or above *Proficient* was 36 percent. This was greater than that for the nation's public schools (29 percent).
- In 2009, the percentage of students in Wyoming who performed at or above *Basic* was 74 percent. This was greater than that for the nation's public schools (62 percent).

Introduction

What Was Assessed?

The content for each NAEP assessment is determined by the National Assessment Governing Board. The framework for each assessment documents the content and process areas to be measured and sets guidelines for the types of questions to be used. The development process for the science framework required the active participation of teachers, curriculum specialists, subject-matter specialists, local school administrators, parents, and other members of the general public. The current framework is available at the Governing Board's website http://nagb.org/publications/frameworks/science-09.pdf.

The 2009 NAEP science framework approved by the Governing Board replaces the framework used for the 1996, 2000, and 2005 science assessments. A variety of factors made it necessary to create a new framework to guide the assessment of science in 2009 and beyond: the publication of *National Standards* for science literacy, advances in both science and cognitive research, the growth in national and international science assessments, advances in innovative assessment approaches, and the need to fairly assess the widest possible range of students.

Assessment Criteria

Each question in the 2009 science assessment was classified based on two criteria: *science content* and *science practices*. By considering these two criteria for each question, the framework ensures that NAEP assesses an appropriate balance of content along with a variety of ways of knowing and doing science.

SCIENCE CONTENT

The science content for the 2009 NAEP is defined by a series of statements that describe key facts, concepts, principles, laws, and theories in three broad areas:

- Physical Science
- Life Science
- Earth and Space Sciences

Physical Science deals with matter, energy, and motion; Life Science with structures and functions of living systems and changes in living systems; and Earth and Space Sciences with Earth in space and time, Earth structures, and Earth systems.

SCIENCE PRACTICES

The second aspect of the framework is defined by four science practices, which

focus on what students should know and be able to do in science:

- Identifying Science Principles
- Using Science Principles
- Using Scientific Inquiry
- Using Technological Design

Assessment Design

The assessment design allowed for broad coverage at each grade of the three science content areas and four science practices, while minimizing the time burden for any one student. Each student in the state assessment was asked to complete two 25-minute sections. Each section contained between 14 and 18 questions depending on the balance between multiple-choice and constructed-response questions. Released NAEP science questions, along with student performance data by state, are available on the NAEP website at http://nces.ed.gov/nationsreportcard/itmrls/.

Who Was Assessed?

Forty-six states and the Department of Defense Schools participated in the 2009 science assessment at grades 4 and 8.

The overall participation rates for schools and students must meet guidelines established by the National Center for Education Statistics (NCES) and the National Assessment Governing Board for assessment results to be reported publicly. A participation rate of at least 85 percent for schools in each subject and grade was required. Participation rates for the 2009 science assessment are available on the NAEP website http://nationsreportcard.gov/science_2009/participation.asp.

The schools and students participating in NAEP assessments are selected to be representative both nationally and for public schools at the state level. The comparisons between national and state results in this report present the performance of public school students only. In NAEP reports, the category "nation (public)" does not include Department of Defense or Bureau of Indian Education schools.

How Is Student Science Performance Reported?

The 2009 state results are compared to results from the nation at each grade.

Scale Scores: Student performance is reported as an average score based on the NAEP science scale, which ranges from 0 to 300. Because NAEP scales are developed independently for each subject and for each content area within a subject, the scores cannot be compared across subjects or across content areas within the same subject. In addition, because the NAEP science scales are developed independently for each grade, the scores cannot be compared across the grades. Results are also reported at five percentiles (10th, 25th, 50th, 75th, and 90th) to show trends in performance for lower-, middle-, and higher-performing students.

Achievement Levels: Based on recommendations from policymakers, educators, and members of the general public, the Governing Board sets specific achievement levels for each subject area and grade. Achievement levels are performance standards indicating what students should know and be able to do. They provide another perspective with which to interpret student performance. NAEP results are reported in terms of three achievement levels—*Basic*, *Proficient*, and *Advanced*—and are expressed in terms of the percentage of students who attained each level. The achievement levels cannot be compared across grades. The three achievement levels are defined as follows:

- *Basic* denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
- *Proficient* represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and appropriate analytical skills.
- *Advanced* represents superior performance.

The achievement levels are cumulative; therefore, students performing at the *Proficient* level also display the competencies associated with the *Basic* level, and students at the *Advanced* level also demonstrate the competencies associated with both the *Basic* and the *Proficient* levels.

As provided by law, 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. The NAEP achievement levels have been widely used by national and state officials. The science achievement-level descriptions are summarized in figures 1-A and 1-B.

Figure 1-A	The Nation's Report Card 2009 State Assessment
	Descriptions of fourth-grade achievement levels for 2009 NAEP science assessment

Basic Level (131)	Students performing at the *Basic* level should be able to describe, measure, and classify familiar objects in the world around them, as well as explain and make predictions about familiar processes. These processes include changes of states of matter, movements of objects, basic needs and life cycles of plants and animals, changes in shadows during the day, and changes in weather. They should be able to critique simple observational studies, communicating observations and basic measurements of familiar systems and processes, and look for patterns in their observations. With regard to scientific constraints, they should also be able to propose and critique alternative solutions to problems involving familiar systems and processes.

Science Practices: Students performing at the *Basic* level should be able to describe, measure, and classify familiar objects in the world around them, as well as explain and make predictions about familiar processes, using evidence to support their observations and conclusions. They should be able to critique simple observational studies, communicate observations and basic measurements of familiar systems and processes, and look for patterns in their observations. They should also be able to propose and recognize alternative solutions to problems involving familiar systems and processes.

In the physical sciences, students performing at the *Basic* level should be able to describe the properties of the states of matter, describe how to change matter from one state to another, describe different forms of energy, predict the electrical energy transfers that will take place in a simple circuit, critique alternative explanations for changes in a moving object's position, and design an investigation to show how exerting a force on an object changes the object's motion.

In the life sciences, students performing at the *Basic* level should be able to identify the stages in the life cycles of familiar organisms; describe how familiar animals meet their basic needs for food, air, water, and shelter; observe and describe the changes in plants and animals during their life cycles; and describe how environments meet the survival needs of familiar plants and animals.

In the Earth and space sciences, students performing at the *Basic* level should be able to predict changes in the length and position of shadows cast by the sun, describe how slow Earth processes (e.g., erosion) and fast Earth processes (e.g., volcanic eruption) can change Earth's surface, distinguish between natural and manmade materials, choose and use a tool to monitor how weather conditions change, and identify Earth resources that are limited.

Proficient Level (167)	Students performing at the *Proficient* level should be able to demonstrate relationships among closely related science concepts, as well as analyze alternative explanations or predictions. They should be able to explain how changes in temperature cause changes of state, how forces can change motion, how adaptations help plants and animals meet their basic needs, how environmental changes can affect their growth and survival, how land formations can result from Earth processes, and how recycling can help conserve limited resources. They should be able to identify patterns in data and/or explain these patterns. They should also be able to identify and critique alternative responses to design problems.

Science Practices: Students performing at the *Proficient* level should be able to demonstrate relationships among closely related science concepts and familiar phenomena around them, as well as analyze alternative explanations or predictions, using evidence to support their explanations and predictions; critique observational studies and simple investigations; identify patterns in data and/or explain those patterns in data; and apply scientific ideas to identify and critique alternative designs to problems that personally affect them.
In the physical sciences, students performing at the *Proficient* level should be able to demonstrate the relationship between temperature change and changes in the physical properties of matter, explain how energy in one form can be changed into another form, design an investigation that measures how temperature changes when energy is added to a substance, propose a design for a container that will maintain the temperature of an object that is above or below room temperature, and measure changes in position of an object in motion as different forces are applied.
In the life sciences, students performing at the *Proficient* level should be able to describe needs of familiar plants and animals at different stages of their life cycles, explain adaptations of familiar plants and animals to their environments, predict effects of environmental changes on plant or animal growth and survival, and apply information about an animal's basic needs to propose a supportive environment.
In the Earth and space sciences, students performing at the *Proficient* level should be able to explain how the Sun's changing position in the sky during the day affects shadows; interpret land formations as resulting from either slow (e.g., erosion) or rapid (e.g., volcanic eruption) Earth processes; explain how natural materials can help sustain the lives of familiar plants and animals; identify how patterns of weather conditions change from season to season; and explain how the practices of recycling, reusing, and reducing help to conserve limited resources.

	Students performing at the *Advanced* level should be able to demonstrate relationships among different representations of science principles, as well as propose alternative explanations or

Advanced Level (224)	predictions of phenomena. They should be able to use numbers, drawings, and graphs to describe and explain motions of objects; analyze how environmental conditions affect growth and survival of plants and animals; describe changes in the Sun's path through the sky at different times of year; and describe how human uses of Earth materials affect the environment. They should be able to design studies that use sampling strategies to obtain evidence. They should also be able to propose and critique alternative individual and local community responses to design problems.

Science Practices: Students performing at the *Advanced* level should be able to demonstrate relationships among different representations of principles, as well as propose alternative explanations or predictions of familiar phenomena, using evidence to support their explanations and predictions; design observational studies or simple investigations to validate or criticize explanations or predictions and use sampling strategies to obtain evidence; and propose and critique alternative individual and local community responses to design problems.
In the physical sciences, students at the *Advanced* level should be able to demonstrate the relationship between the quantity of energy needed to change the state of a sample of a substance and the weight of the sample, demonstrate how different representations (i.e., verbal, numerical, graphical) can be used to show the motion of an object, suggest an example of how the motion of an object can be changed without touching it, and design an investigation that demonstrates how long it takes different forms of energy to change the temperature of matter.
In the life sciences, students at the *Advanced* level should be able to evaluate relationships between changing environmental conditions and organisms' growth, survival, and reproduction; analyze environments for how they may have different effects on the growth and survival of plants or animals of the same kind; and investigate the relationship between light and plant growth.
In the Earth and space sciences, students at the *Advanced* level should be able to relate changes in the Sun's daily path through the sky to different times of year, suggest examples of Earth materials that can be modified to meet human needs, explain how erosion is caused by daily/seasonal weather events, propose methods of reducing the amount of erosion, describe how humans can change environments that can be either detrimental or beneficial for themselves and other organisms, and describe how the use of Earth materials by humans impacts the environment.

NOTE: The scores in parentheses indicate the lowest point on the scale at which the achievement-level range begins.
SOURCE: National Assessment Governing Board. (2008). *Science Framework for the 2009 National Assessment of Educational Progress*. Washington, DC: Author.

Figure 1-B	The Nation's Report Card 2009 State Assessment
	Descriptions of eighth-grade achievement levels for 2009 NAEP science assessment

Basic Level (141)	Students performing at the *Basic* level should be able to state or recognize correct science principles. They should be able to explain and predict observations of natural phenomena at multiple scales, from microscopic to global. They should be able to describe properties and common physical and chemical changes in materials; describe changes in potential and kinetic energy of moving objects; describe levels of organization of living systems—cells, multicellular organisms, and ecosystems; identify related organisms based on hereditary traits; describe a model of the solar system; and describe the processes of the water cycle. They should be able to design observational and experimental investigations employing appropriate tools for measuring variables. They should be able to propose and critique the scientific validity of alternative individual and local community responses to design problems.

Science Practices: Students performing at the *Basic* level should be able to state or recognize correct science principles; explain and predict observations of natural phenomena at multiple scales, from microscopic to global, using evidence to support their explanations and predictions; design investigations employing appropriate tools for measuring variables; and propose and critique the scientific validity of alternative individual and local community responses to design problems.

In the physical sciences, students at the *Basic* level should be able to recognize a class of chemical compounds by its properties; design an investigation to show changes in properties of reactants and products in a chemical process such as burning or rusting; describe the changes in kinetic and potential energy of an object such as a swinging pendulum; describe and compare the motions of two objects moving at different speeds from a table of their position and time data; describe the direction of all forces acting on an object; and suggest an example of a system in which forces are acting on an object but the motion of the object does not change.

In the life sciences, students at the *Basic* level should be able to identify levels of organization within cells, multicellular organisms, and ecosystems; describe how changes in an environment relate to an organism's survival; describe types of interdependence in ecosystems; identify related organisms based on hereditary traits; discuss the needs of animals and plants to support growth and metabolism; and analyze and display data showing simple patterns in population growth.

In the Earth and space sciences, students at the *Basic* level should be able to

describe a Sun-centered model of the solar system that illustrates how gravity keeps the objects in regular motion; describe how fossils and rock formations can be used as evidence to infer events in Earth's history; relate major geologic events, such as earthquakes, volcanoes, and mountain building to the movement of lithospheric plates; use weather data to identify major weather events; and describe the processes of the water cycle including changes in the physical state of water.

Proficient Level (170)	Students performing at the *Proficient* level should be able to demonstrate relationships among closely related science principles. They should be able to identify evidence of chemical changes; explain and predict motions of objects using position-time graphs; explain metabolism, growth, and reproduction in cells, organisms, and ecosystems; use observations of the Sun, Earth, and Moon to explain visible motions in the sky; and predict surface and groundwater movements in different regions of the world. They should be able to explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle. They should be able to use evidence from investigations in arguments that accept, revise, or reject scientific models. They should be able to use scientific criteria to propose and critique alternative individual and local community responses to design problems.

Science Practices: Students performing at the *Proficient* level should be able to demonstrate relationships among closely related science principles; explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle; design investigations requiring control of variables to test a simple model, employing appropriate sampling techniques and data quality review processes, and use the evidence to communicate an argument that accepts, revises, or rejects the model; and propose and critique solutions and predict the scientific validity of alternative individual and local community responses to design problems.

In the physical sciences, students at the *Proficient* level should be able to demonstrate the relationship between the properties of chemical elements and their position on the periodic table; use empirical evidence to demonstrate that a chemical change has occurred; demonstrate the relationship of the motion of an object that experiences multiple forces with the representation of the motion on a position-time graph; predict the position of a moving object based on the position-time data presented in a table; and suggest examples of systems in which potential energy is converted into other forms of energy.

In the life sciences, students at the *Proficient* level should be able to explain metabolism, growth, and reproduction at multiple levels of living systems: cells, multicellular organisms, and ecosystems; predict the effects of heredity and

environment on an organism's characteristics and survival; use sampling strategies to estimate population sizes in ecosystems; and suggest examples of sustainable systems for multiple organisms.
In the Earth and space sciences, students at the *Proficient* level should be able to explain how gravity accounts for the visible patterns of motion of the Earth, Sun, and Moon; explain how fossils and rock formations are used for relative dating; use models of Earth's interior to explain lithospheric plate movement; explain the formation of Earth materials using the properties of rocks and soils; identify recurring patterns of weather phenomena; and predict surface and groundwater movement in different regions of the world.

Advanced Level (215)	Students performing at the *Advanced* level should be able to develop alternative representations of science principles and explanations of observations. They should be able to use information from the periodic table to compare families of elements; explain changes of state in terms of energy flow; trace matter and energy through living systems at multiple scales; predict changes in populations through natural selection and reproduction; use lithospheric plate movement to explain geological phenomena; and identify relationships among regional weather and atmospheric and ocean circulation patterns. They should be able to design and critique investigations involving sampling processes, data quality review processes, and control of variables. They should be able to propose and critique alternative solutions that reflect science-based trade-offs for addressing local and regional problems.

Science Practices: Students performing at the *Advanced* level should be able to demonstrate relationships among different representations of science principles. They should be able to explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and develop alternative explanations of observations, using evidence to support their thinking. They should be able to design control of variable investigations employing appropriate sampling techniques and data quality review processes that strengthen the evidence used to argue for one alternate model over another. They should be able to propose and critique alternative solutions that reflect science-based trade-offs for addressing local and regional problems.
In the physical sciences, students at the *Advanced* level should be able to interpret diagrams, graphs, and data to demonstrate the relationship between the particulate nature of matter and state changes (for instance, melting and freezing); demonstrate relationships between position on the periodic table and the characteristics of families of the chemical elements; explain changes of state in terms of energy flow in and out of a system; identify possible scientific trade-offs in making decisions on the design of an electrical energy power plant; suggest examples of systems in which objects are undergoing transitional, vibrational, and rotational motion; and suggest examples of systems in which

forces are acting both through contact and at a distance.
In the life sciences, students at the *Advanced* level should be able to explain movement and transformations of matter and energy in living systems at cellular, organismal, and ecosystem levels; predict changes in populations through natural selection and reproduction; and describe an ecosystem's populations and propose an analysis for changes based on energy flow through the system.
In the Earth and space sciences, students at the *Advanced* level should be able to explain the seasons, Moon phases, and lunar and solar eclipses; illustrate how fossils and rock formations can provide evidence of changes in environmental conditions over time; use lithospheric plate movement to explain geological phenomena; identify relationships among regional weather and atmospheric and ocean circulation patterns; and use the water cycle to propose and critique ways for obtaining drinkable water.

NOTE: The scores in parentheses indicate the lowest point on the scale at which the achievement-level range begins.
SOURCE: National Assessment Governing Board. (2008). *Science Framework for the 2009 National Assessment of Educational Progress*. Washington, DC: Author.

Assessing Students With Disabilities and/or English Language Learners

Testing accommodations, such as extra testing time or individual (rather than group) administration, are provided for students with disabilities (SD) and English language learners (ELL) who could not fairly and accurately demonstrate their abilities without modified test administration procedures. Even with the availability of accommodations, however, some students may still be excluded from the NAEP assessment. Due to differences in policies and practices regarding the identification and inclusion of SD and ELL students, variations in exclusion and accommodation rates should be considered when comparing students' performance across states. The types of accommodations used in the 2009 NAEP science assessment are available on the NAEP website at http://nationsreportcard.gov/science_2009/type_accomm.asp

Interpreting Results

The scores and percentages in this report are estimates based on samples of students rather than on entire populations. In addition, the collection of questions used at each grade level is only a sample of the many questions that could have been asked to assess the skills and abilities described in the NAEP framework. Comparisons between groups 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 margins of error, and estimates based on smaller groups are likely to have larger margins of error. The size of the standard errors may also be influenced by other factors such as how representative the assessed students are of the entire population. Statistical tests that factor in these standard errors are used to determine whether the differences between average scores or percentages are significant. All differences were tested for statistical significance at the .05 level using unrounded numbers.

Differences between scores or between percentages are discussed in this report only when they are significant from a statistical perspective. Significant differences are marked with a notation (*) in the tables. Any differences in scores that are mentioned in the text as "higher," "lower," "greater," or "smaller" are statistically significant.

Score or percentage differences or gaps cited in this report are calculated based on differences between unrounded numbers. Therefore, the reader may find that the score or percentage difference cited in the text or tables may not be identical to the difference obtained from subtracting the rounded values shown in the accompanying tables or figures.

The reader is cautioned against making simple causal inferences between student performance and the other variables (e.g., race/ethnicity, gender, and type of school location) discussed in this report. A statistically significant

relationship between a variable and measures of student performance does not imply that the variable causes differences in how well students perform. The relationship may be influenced by a number of other variables not accounted for in this report, such as family income, parental involvement, or student attitudes.

NAEP 2009 Science Overall Average Score and Achievement-Level Results for Public School Students

Overall science results are reported in this section for public school students from Wyoming along with regional and national results.

Overall Average Score Results

Student performance is reported as an average score based on the NAEP science scale, which ranges from 0 to 300.

Tables 1-A and 1-B show the overall performance results of grades 4 and 8 public school students in Wyoming, the nation (public), and the region in which the jurisdiction is located. The first column of results presents the average score on the NAEP science scale. The remaining columns show the scores at selected percentiles. A percentile is a score point at or below which a certain percentage of students fall. For example, the 25th percentile demarks the cut point for the lowest 25 percent of students within the distribution of scale scores.

Grade 4 Scale Score Results

- In 2009, the average scale score for students in Wyoming was 156. This was higher than that of students across the nation (149).

Grade 8 Scale Score Results

- In 2009, the average scale score for students in Wyoming was 158. This was higher than that of students across the nation (149).

Table 1-A

The Nation's Report Card 2009 State Assessment

Average scale scores and selected percentile scores in NAEP science for fourth-grade public school students, by year and jurisdiction: 2009

Year and jurisdiction		Average scale score	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
2009	Nation (public)	149*	102*	126*	152*	174	192
	West[1]	142*	92*	118*	145*	169*	188
	Wyoming	156	117	137	158	176	192

* Value is significantly different ($p < .05$) from the value in Wyoming.

[1] Region in which jurisdiction is located.

NOTE: The NAEP grade 4 science scale ranges from 0 to 300.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Table 1-B

The Nation's Report Card 2009 State Assessment

Average scale scores and selected percentile scores in NAEP science for eighth-grade public school students, by year and jurisdiction: 2009

Year and jurisdiction		Average scale score	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
2009	Nation (public)	149*	102*	127*	152*	174*	191*
	West[1]	143*	94*	120*	146*	170*	188*
	Wyoming	158	120	140	160	178	193

* Value is significantly different ($p < .05$) from the value in Wyoming.

[1] Region in which jurisdiction is located.

NOTE: The NAEP grade 8 science scale ranges from 0 to 300.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Overall Achievement-Level Results

Student results are reported as the percentages of students performing relative to performance standards set by the National Assessment Governing Board. These performance standards for what students should know and be able to do were based on the recommendations of broadly representative panels of educators and members of the public.

Tables 2-A and 2-B show the percentage of students at grades 4 and 8 who performed below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced*. Because the percentages are cumulative from *Basic* to *Proficient* to *Advanced*, they will sum to more than 100 percent. Only the percentage of students performing at or above *Basic* (which includes the students at *Proficient* and *Advanced)* plus the students below *Basic* will sum to 100 percent.

Grade 4 Achievement-Level Results

- In 2009, the percentage of Wyoming's students who performed at or above *Proficient* was 37 percent. This was greater than the percentage of the nation's public school students who performed at or above *Proficient* (32 percent).
- In 2009, the percentage of Wyoming's students who performed at or above *Basic* was 80 percent. This was greater than the percentage of the nation's public school students who performed at or above *Basic* (71 percent).

Grade 8 Achievement-Level Results

- In 2009, the percentage of Wyoming's students who performed at or above *Proficient* was 36 percent. This was greater than the percentage of the nation's public school students who performed at or above *Proficient* (29 percent).
- In 2009, the percentage of Wyoming's students who performed at or above *Basic* was 74 percent. This was greater than the percentage of the nation's public school students who performed at or above *Basic* (62 percent).

Table 2-A

The Nation's Report Card 2009 State Assessment

Percentage of fourth-grade public school students at or above NAEP science achievement levels, by year and jurisdiction: 2009

Year and jurisdiction		Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
2009	Nation (public)	29*	71*	32*	1
	West[1]	36*	64*	27*	#
	Wyoming	20	80	37	#

Rounds to zero.

* Value is significantly different ($p < .05$) from the value in Wyoming.

[1] Region in which jurisdiction is located.

NOTE: The NAEP grade 4 science scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP science scales: below *Basic*, 130 or lower; *Basic*, 131–166; *Proficient*, 167–223; and *Advanced*, 224 and above. At or above *Basic* includes *Basic*, *Proficient*, and *Advanced*. At or above *Proficient* includes *Proficient* and *Advanced*. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Table 2-B

The Nation's Report Card 2009 State Assessment

Percentage of eighth-grade public school students at or above NAEP science achievement levels, by year and jurisdiction: 2009

Year and jurisdiction		Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
2009	Nation (public)	38*	62*	29*	1
	West[1]	44*	56*	25*	1
	Wyoming	26	74	36	1

* Value is significantly different ($p < .05$) from the value in Wyoming.

[1] Region in which jurisdiction is located.

NOTE: The NAEP grade 8 science scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP science scales: below *Basic*, 140 or lower; *Basic*, 141–169; *Proficient*, 170–214; and *Advanced*, 215 and above. At or above *Basic* includes *Basic*, *Proficient*, and *Advanced*. At or above *Proficient* includes *Proficient* and *Advanced*. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Comparisons Between Wyoming, the Nation, and Participating States and Jurisdictions

Forty-six states and the Department of Defense Schools participated in the 2009 science assessment at grades 4 and 8. References to "jurisdictions" in the results statements may include states, the District of Columbia, and/or Department of Defense Schools.

Comparisons by Average Scores

Figures 2-A and 2-B compare Wyoming's 2009 overall science average scores at grades 4 and 8 with those of public schools in the nation and all other participating states and jurisdictions. The different shadings indicate whether the average score of the nation (public), a state, or a jurisdiction was found to be higher than, not significantly different from, or lower than that of Wyoming in the NAEP 2009 science assessment.

Grade 4 Scale Score Comparison Results

- Students' average score in Wyoming was higher than the scores in 26 jurisdictions, not significantly different from those in 11 jurisdictions, and lower than those in 9 jurisdictions.

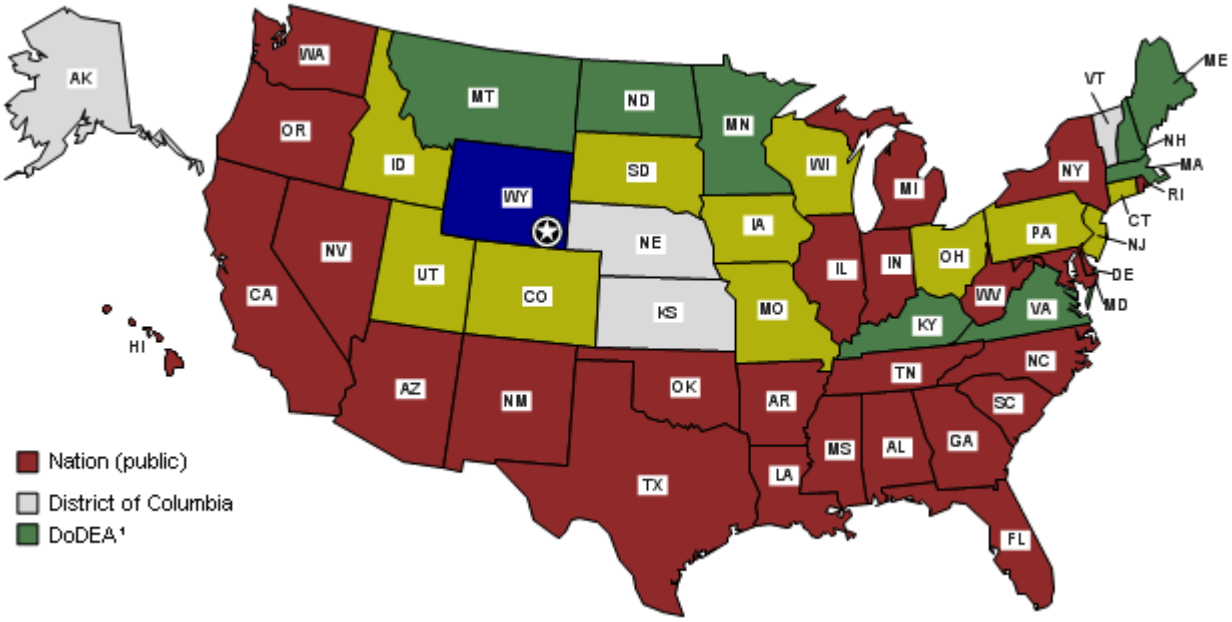
Grade 8 Scale Score Comparison Results

- Students' average score in Wyoming was higher than the scores in 29 jurisdictions, not significantly different from those in 12 jurisdictions, and lower than those in 5 jurisdictions.

Figure 2-A

The Nation's Report Card 2009 State Assessment

Wyoming's average scale score in NAEP science for fourth-grade public school students compared with scores for the nation and other participating jurisdictions: 2009



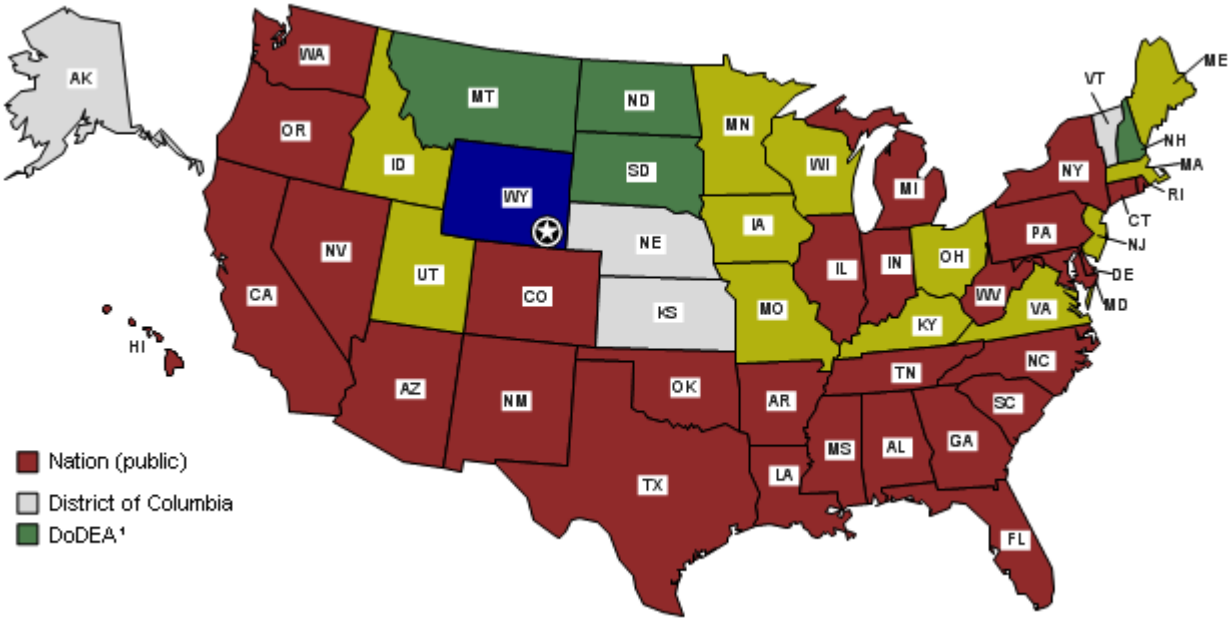
★	Focal state/jurisdiction (Wyoming)
	Higher average scale score than Wyoming (9 jurisdictions)
	Not significantly different from Wyoming (11 jurisdictions)
	Lower average scale score than Wyoming (nation and 26 jurisdictions)
	5 jurisdictions did not participate.

[1] Department of Defense Education Activity (overseas and domestic schools).
NOTE: Significance tests used a multiple-comparison procedure based on all jurisdictions that participated.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Figure 2-B

The Nation's Report Card 2009 State Assessment

Wyoming's average scale score in NAEP science for eighth-grade public school students compared with scores for the nation and other participating jurisdictions: 2009



★	Focal state/jurisdiction (Wyoming)
	Higher average scale score than Wyoming (5 jurisdictions)
	Not significantly different from Wyoming (12 jurisdictions)
	Lower average scale score than Wyoming (nation and 29 jurisdictions)
	5 jurisdictions did not participate.

[1] Department of Defense Education Activity (overseas and domestic schools).
NOTE: Significance tests used a multiple-comparison procedure based on all jurisdictions that participated.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Comparisons by Achievement Levels

Figures 3-A and 3-B permit comparisons of all jurisdictions (and the nation) participating in the NAEP 2009 science assessment in terms of percentages of grades 4 and 8 students performing at or above *Proficient*. The participating states and jurisdictions are grouped into categories reflecting whether the percentage of their students performing at or above *Proficient* (including *Advanced*) was found to be higher than, not significantly different from, or lower than the percentage in Wyoming.

Note that the selected state is listed first in its category, and the other states and jurisdictions within each category are listed alphabetically; statistical comparisons among jurisdictions in each of the three categories are not included in this report. However, statistical comparisons among states by achievement level can be calculated online by using the NAEP Data Explorer at http://nces.ed.gov/nationsreportcard/naepdata/.

Grade 4 Achievement-Level Comparison Results

- The percentage of students performing at or above the *Proficient* level in Wyoming was higher than the percentage in 18 jurisdictions, not significantly different from those in 18 jurisdictions, and lower than those in 10 jurisdictions.
- The percentage of students performing at or above the *Basic* level in Wyoming was higher than the percentage in 26 jurisdictions, not significantly different from those in 14 jurisdictions, and lower than those in 6 jurisdictions (data not shown).

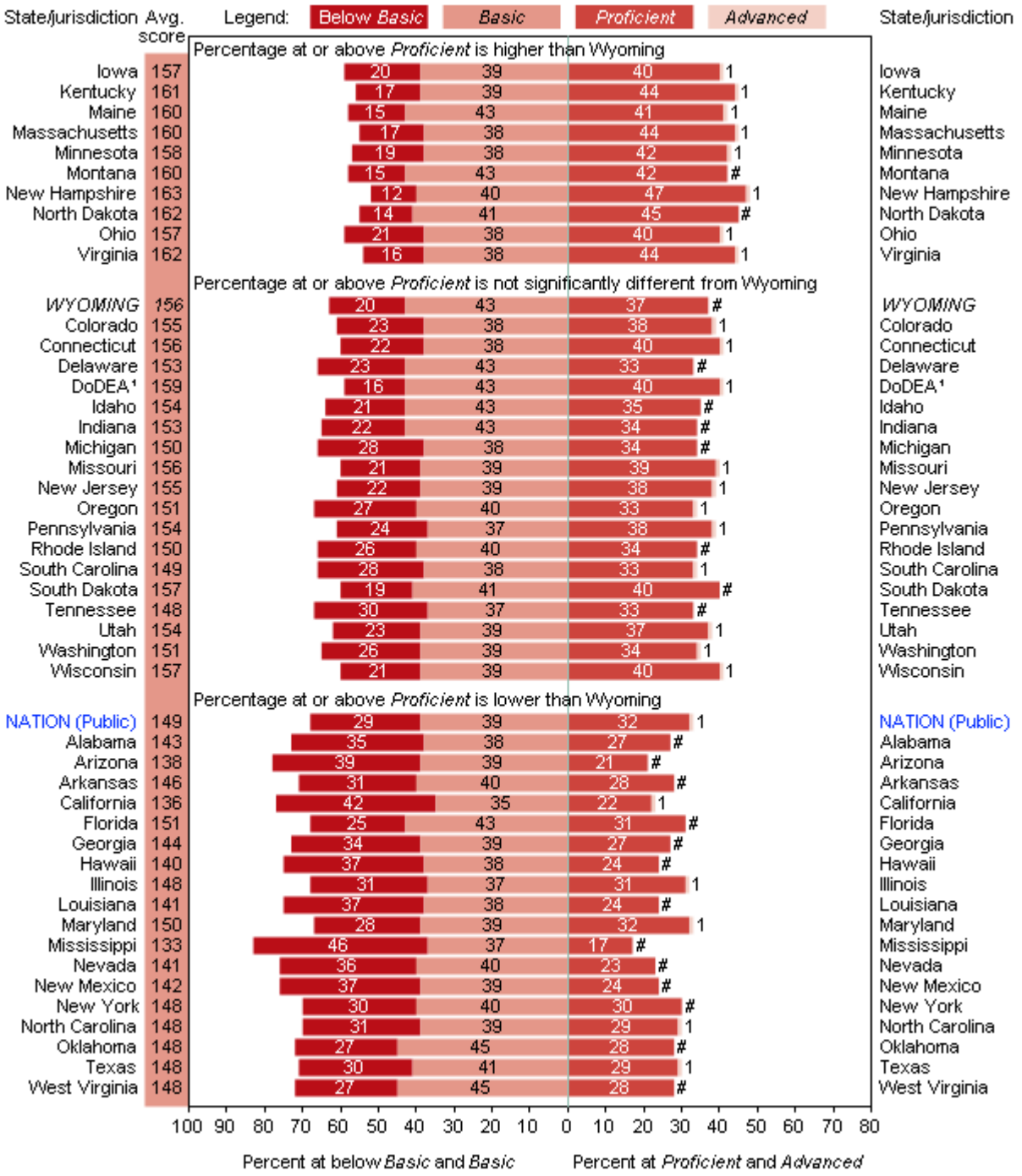
Grade 8 Achievement-Level Comparison Results

- The percentage of students performing at or above the *Proficient* level in Wyoming was higher than the percentage in 23 jurisdictions, not significantly different from those in 19 jurisdictions, and lower than those in 4 jurisdictions.
- The percentage of students performing at or above the *Basic* level in Wyoming was higher than the percentage in 30 jurisdictions, not significantly different from those in 14 jurisdictions, and lower than those in 2 jurisdictions (data not shown).

Figure 3-A

The Nation's Report Card 2009 State Assessment

Average scale scores in NAEP science for fourth-grade public school students, percentage within each achievement level, and Wyoming's percentage at or above *Proficient* compared with the nation and other participating states/jurisdictions: 2009



Rounds to zero.

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

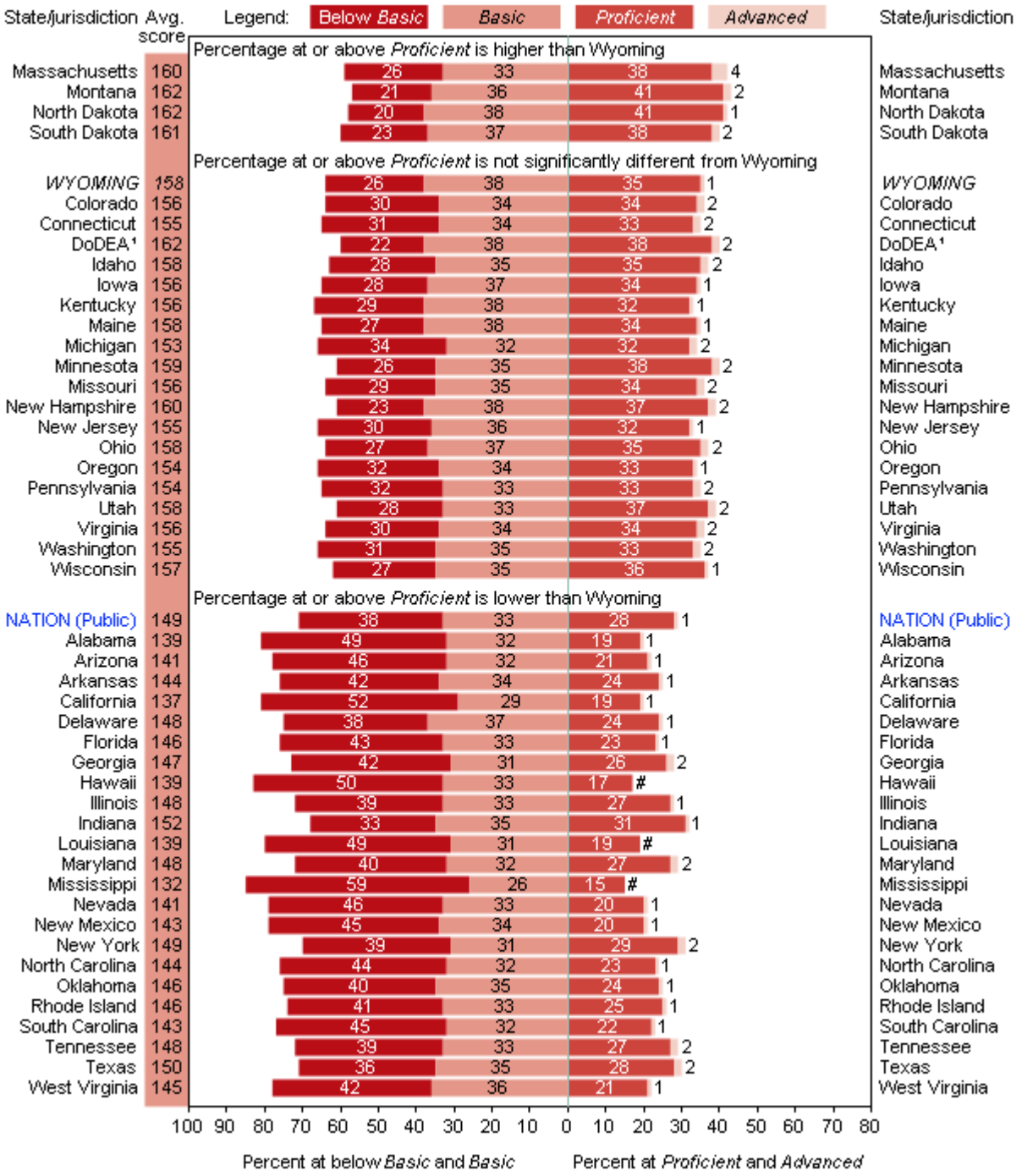
NOTE: The NAEP grade 4 science scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP science scales: below *Basic*, 130 or lower; *Basic*, 131–166; *Proficient*, 167–223; and *Advanced*, 224 and above. The following jurisdictions did not participate in the assessment: Alaska, District of Colombia, Kansas, Nebraska, and Vermont. The bars above contain percentages of students in each NAEP science achievement level. Achievement levels corresponding to each population of students are aligned at the point where the *Proficient* category begins, so that they may be compared at *Proficient* and above. Detail may not sum to totals because of rounding. The shaded bars are graphed using unrounded numbers. Significance tests used a multiple-comparison procedure based on all jurisdictions that participated.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Figure 3-B

The Nation's Report Card 2009 State Assessment

Average scale scores in NAEP science for eighth-grade public school students, percentage within each achievement level, and Wyoming's percentage at or above *Proficient* compared with the nation and other participating states/jurisdictions: 2009



Rounds to zero.

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

NOTE: The NAEP grade 8 science scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP science scales: below *Basic*, 140 or lower; *Basic*, 141–169; *Proficient*, 170–214; and *Advanced*, 215 and above. The following jurisdictions did not participate in the assessment: Alaska, District of Colombia, Kansas, Nebraska, and Vermont. The bars above contain percentages of students in each NAEP science achievement level. Achievement levels corresponding to each population of students are aligned at the point where the *Proficient* category begins, so that they may be compared at *Proficient* and above. Detail may not sum to totals because of rounding. The shaded bars are graphed using unrounded numbers. Significance tests used a multiple-comparison procedure based on all jurisdictions that participated.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Science Performance of Selected Student Groups

This section of the report presents trend results for public school students in Wyoming and the nation by demographic characteristics. Student performance data are reported for the listed student characteristics.

- race/ethnicity
- gender
- student eligibility for the National School Lunch Program
- type of school location
- parents' highest level of education

Results for each of the variables are reported in tables that include the percentage of students in each group in the first column and the average score in the second column. The columns to the right show the percentage of students below *Basic* and at or above each achievement level.

Results by students' race/ethnicity and gender include statements about score point differences between student groups (e.g., between White and Black or White and Hispanic students, or between male and female students) in 2009. Because these differences are calculated using unrounded values, they may differ slightly from what would be obtained by subtracting the rounded values that appear in the tables.

The reader is cautioned against making causal inferences about group differences, as a complex mix of educational and socioeconomic factors may affect student performance. NAEP collects information on many additional variables, including school and home factors related to achievement. This information is in an interactive database available on the NAEP website http://nces.ed.gov/nationsreportcard/naepdata/.

Race/Ethnicity

The race/ethnicity of each student was reported by the schools. The six mutually exclusive categories are White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Tables 3-A and 3-B show average scores and achievement-level data for public school students at grades 4 and 8 in Wyoming and the nation, by race/ethnicity.

Grade 4 Scale Score Results by Race/Ethnicity

- In 2009, White students in Wyoming had an average scale score that was higher than the average scores of Hispanic and American Indian/Alaska Native students.
- Data are not reported for Black students in 2009 in Wyoming, because reporting standards were not met.
- In 2009 in Wyoming, Hispanic students had an average score that was lower than that of White students by 19 points. This performance gap was narrower than that of the nation (32 points).

Grade 4 Achievement-Level Results by Race/Ethnicity

- In 2009 in Wyoming, the percentage of White students performing at or above *Proficient* was greater than the corresponding percentages of Hispanic and American Indian/Alaska Native students.

Table 3-A

The Nation's Report Card 2009 State Assessment

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP science, by race/ethnicity, year, and jurisdiction: 2009

Race/ethnicity, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
White							
2009	Nation (public)	54 *	162 *	14	86	46 *	1
	Wyoming	83	159	16	84	41	#
Black							
2009	Nation (public)	16 *	127	54	46	10	#
	Wyoming	1	‡	‡	‡	‡	‡
Hispanic							
2009	Nation (public)	22 *	130 *	48 *	52 *	13	#
	Wyoming	11	140	38	62	18	#
Asian/Pacific Islander							
2009	Nation (public)	5 *	160	20	80	45	2
	Wyoming	1	‡	‡	‡	‡	‡
American Indian/Alaska Native							
2009	Nation (public)	1 *	137	40	60	19	#
	Wyoming	3	134	43	57	9	#
Unclassified[1]							
2009	Nation (public)	2	152	24	76	33	1
	Wyoming	#	‡	‡	‡	‡	‡

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same group in Wyoming.

[1] The unclassified category includes students whose school-reported race/ethnicity was 'other,' unavailable, or missing, and whose race/ethnicity category could not be determined from self-reported information.

NOTE: The NAEP grade 4 science scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP science scales: below *Basic*, 130 or lower; *Basic*, 131–166; *Proficient*, 167–223; and *Advanced*, 224 and above. At or above *Basic* includes *Basic*, *Proficient*, and *Advanced*. At or above *Proficient* includes *Proficient* and *Advanced*. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Grade 8 Scale Score Results by Race/Ethnicity

- In 2009, White students in Wyoming had an average scale score that was higher than the average score of Hispanic students.
- Data are not reported for Black students in 2009 in Wyoming, because reporting standards were not met.
- In 2009 in Wyoming, Hispanic students had an average score that was lower than that of White students by 24 points. This performance gap was narrower than that of the nation (30 points).

Grade 8 Achievement-Level Results by Race/Ethnicity

- In 2009 in Wyoming, the percentage of White students performing at or above *Proficient* was greater than the percentage of Hispanic students.

Gender

Information on student gender is reported by the student's school when rosters of the students eligible to be assessed are submitted to NAEP.

Tables 4-A and 4-B show average scores and achievement-level data for public school students at grades 4 and 8 in Wyoming and the nation, by gender.

Grade 4 Scale Score Results by Gender

- In 2009 in Wyoming, male students had an average score in science (157) that was not significantly different from that of female students (154). In the nation, male students had an average score in science (149) that was higher than that of female students (148).
- In 2009, male students in Wyoming had an average scale score in science (157) that was higher than that of male students in public schools across the nation (149). Similarly, female students in Wyoming had an average scale score (154) that was higher than that of female students across the nation (148).

Grade 4 Achievement-Level Results by Gender

- In the 2009 assessment, 38 percent of male students and 36 percent of female students performed at or above *Proficient* in Wyoming. The difference between these percentages was not statistically significant.
- The percentage of male students in Wyoming's public schools who were at or above *Proficient* in 2009 (38 percent) was greater than that of male students in the nation (34 percent).
- The percentage of female students in Wyoming's public schools who were at or above *Proficient* in 2009 (36 percent) was greater than that of female students in the nation (31 percent).

Table 4-A

The Nation's Report Card 2009 State Assessment

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP science, by gender, year, and jurisdiction: 2009

Gender, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Male							
2009	Nation (public)	51	149 *	29 *	71 *	34 *	1
	Wyoming	52	157	18	82	38	#
Female							
2009	Nation (public)	49	148 *	29 *	71 *	31 *	#
	Wyoming	48	154	21	79	36	#

Rounds to zero.

* Value is significantly different ($p < .05$) from the value for the same group in Wyoming.

NOTE: The NAEP grade 4 science scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP science scales: below *Basic*, 130 or lower; *Basic*, 131–166; *Proficient*, 167–223; and *Advanced*, 224 and above. At or above *Basic* includes *Basic*, *Proficient*, and *Advanced*. At or above *Proficient* includes *Proficient* and *Advanced*. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Grade 8 Scale Score Results by Gender

- In 2009 in Wyoming, male students had an average score in science (162) that was higher than that of female students (154). This performance gap was wider than that of the nation (4 points).
- In 2009, male students in Wyoming had an average scale score in science (162) that was higher than that of male students in public schools across the nation (151). Similarly, female students in Wyoming had an average scale score (154) that was higher than that of female students across the nation (147).

Grade 8 Achievement-Level Results by Gender

- In the 2009 assessment, 42 percent of male students and 30 percent of female students performed at or above *Proficient* in Wyoming. The difference between these percentages was statistically significant.
- The percentage of male students in Wyoming's public schools who were at or above *Proficient* in 2009 (42 percent) was greater than that of male students in the nation (32 percent).
- The percentage of female students in Wyoming's public schools who were at or above *Proficient* in 2009 (30 percent) was greater than that of female students in the nation (26 percent).

Table 4-B

The Nation's Report Card 2009 State Assessment

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP science, by gender, year, and jurisdiction: 2009

Gender, year, and jurisdiction		Percentage of students	Average scale score	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Male							
2009	Nation (public)	51	151 *	36 *	64 *	32 *	2
	Wyoming	51	162	22	78	42	2
Female							
2009	Nation (public)	49	147 *	40 *	60 *	26 *	1
	Wyoming	49	154	29	71	30	1

* Value is significantly different ($p < .05$) from the value for the same group in Wyoming.

NOTE: The NAEP grade 8 science scale ranges from 0 to 300. Achievement levels correspond to the following points on the NAEP science scales: below *Basic*, 140 or lower; *Basic*, 141–169; *Proficient*, 170–214; and *Advanced*, 215 and above. At or above *Basic* includes *Basic*, *Proficient*, and *Advanced*. At or above *Proficient* includes *Proficient* and *Advanced*. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Student Eligibility for the National School Lunch Program

NAEP collects data on eligibility for the federal program providing free or reduced-price school lunches. The free/reduced-price lunch component of the National School Lunch Program (NSLP) offered through the U.S. Department of Agriculture (USDA) is designed to ensure that children near or below the poverty line receive nourishing meals. Eligibility is determined through the USDA's Income Eligibility Guidelines, and is included as an indicator of lower family income. Additional information on eligibility may be found in the Technical Appendix or at the U.S. Department of Agriculture website at http://www.fns.usda.gov/cnd/lunch/.

Tables 5-A and 5-B show average scores and achievement-level data for public school students at grades 4 and 8 in Wyoming and the nation, by student eligibility for the NSLP.

Grade 4 Scale Score Results by Free/Reduced-Price School Lunch Eligibility

- In 2009, students in Wyoming eligible for free/reduced-price lunch had an average science scale score of 145. This was lower than that of students in Wyoming not eligible for this program (161).
- In 2009, students in Wyoming who were eligible for free/reduced-price school lunch had an average score that was lower than that of students who were not eligible for free/reduced-price school lunch by 16 points. This performance gap was narrower than that of the nation (29 points).
- Students in Wyoming eligible for free/reduced-price lunch had an average scale score (145) in 2009 that was higher than that of students in the nation who were eligible (134).

Grade 4 Achievement-Level Results by Free/Reduced-Price School Lunch Eligibility

- In Wyoming, 24 percent of students who were eligible for free/reduced-price lunch and 44 percent of those who were not eligible for this program performed at or above *Proficient* in 2009. These percentages were significantly different from one another.
- For students in Wyoming in 2009 who were eligible for free/reduced-price lunch, the percentage at or above *Proficient* (24 percent) was greater than the corresponding percentage for their counterparts around the nation (16 percent).

Grade 8 Scale Score Results by Free/Reduced-Price School Lunch Eligibility

- In 2009, students in Wyoming eligible for free/reduced-price lunch had an average science scale score of 147. This was lower than that of students in Wyoming not eligible for this program (163).
- In 2009, students in Wyoming who were eligible for free/reduced-price school lunch had an average score that was lower than that of students who were not eligible for free/reduced-price school lunch by 15 points. This performance gap was narrower than that of the nation (28 points).
- Students in Wyoming eligible for free/reduced-price lunch had an average scale score (147) in 2009 that was higher than that of students in the nation who were eligible (133).

Grade 8 Achievement-Level Results by Free/Reduced-Price School Lunch Eligibility

- In Wyoming, 23 percent of students who were eligible for free/reduced-price lunch and 41 percent of those who were not eligible for this program performed at or above *Proficient* in 2009. These percentages were significantly different from one another.
- For students in Wyoming in 2009 who were eligible for free/reduced-price lunch, the percentage at or above *Proficient* (23 percent) was greater than the corresponding percentage for their counterparts around the nation (14 percent).

Type of Location

Schools that participated in the assessment were classified as being located in four mutually exclusive types of communities: city, suburb, town, and rural. These categories indicate the geographic locations of schools. "City" is a geographical term meaning the principal city of a U.S. Census Bureau-defined Core-Based Statistical Area and is not synonymous with "inner city." More detail on the changes for the classification of type of location is available in the Technical Appendix or at http://nces.ed.gov/ccd/Rural_Locales.asp.

Tables 6-A and 6-B show average scores and achievement-level data for public school students at grades 4 and 8 in Wyoming and the nation, by type of location.

Grade 4 Average Scale Score Results by Type of Location

- In 2009 in Wyoming, the average scale score of students attending public schools in city locations was not significantly different from the scores of students in town and rural schools.
- In 2009, students attending public schools in city and town locations in Wyoming had average scale scores that were higher than the average scale scores of students in city and town locations in the nation.
- In 2009, students attending public schools in rural locations in Wyoming had average scale score that was not significantly different from the average scale score of students in rural locations in the nation.

Grade 4 Achievement-Level Results by Type of Location

- In 2009, the percentage of students in Wyoming's public schools in city locations who performed at or above *Proficient* was not significantly different from the corresponding percentages of students in town and rural schools.
- The percentages of students in Wyoming's public schools in city and town locations who performed at or above *Proficient* in 2009 were greater than those of students in city and town locations in the nation.
- The percentage of students in Wyoming's public schools in rural locations who performed at or above *Proficient* in 2009 was not significantly different from those of students in rural locations in the nation.

Grade 8 Average Scale Score Results by Type of Location

- In 2009 in Wyoming, the average scale score of students attending public schools in city locations was lower than the score of students in town schools, but was not significantly different from the score of students in rural schools.
- In 2009, students attending public schools in city, town, and rural locations in Wyoming had average scale scores that were higher than the average scale scores of students in city, town, and rural locations in the nation.

Grade 8 Achievement-Level Results by Type of Location

- In 2009, the percentage of students in Wyoming's public schools in city locations who performed at or above *Proficient* was smaller than the corresponding percentages of students in town and rural schools.
- The percentages of students in Wyoming's public schools in city, town, and rural locations who performed at or above *Proficient* in 2009 were greater than those of students in city, town, and rural locations in the nation.

Parents' Highest Level of Education

Eighth-grade students who participated in the NAEP 2009 assessment were asked to indicate the highest level of education they thought their father and their mother had completed. Five response options—did not finish high school, graduated from high school, some education after high school, graduated from college, and "I don't know"—were offered. The highest level of education reported for either parent was used in the analysis. Fourth-graders were not asked about their parents' education level because their responses in previous NAEP assessments were not reliable, and a large percentage of them chose the "I don't know" option.

The results by highest level of parental education are shown in table 7.

Grade 8 Scale Score Results by Parents' Highest Level of Education

- In 2009, students in Wyoming who reported that a parent had graduated from college had an average scale score that was higher than the average scores of students with a parent in any of the following education categories: some education after high school, graduated from high school, and did not finish high school.
- In 2009, the average scale scores for students in Wyoming who reported that a parent had graduated from college, had some education after high school, had graduated from high school, or had not finished high school were higher than the corresponding scores of students in the nation.

Grade 8 Achievement-Level Results by Parents' Highest Level of Education

- In 2009, the percentage of students performing at or above *Proficient* in Wyoming who reported that a parent had graduated from college was greater than the percentage for students whose parents' highest level of education was in any of the following education categories: graduated from high school and did not finish high school, but was not significantly different from the percentage for students whose parents' highest level of education was in any of the following education categories: some education after high school.
- In 2009 in Wyoming, the percentages of students reporting that a parent had graduated from college, had some education after high school, or had graduated from high school and who performed at or above *Proficient* were greater than the corresponding percentages of students in the nation.
- In 2009 in Wyoming, the percentage of students reporting that a parent had not finished high school and who performed at or above *Proficient* was not significantly different from the percentage of students in the nation.

A More Inclusive NAEP: Students With Disabilities and English Language Learners

To ensure that the samples are representative, NAEP has established policies and procedures to maximize the inclusion of all students in the assessment. Every effort is made to ensure that all selected students who are capable of participating meaningfully in the assessment are assessed. While some students with disabilities (SD) and/or English language learners (ELL) can be assessed without any special procedures, others require accommodations to participate in NAEP. Still other SD and/or ELL students selected by NAEP may not be able to participate. Local school staff who are familiar with these students are asked a series of questions to help them decide whether each student should participate in the assessment and whether the student needs accommodations.

Within any assessment year, exclusion and accommodation rates may vary across jurisdictions. Since SD and/or ELL students tend to score below average on assessments, the exclusion of students from these groups may result in a higher average score than if those students had taken the assessment. On the other hand, providing appropriate testing accommodations (e.g., providing extended time for some SD and/or ELL students to take the assessment) removes barriers that would otherwise prevent them from demonstrating their knowledge and skills.

data for grade students in Wyoming who were identified as SD and/or ELL, by whether they were excluded, assessed with accommodations, or assessed under standard conditions, as a percent of all grade students in the state.

the percentages of students assessed in Wyoming by disability status and their performance on the NAEP assessment in terms of average scores and percentages performing below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced* for .

the percentages of students assessed in Wyoming by ELL status, their average scores, and their performance in terms of the percentages below *Basic*, the percentages at or above *Basic*, at or above *Proficient*, and at *Advanced* for .

the total number of students assessed in each of the participating states and the percentage of students sampled who were excluded.

Table

The Nation's Report Card 2009 State Assessment

Percentage of fourth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL) excluded and assessed in NAEP science as a percentage of all students, by assessment year and testing status: 2009

Year and testing status		SD and/or ELL		SD		ELL	
		Wyoming	Nation (public)	Wyoming	Nation (public)	Wyoming	Nation (public)
2009	**Identified**	**18**	**23**	**16**	**13**	**3**	**10**
	Excluded	1	2	1	2	#	1
	Assessed without accommodations	4	9	3	3	#	6
	Assessed with accommodations	13	12	11	9	2	4

Rounds to zero.

NOTE: 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. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Table

The Nation's Report Card 2009 State Assessment

Percentage of eighth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL) excluded and assessed in NAEP science as a percentage of all students, by assessment year and testing status: 2009

Year and testing status		SD and/or ELL		SD		ELL	
		Wyoming	Nation (public)	Wyoming	Nation (public)	Wyoming	Nation (public)
2009	**Identified**	**15**	**18**	**14**	**13**	**1**	**6**
	Excluded	2	2	1	2	#	1
	Assessed without accommodations	3	5	3	2	#	3
	Assessed with accommodations	10	10	10	9	1	2

Rounds to zero.

NOTE: 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. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Table

The Nation's Report Card 2009 State Assessment

Number of fourth-grade public school students assessed in NAEP science and weighted percentage excluded, by state/jurisdiction: 2009

State/jurisdiction	Number assessed	Weighted percentage excluded
Nation (public)	**151,500**	**2**
Alabama	2,700	1
Arizona	3,100	2
Arkansas	2,800	1
California	7,400	2
Colorado	2,700	1
Connecticut	2,700	2
Delaware	2,800	2
Florida	4,700	2
Georgia	4,000	1
Hawaii	2,800	1
Idaho	3,000	2
Illinois	4,100	2
Indiana	2,700	2
Iowa	2,800	2
Kentucky	3,800	2
Louisiana	2,900	1
Maine	2,600	1
Maryland	3,500	3
Massachusetts	3,700	3
Michigan	3,400	2
Minnesota	3,300	3
Mississippi	2,800	1
Missouri	2,700	2
Montana	2,700	1
Nevada	3,000	2
New Hampshire	2,700	2
New Jersey	2,800	2
New Mexico	2,800	2
New York	4,000	1
North Carolina	4,500	2
North Dakota	2,000	3
Ohio	3,500	2
Oklahoma	2,800	3
Oregon	2,900	3
Pennsylvania	3,600	1
Rhode Island	2,500	2
South Carolina	2,900	1
South Dakota	2,700	2
Tennessee	2,900	2
Texas	6,300	3
Utah	3,300	2
Virginia	2,900	2
Washington	3,100	2
West Virginia	2,800	2
Wisconsin	3,800	2
Wyoming	2,000	1
Other jurisdictions		
DoDEA[1]	2,100	2

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

NOTE: The number of students assessed is rounded to the nearest hundred. The following jurisdictions did not participate in the assessment: Alaska, District of Colombia, Kansas, Nebraska, and Vermont.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Table

The Nation's Report Card 2009 State Assessment

Number of eighth-grade public school students assessed in NAEP science and weighted percentage excluded, by state/jurisdiction: 2009

State/jurisdiction	Number assessed	Weighted percentage excluded
Nation (public)	**146,300**	**2**
Alabama	2,700	1
Arizona	2,900	2
Arkansas	2,600	1
California	7,200	2
Colorado	2,800	1
Connecticut	2,800	2
Delaware	2,800	1
Florida	4,300	2
Georgia	3,500	1
Hawaii	2,800	2
Idaho	2,900	1
Illinois	4,200	1
Indiana	2,700	2
Iowa	2,700	1
Kentucky	3,700	2
Louisiana	2,600	1
Maine	2,600	2
Maryland	3,400	3
Massachusetts	3,700	4
Michigan	3,400	2
Minnesota	3,000	2
Mississippi	2,800	1
Missouri	2,700	1
Montana	2,600	2
Nevada	2,900	1
New Hampshire	2,500	2
New Jersey	2,800	2
New Mexico	2,500	3
New York	3,800	2
North Carolina	4,400	2
North Dakota	2,200	4
Ohio	3,500	2
Oklahoma	2,700	3
Oregon	2,800	2
Pennsylvania	3,600	2
Rhode Island	2,700	3
South Carolina	2,800	2
South Dakota	2,800	1
Tennessee	3,000	2
Texas	5,900	4
Utah	2,900	2
Virginia	2,800	2
Washington	2,800	2
West Virginia	2,900	2
Wisconsin	3,500	2
Wyoming	1,900	2
Other jurisdictions		
DoDEA[1]	1,600	2

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

NOTE: The number of students assessed is rounded to the nearest hundred. The following jurisdictions did not participate in the assessment: Alaska, District of Colombia, Kansas, Nebraska, and Vermont.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Science Assessment.

Where to Find More Information

The NAEP Science Assessment
The latest news about the NAEP 2009 science assessment and the national results can be found on the NAEP website at http://nces.ed.gov/nationsreportcard/science/results/. The individual snapshot reports for each participating state and other jurisdictions are also available in the state results section of the website at http://nces.ed.gov/nationsreportcard/states/.

The Nation's Report Card: Science 2009 may be ordered or downloaded at the NAEP website.

The *Science Framework for the 2009 National Assessment of Educational Progress*, on which this assessment is based, is available at the National Assessment Governing Board website at http://www.nagb.org/publications/frameworks/science-09.pdf

The NAEP Data Explorer (NDE)
The interactive database at http://nces.ed.gov/nationsreportcard/naepdata/ includes student, teacher, and school variables for all participating states and other jurisdictions, the nation, and the four regions. Data tables are also available for each jurisdiction, with all background questions cross-tabulated with the major demographic variables. Users can design and create tables and can perform tests of statistical significance at this website.

Technical Documentation on the Web (TDW)
Technical documentation section of the NAEP website http://nces.ed.gov/nationsreportcard/tdw/ contains information about the technical procedures and methods of NAEP. The TDW site is organized by topic (from Item Development through Analysis and Scaling) with subtopics, including information specific to a particular assessment. The content is written for researchers and assumes knowledge of educational measurement and testing.

Publications on the inclusion of students with disabilities and English language learners
References for a variety of research publications related to the assessment of students with special needs may be found at http://nces.ed.gov/nationsreportcard/about/inclusion.asp#research.

To order publications
Recent NAEP publications related to science are listed on the science page of the NAEP website and are available electronically. Publications can also be ordered from

Education Publications Center (ED Pubs)
U.S. Department of Education

P.O. Box 22207
Alexandria, VA 22304

Call toll free: 1-877-4ED-Pubs (1-877-433-7827)
TTY/TDD: 1-877-576-7734
FAX: 1-301-470-1244
Order online at: http://www.edpubs.gov.

The NAEP State Report Generator was developed for the NAEP 2009 reports by Phillip Leung, Bobby Rampey, Rebecca Moran, Shu-Kang Chen, Rick Hasney, and Ming Kuang.

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), a continuing and nationally representative measure of achievement in various subjects over time.

Since 1969, NAEP assessments have been conducted periodically in reading, mathematics, science, writing, U.S. history, civics, geography, and other subjects. NAEP collects and reports information on student performance at the national, state, and local levels, making the assessment an integral part of our nation's evaluation of the condition and progress of education. Only academic achievement data and related background information are collected. The privacy of individual students and their families is protected.

NAEP is a congressionally authorized 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.

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