

Appendix

Technical Procedures for the NAEP 2015 Science Assessment

This appendix provides an overview of some of the technical procedures for the NAEP 2015 science assessment. Information is provided about the content of the assessment, school and student samples and participation, inclusion of students with disabilities and/or English language learners, analysis procedures, and interpretation of results. Additional technical information about NAEP assessments is available on the Web at <http://nces.ed.gov/nationsreportcard/tdw/>.

Development of the Science Framework

The National Assessment Governing Board oversees the creation of the NAEP frameworks that describe the specific knowledge and skills that should be assessed in each subject. The frameworks also provide the theoretical basis for the assessment, direction for the types of items that should be included, and how the items should be designed and scored. While the frameworks describe the general content and design of NAEP subject area assessments, the specifications provide the detailed information used by test developers for constructing the assessments and more detailed information in scoring. Both the *Science Framework for the 2015 National Assessment of Educational Progress* and item specifications are available on the Governing Board's website at <http://www.nagb.org/publications/frameworks.htm>.

The 2009 NAEP science framework approved by the Governing Board replaced 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 the prevalence of national and international science assessments, advances in innovative assessment approaches, and the need to advance the state of the art so that the widest possible range of students could be fairly assessed. The framework is unchanged for 2015.

The development of the new science framework involved the critical input of hundreds of individuals across the country, including some of the nation's leading scientists, science educators, policymakers, and assessment experts. Under contract to the Governing Board, WestEd and the Council of Chief State School Officers (CCSSO) spent 18 months developing the framework; this process involved committees, regional hearings, and other public forums. The Governing Board also engaged an external review panel to evaluate the draft framework and convened a public hearing to receive additional input during the development process.

The frameworks for all main NAEP assessments are periodically updated or changed to reflect current curricula and standards. Whenever changes are made to a subject framework, every effort is made to maintain the trend lines that permit the reporting of changes in student achievement over time. If, however, the changes made to an assessment are such that the results are not comparable to earlier assessments, a new trend line is started. The assessment resulting from the 2009 framework started a new NAEP science trend.

Framework Dimensions

The design of the NAEP science assessment is guided by the framework's descriptions of the science content and practices to be assessed. Students are expected to have learned science content comprised of the facts, concepts, laws, principles, and theories that have been verified by the community of scientists, as well as understand how scientists gather, organize, and evaluate empirical evidence. Each question in the 2015 science assessment was classified based on two dimensions: *science content* and *science practices*. By considering these two dimensions for each question, the framework ensures that NAEP assesses an appropriate balance of content along with a variety of ways of doing science. Table A-1 shows the target and actual assessment time distribution across the three content areas in the 2015 assessment.

SCIENCE CONTENT

The 2015 framework organizes science content into three broad content areas reflecting the science curriculum students are generally exposed to across the K–12 curriculum, including physical science, life science, and Earth and space sciences.

- 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 include 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.

SCIENCE PRACTICES

In addition to the science content, the framework assesses student understanding of how scientific knowledge is used by measuring what students are able to do with the science content. Four science practices describe how science knowledge is used—identifying science principles, using science principles, using scientific inquiry, and using technological design.

- Identifying science principles focuses on students' ability to recognize, recall, define, relate, and represent basic science principles in each of the three content areas.
- Using science principles focuses on the importance of science knowledge in making accurate predictions about and explaining observations of the natural world.
- Using scientific inquiry focuses on designing, critiquing, and evaluating scientific investigations; identifying patterns in data; and using empirical evidence to validate or criticize conclusions.
- Using technological design focuses on the systematic process of applying science knowledge and skills to propose or critique solutions to real world problems, identify trade-offs, and anticipate effects of technological design decisions.

The distribution of items across the four science practices is as follows: Identifying Science Principles and Using Science Principles (combined), 60 percent; Using Scientific Inquiry, 30 percent; and Using Technological Design, 10 percent.

Table A-1.

Percentage distribution of target and actual assessment time in NAEP science, by field of science and grade: 2015

Grade	Physical science		Life science		Earth and space sciences	
	Target	Actual	Target	Actual	Target	Actual
Grade 4	33.3	32.8	33.3	33.8	33.3	33.3
Grade 8	30.0	29.0	30.0	31.0	40.0	40.0
Grade 12	37.5	37.7	37.5	37.0	25.0	25.3

NOTE: 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), 2015 Science Assessment.

Content of the 2015 Science Assessment

Each NAEP assessment contains two major components: subject-specific cognitive items that measure the achievement of students in an academic subject, and background items that collect information from students, teachers, and school administrators about variables that are related to student achievement. Both the cognitive and background items are developed through a process that includes reviews by external advisory groups and field testing. Results from the cognitive items provide information about what students know and can do in a subject area. Information from the background items gives context to NAEP results and allows researchers to track factors associated with academic achievement.

The 2015 science assessment was made up of 139 questions at grade 4 and 162 questions at grade 8. Students spent about one-half of the assessment time responding to multiple-choice questions and one-half responding to two types of constructed-response questions. Short constructed-response questions required students to write a concise explanation for a given situation or result, illustrate with a brief example, or describe a quantitative relationship in response to the question provided. Extended constructed-response questions were generally multidimensional and required students to solve a problem by applying and integrating science concepts and required that students analyze a science situation and explain a concept. Table A-2 shows the number of cognitive items by item format that were administered in 2015 and were included in the analysis for the 2015 science performance results.

Table A-2.
Number of NAEP science questions at grades 4, 8, and 12, by question type: 2015

Question type	Grade 4	Grade 8	Grade 12
Total	139	162	181
Multiple choice	99	111	126
Short constructed response	34	31	42
Extended constructed response	6	20	13

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2015 Science Assessment.

Cognitive Blocks: 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. This was accomplished through the use of matrix sampling of items in which each student was required to take only a small portion of the entire pool of assessment questions.

The science item pool was organized into subsets or "blocks." In 2015, there were a total of 9 blocks at fourth grade and 9 blocks at eighth grade. Each science assessment booklet contained two separately timed 25-minute blocks. Each block contained between 14 and 18 questions, depending on the balance between multiple-choice and constructed-response questions.

The procedure used to create booklets ensured that each block was paired with every other block. In addition, the procedure controlled for possible block-position effects across the set of booklets by balancing the order of the blocks within booklets. The booklets were cycled through in such a way that each booklet was used approximately an equal number of times across the entire assessment, while no more than a few students in any given assessment session received the same booklet.

Sample released questions at all three grade levels can be viewed at the NAEP website at <http://nces.ed.gov/nationsreportcard/itmrlsx/>. Items may be sorted by difficulty and question type.

NAEP Samples

NAEP assesses representative samples of students rather than the entire population of students. The sample selection process utilizes a probability sample design in which each school and each student has a known probability of being selected (the probabilities are proportionate to the estimated number of students in the grade of an assessed school). Samples are selected according to a multistage design, with students drawn from within sampled public and private schools nationwide.

The 2012–13 Common Core of Data (CCD) file, a comprehensive list of operating public schools in each jurisdiction that is compiled each school year by the National Center for Education Statistics, served as the sampling frame for the selection of public schools in each state/jurisdiction. All students at more local geographic sampling levels also make up part of the broader samples. For example, the state samples are included as part of the national sample.

The 2012–13 Private School Survey (PSS), a mail survey of all U.S. private schools carried out biennially by the Census Bureau under contract to NCES, served as the sampling frame for private schools. While state and district results are based on samples of public schools only, the national results are based on the combined samples of public and private schools. Although information about the combined public and private school national samples is provided here for context, performance results in the State Report Generator are for public school students only.

Table A-3 and table A-4 show the target populations and sample sizes in 2015 for the nation and participating states and jurisdictions at grades 4 and 8.

Because each school that participated in the assessment, and each student assessed, represents only a portion of the larger population of interest, the results are weighted to make appropriate inferences between the student samples and the respective populations from which they are drawn. Sampling weights are adjusted for the disproportionate representation of some groups in the selected sample. This includes oversampling of schools with high concentrations of students from certain racial/ethnic groups and the lower sampling rates of students who attend very small schools.

Table A-3.

Student sample size and target population in NAEP science at grade 4, by state/jurisdiction: 2015

State/jurisdiction	Sample size	Target population
Nation	117,300	3,921,000
Public	112,700	3,613,000
Private	2,500	299,000
Alabama	2,100	51,000
Alaska	—	—
Arizona	2,400	83,000
Arkansas	2,200	34,000
California	2,700	469,000
Colorado	—	—
Connecticut	2,500	42,000
Delaware	2,400	10,000
Florida	2,400	199,000
Georgia	2,400	128,000
Hawaii	2,300	14,000
Idaho	2,400	23,000
Illinois	3,600	150,000
Indiana	2,200	75,000
Iowa	2,400	36,000
Kansas	2,300	34,000
Kentucky	2,100	49,000
Louisiana	—	—
Maine	2,300	13,000
Maryland	2,200	61,000
Massachusetts	2,300	70,000
Michigan	2,300	111,000
Minnesota	2,600	63,000
Mississippi	2,300	36,000
Missouri	2,200	66,000
Montana	2,400	11,000
Nebraska	2,400	23,000
Nevada	2,300	33,000
New Hampshire	2,300	13,000
New Jersey	2,100	94,000
New Mexico	2,700	25,000
New York	3,100	193,000
North Carolina	2,500	113,000
North Dakota	2,500	8,000
Ohio	2,100	118,000
Oklahoma	2,300	50,000
Oregon	2,500	43,000
Pennsylvania	—	—
Rhode Island	2,400	11,000
South Carolina	2,300	55,000
South Dakota	2,400	10,000
Tennessee	2,200	73,000
Texas	2,600	365,000
Utah	2,300	45,000
Vermont	1,900	6,000
Virginia	2,400	94,000
Washington	2,500	79,000
West Virginia	2,300	21,000
Wisconsin	2,600	60,000
Wyoming	2,200	7,000
Other jurisdictions		
BIE ¹	100	3,000
District of Columbia	—	—
DoDEA ²	1,900	6,000

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ Bureau of Indian Education.

² Department of Defense Education Activity (overseas and domestic schools).

NOTE: The sample size is rounded to the nearest hundred. The target population is rounded to the nearest thousand. Data for BIE and DoDEA schools are counted in the overall nation total, but not in the nation (public) total. 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), 2015 Science Assessment.

Table A-4.

Student sample size and target population in NAEP science at grade 8, by state/jurisdiction: 2015

State/jurisdiction	Sample size	Target population
Nation	112,700	3,908,000
Public	109,100	3,605,000
Private	2,200	296,000
Alabama	2,100	53,000
Alaska	—	—
Arizona	2,400	83,000
Arkansas	2,400	36,000
California	2,700	470,000
Colorado	—	—
Connecticut	2,300	41,000
Delaware	2,200	9,800
Florida	2,300	195,000
Georgia	2,300	124,000
Hawaii	2,300	13,000
Idaho	2,300	21,000
Illinois	3,300	140,000
Indiana	2,100	76,000
Iowa	2,300	36,000
Kansas	2,400	36,000
Kentucky	2,200	51,000
Louisiana	—	—
Maine	2,200	13,000
Maryland	2,200	62,000
Massachusetts	2,200	70,000
Michigan	2,200	107,000
Minnesota	2,500	62,000
Mississippi	2,300	37,000
Missouri	2,200	63,000
Montana	2,300	11,000
Nebraska	2,300	22,000
Nevada	2,300	34,000
New Hampshire	2,300	14,000
New Jersey	2,000	97,000
New Mexico	2,700	23,000
New York	2,800	192,000
North Carolina	2,400	115,000
North Dakota	2,300	7,000
Ohio	2,100	121,000
Oklahoma	2,100	44,000
Oregon	2,300	40,000
Pennsylvania	—	—
Rhode Island	2,300	11,000
South Carolina	2,300	53,000
South Dakota	2,400	10,000
Tennessee	2,100	72,000
Texas	2,700	377,000
Utah	2,400	46,000
Vermont	1,800	6,000
Virginia	2,300	93,000
Washington	2,500	80,000
West Virginia	2,100	19,000
Wisconsin	2,300	57,000
Wyoming	2,100	7,000
Other jurisdictions		
BIE ¹	100	2,000
District of Columbia	—	—
DoDEA ²	1,400	5,000

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ Bureau of Indian Education.

² Department of Defense Education Activity (overseas and domestic schools).

NOTE: The sample size is rounded to the nearest hundred. The target population is rounded to the nearest thousand. Data for BIE and DoDEA schools are counted in the overall nation total, but not in the nation (public) total. 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), 2015 Science Assessment.

School and Student Participation

National Participation

To ensure unbiased samples, the National Assessment Governing Board policy on reporting requires that weighted participation rates for original school samples be 70 percent or higher, for public and private schools respectively, to report national results separately for public and private schools. In instances where the original weighted school participation rate falls below 85 percent, NCES statistical standards require that a nonresponse bias analysis be conducted to determine if the responding school sample is not representative of the population, thereby introducing the potential for nonresponse bias. The decision whether or not to report the results in a case where the response rate falls between 70 and 85 percent depends upon the results of this nonresponse bias analysis.

National school and student participation rates for the 2015 science assessment are presented in table A-5 and table A-6. Student-weighted school participation rates were 96 percent for grade 4 (99 percent for public schools and 61 percent for private schools) and 96 percent for grade 8 (99 percent for public schools and 56 percent for private schools). Weighted student participation rates were 94 percent for grade 4 (94 percent for public schools and 95 percent for private schools) and 92 percent for grade 8 (92 percent for public schools and 94 percent for private schools).

Table A-5.

Public school and student participation rates in NAEP science at grade 4, by state/jurisdiction: 2015

State/jurisdiction	School participation			Student participation	
	Student-weighted percent	School-weighted percent	Number of schools participating	Student-weighted percent	Number of students assessed
Nation	96	89	7,650	94	115,400
Public	99	99	7,110	94	110,800
Private	61	58	380	95	2,500
Alabama	100	100	110	95	2,100
Alaska	—	—	—	—	—
Arizona	100	100	120	94	2,400
Arkansas	98	97	110	95	2,200
California	100	100	230	95	2,700
Colorado	—	—	—	—	—
Connecticut	100	100	110	94	2,400
Delaware	100	100	90	94	2,300
Florida	100	100	220	94	2,300
Georgia	100	100	130	95	2,300
Hawaii	100	100	110	94	2,300
Idaho	100	100	130	95	2,400
Illinois	100	100	190	95	3,500
Indiana	96	97	110	95	2,200
Iowa	100	100	130	95	2,400
Kansas	100	100	140	95	2,200
Kentucky	100	100	140	95	2,100
Louisiana	—	—	—	—	—
Maine	100	100	170	93	2,300
Maryland	100	99	140	95	2,200
Massachusetts	100	100	150	93	2,200
Michigan	100	100	150	93	2,200
Minnesota	100	100	130	94	2,500
Mississippi	99	98	110	93	2,300
Missouri	100	100	120	94	2,200
Montana	100	99	190	94	2,400
Nebraska	100	100	170	95	2,400
Nevada	100	100	90	95	2,200
New Hampshire	100	100	140	93	2,200
New Jersey	96	97	110	94	2,100
New Mexico	100	100	150	92	2,700
New York	99	99	140	91	3,000
North Carolina	100	100	150	94	2,500
North Dakota	100	99	240	95	2,400
Ohio	99	99	160	93	2,100
Oklahoma	100	100	140	92	2,300
Oregon	100	100	140	94	2,400
Pennsylvania	—	—	—	—	—
Rhode Island	100	100	120	94	2,400
South Carolina	100	100	100	94	2,300
South Dakota	100	100	180	96	2,400
Tennessee	99	99	110	93	2,200
Texas	100	100	230	96	2,600
Utah	100	100	110	94	2,300
Vermont	100	100	210	94	1,900
Virginia	100	100	100	95	2,300
Washington	100	100	130	93	2,500
West Virginia	99	99	150	94	2,300
Wisconsin	100	100	150	94	2,500
Wyoming	100	100	180	93	2,200
Other jurisdictions					
District of Columbia	—	—	—	—	—
DoDEA ¹	97	94	100	96	1,900

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

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

NOTE: The number of schools is rounded to the nearest ten. The number of students is rounded to the nearest hundred. The school participation rates are student-weighted percentages before substitution. Columns of percentages have different denominators. 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), 2015 Science Assessment.

Table A-6.

Public school and student participation rates in NAEP science at grade 8, by state/jurisdiction: 2015

State/jurisdiction	School participation			Student participation	
	Student-weighted percent	School-weighted percent	Number of schools participating	Student-weighted percent	Number of students assessed
Nation	96	83	6,050	92	110,900
Public	99	99	5,600	92	107,200
Private	56	53	340	94	2,200
Alabama	100	100	90	94	2,100
Alaska	—	—	—	—	—
Arizona	100	100	110	94	2,300
Arkansas	98	99	100	94	2,300
California	100	100	200	94	2,700
Colorado	—	—	—	—	—
Connecticut	100	100	100	92	2,300
Delaware	100	100	60	91	2,200
Florida	100	100	190	92	2,300
Georgia	100	100	100	93	2,300
Hawaii	100	100	60	90	2,200
Idaho	100	100	100	94	2,300
Illinois	100	100	170	93	3,300
Indiana	100	100	90	92	2,100
Iowa	99	99	100	93	2,300
Kansas	100	100	110	94	2,300
Kentucky	100	100	110	93	2,100
Louisiana	—	—	—	—	—
Maine	100	100	120	93	2,200
Maryland	98	98	120	92	2,100
Massachusetts	100	100	120	92	2,200
Michigan	100	100	140	93	2,100
Minnesota	100	100	120	92	2,400
Mississippi	99	99	90	93	2,200
Missouri	100	100	110	94	2,100
Montana	100	98	140	92	2,300
Nebraska	100	100	120	93	2,300
Nevada	100	100	80	91	2,300
New Hampshire	100	100	90	92	2,300
New Jersey	94	96	90	90	2,000
New Mexico	100	100	110	91	2,600
New York	93	95	120	88	2,700
North Carolina	100	100	120	92	2,400
North Dakota	100	99	170	93	2,300
Ohio	100	100	160	90	2,100
Oklahoma	100	100	120	92	2,100
Oregon	100	100	110	91	2,200
Pennsylvania	—	—	—	—	—
Rhode Island	100	100	60	92	2,300
South Carolina	100	100	90	94	2,200
South Dakota	100	100	150	95	2,300
Tennessee	96	99	90	91	2,100
Texas	100	100	190	94	2,600
Utah	100	100	100	92	2,400
Vermont	100	100	120	93	1,800
Virginia	100	100	90	93	2,300
Washington	100	100	110	92	2,500
West Virginia	100	100	90	91	2,100
Wisconsin	100	100	120	93	2,300
Wyoming	100	100	90	92	2,000
Other jurisdictions					
District of Columbia	—	—	—	—	—
DoDEA ¹	97	92	60	94	1,400

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

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

NOTE: The number of schools is rounded to the nearest ten. The number of students is rounded to the nearest hundred. The school participation rates are student-weighted percentages before substitution. Columns of percentages have different denominators. 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), 2015 Science Assessment.

The student-weighted school participation rates are calculated based on school sampling weights and grade-specific school enrollment figures. The denominator of the rate is the weighted total number of students represented by the initially selected schools that had eligible students enrolled. This includes both participating and nonparticipating schools. The numerator is the weighted total number of students represented by participating schools. This is calculated in two distinct ways: first, with participating schools defined as only the initially selected schools that participated in the assessment (which gives rise to the rate before substitution), and second, with all of the participating schools after substitution (giving the rate after substitution). On the other hand, the school-weighted school participation rates are calculated based only on the school sampling weights. They show the weighted total number of schools (either before or after substitution) divided by the weighted total number of schools in the initially selected sample.

State Participation

Standards established by the Governing Board require that student-weighted school participation rates for the state samples need to be at least 85 percent for results to be reported. In 2015, forty-seven states and jurisdictions participating in the science assessment at grades 4 and 8 met this participation rate requirement (table A-5 and table A-6). Note that no school substitution was used for the state samples at grades 4 and 8.

Inclusion of Students With Disabilities and/or English Language Learners

It is important for NAEP to assess as many students selected to participate as possible. Assessing representative samples of students, including students with disabilities (SD) and English language learners (ELL), helps to ensure that NAEP results accurately reflect the educational performance of all students in the target population, and can continue to serve as a meaningful measure of U.S. students' academic achievement over time.

The National Assessment Governing Board, which sets policy for NAEP, has been exploring ways to ensure that NAEP continues to appropriately include as many students as possible and to do so in a consistent manner for all jurisdictions assessed and reported. In March 2010, the Governing Board adopted a new policy, NAEP Testing and Reporting on Students with Disabilities and English Language Learners. This policy was the culmination of work with experts in testing and curriculum, and those who work with exceptional children and students learning to speak English. The policy aims to

- maximize participation of sampled students in NAEP,
- reduce variation in exclusion rates for SD and ELL students across states and districts,
- develop uniform national rules for including students in NAEP, and
- ensure that NAEP is fully representative of SD and ELL students.

The policy defines specific inclusion goals for NAEP samples. At the national, state, and district levels, the goal is to include 95 percent of all students selected for the NAEP samples, and 85 percent of those in the NAEP sample who are identified as SD or ELL.

Students are selected to participate in NAEP based on a sampling procedure designed to yield a sample of students that is representative of students in all schools nationwide and in public schools within each state. First, schools are selected, and then students are sampled from within those schools without regard to disability or English language proficiency. Once students are selected, those previously identified as SD or ELL may be offered accommodations or excluded.

States and jurisdictions vary in their proportions of special-needs students and in their policies on inclusion and the use of accommodations. While identification of rates SD and ELL students in some states, have leveled off in recent years, NAEP inclusion rates have generally remained steady or increased since 2003. This reflects efforts on the part of states and jurisdictions to include all students who can meaningfully participate in the NAEP assessments. The NAEP inclusion policy is an effort to ensure that this trend continues.

Determining whether each jurisdiction has met the NAEP inclusion goals involves looking at three different inclusion rates—an overall inclusion rate, an inclusion rate for SD students, and an inclusion rate for ELL students. Each inclusion rate is calculated as the percentage of sampled students who were included in the assessment (i.e., were not excluded).

Inclusion rate percentages are estimates because they are based on representative samples of students rather than on the entire population of students. As such, the inclusion rates are associated with a margin of error. The margin of error for each jurisdiction's inclusion rate was taken into account when comparing it to the corresponding inclusion goal. For example, if the point estimate of a state's overall inclusion rate was 93 percent and had a margin of error of plus or minus 3 percentage points, the state was considered to have met the 95 percent inclusion goal because the 95 percent goal falls within the margin of error, which ranges from 90 percent to 96 percent. Refer to the Technical Notes for more details about how the margin of error was used in these calculations.

Confidence intervals for state inclusion rates

NAEP endeavors to include as many sampled students as possible in the assessment, including students with disabilities and English language learners, and has established specific inclusion goals: 95 percent of all sampled students and 85 percent of sampled students identified as SD or ELL. Inclusion rates were computed for each state/jurisdiction participating in the 2015 assessment and compared to NAEP inclusion goals. Three inclusion percentages were computed for each state/jurisdiction. An overall inclusion percentage represents included students as a percentage of all students sampled within the state/jurisdiction. In addition, separate percentages were computed to report included students as a percentage of the state/jurisdiction sample that was identified as SD (not including students having a Section 504 plan) or ELL.

Inclusion percentages are estimates based on a sample, and each estimate has a measure of uncertainty or margin of error. Confidence intervals quantify this uncertainty due to sampling, resulting in interval estimates of the inclusion percentages. Therefore, confidence intervals for inclusion percentages were used to determine upper and lower confidence bounds around the inclusion point estimates.

When determining whether each state/jurisdiction met the NAEP inclusion goals, the confidence intervals were used, rather than just the point estimates. This means that if the inclusion goal of either 95 percent or 85 percent fell within the corresponding confidence interval, the state/jurisdiction was considered as having met the goal. States/jurisdictions for which the upper bound of the confidence interval was less than 95 percent (or 85 percent) did not meet the inclusion goal.

See the National Assessment Governing Board's policy on NAEP Testing and Reporting on Students with Disabilities and English Language Learners at http://www.nagb.org/content/nagb/assets/documents/policies/naep_testandreport_studentswithdisabilities.pdf.

All of the states/jurisdictions participating in the 2015 science assessment met the 95 percent inclusion goal. See appendix table A-7 and table A-8 for the inclusion rates as a percentage of all students selected in each state/jurisdiction, and table A-9 and table A-10 for the rates as a percentage of the SD or ELL students.

Table A-7.

Inclusion rate and confidence interval in NAEP science for fourth-grade public school students, as a percentage of all students, by state/jurisdiction: 2015

State/jurisdiction	Inclusion rate		95% confidence interval	
			Lower	Upper
Nation	99	¹	98.4	98.6
Public	98	¹	98.2	98.5
Alabama	99	¹	97.9	99.2
Alaska	—		—	—
Arizona	98	¹	97.2	99.0
Arkansas	99	¹	97.9	99.1
California	99	¹	97.8	99.2
Colorado	—		—	—
Connecticut	98	¹	97.5	98.6
Delaware	98	¹	97.8	98.8
Florida	98	¹	97.2	98.7
Georgia	98	¹	97.4	98.8
Hawaii	98	¹	97.9	98.8
Idaho	98	¹	97.2	98.4
Illinois	98	¹	97.8	98.9
Indiana	99	¹	98.5	99.5
Iowa	98	¹	97.5	99.0
Kansas	99	¹	97.9	99.1
Kentucky	98	¹	96.8	98.5
Louisiana	—		—	—
Maine	98	¹	97.8	98.9
Maryland	99	¹	97.9	99.0
Massachusetts	98	¹	97.3	98.6
Michigan	98	¹	96.3	98.3
Minnesota	98	¹	97.8	98.9
Mississippi	99	¹	98.6	99.3
Missouri	99	¹	98.8	99.5
Montana	99	¹	98.6	99.5
Nebraska	99	¹	97.9	99.0
Nevada	98	¹	97.7	98.9
New Hampshire	99	¹	98.6	99.2
New Jersey	98	¹	97.4	98.8
New Mexico	98	¹	97.9	98.9
New York	99	¹	97.9	99.2
North Carolina	98	¹	97.7	98.9
North Dakota	99	¹	97.9	98.9
Ohio	98	¹	97.1	98.4
Oklahoma	98	¹	97.8	98.9
Oregon	98	¹	96.9	98.4
Pennsylvania	—		—	—
Rhode Island	98	¹	97.4	98.7
South Carolina	99	¹	98.3	99.2
South Dakota	98	¹	97.5	98.5
Tennessee	99	¹	98.2	99.2
Texas	98	¹	97.3	98.7
Utah	99	¹	98.1	99.4
Vermont	99	¹	97.9	98.9
Virginia	99	¹	97.9	99.1
Washington	98	¹	97.0	98.7
West Virginia	99	¹	98.3	99.1
Wisconsin	99	¹	98.4	99.3
Wyoming	99	¹	98.4	99.2
Other jurisdictions				
District of Columbia	—		—	—
DoDEA ²	98	¹	97.3	98.3

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ The state/jurisdiction's inclusion rate is higher than or not significantly different from the National Assessment Governing Board goal of 95 percent.

² Department of Defense Education Activity (overseas and domestic schools).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2015 Science Assessment.

Table A-8.

Inclusion rate and confidence interval in NAEP science for eighth-grade public school students, as a percentage of all students, by state/jurisdiction: 2015

State/jurisdiction	Inclusion rate		95% confidence interval	
			Lower	Upper
Nation	98	¹	98.4	98.6
Public	98	¹	98.3	98.5
Alabama	99	¹	98.4	99.3
Alaska	—		—	—
Arizona	99	¹	98.0	99.2
Arkansas	98	¹	97.6	98.7
California	99	¹	98.1	99.2
Colorado	—		—	—
Connecticut	99	¹	98.4	99.1
Delaware	99	¹	98.2	99.2
Florida	97	¹	96.6	97.9
Georgia	99	¹	98.1	99.1
Hawaii	98	¹	97.0	98.1
Idaho	99	¹	98.0	99.1
Illinois	99	¹	98.7	99.5
Indiana	99	¹	98.1	99.0
Iowa	99	¹	97.9	99.0
Kansas	98	¹	97.9	98.9
Kentucky	99	¹	98.1	99.0
Louisiana	—		—	—
Maine	98	¹	97.4	98.6
Maryland	97	¹	96.5	98.1
Massachusetts	98	¹	97.6	98.8
Michigan	98	¹	97.7	98.7
Minnesota	98	¹	97.0	98.4
Mississippi	99	¹	98.6	99.5
Missouri	99	¹	97.5	99.2
Montana	99	¹	98.4	99.3
Nebraska	98	¹	97.7	98.9
Nevada	99	¹	98.3	99.1
New Hampshire	99	¹	98.4	99.3
New Jersey	98	¹	97.2	98.8
New Mexico	99	¹	98.1	99.1
New York	99	¹	98.3	99.0
North Carolina	98	¹	97.5	98.8
North Dakota	98	¹	97.4	98.4
Ohio	98	¹	97.4	98.8
Oklahoma	99	¹	98.3	99.2
Oregon	98	¹	97.3	98.4
Pennsylvania	—		—	—
Rhode Island	98	¹	97.9	98.7
South Carolina	99	¹	98.5	99.4
South Dakota	98	¹	97.8	98.9
Tennessee	99	¹	98.1	99.1
Texas	98	¹	97.1	98.5
Utah	99	¹	98.3	99.2
Vermont	99	¹	98.3	99.3
Virginia	98	¹	97.1	98.5
Washington	98	¹	97.2	98.7
West Virginia	98	¹	97.5	98.5
Wisconsin	99	¹	98.0	99.2
Wyoming	98	¹	97.5	98.6
Other jurisdictions				
District of Columbia	—		—	—
DoDEA ²	99	¹	98.3	99.4

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

¹ The state/jurisdiction's inclusion rate is higher than or not significantly different from the National Assessment Governing Board goal of 95 percent.

² Department of Defense Education Activity (overseas and domestic schools).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2015 Science Assessment.

Table A-9.

Inclusion rate and standard error (SE) in NAEP science for fourth-grade public school students with disabilities (SD) and English language learners (ELL), as a percentage of identified SD or ELL students, by state/jurisdiction: 2015

State/jurisdiction	Percentage of identified SD or ELL students			
	SD		ELL	
	Inclusion rate	SE	Inclusion rate	SE
Nation	91 ¹	0.4	96 ¹	0.4
Public	91 ¹	0.4	96 ¹	0.4
Alabama	90 ¹	2.0	‡	†
Alaska	—	—	—	—
Arizona	91 ¹	1.7	94 ¹	2.3
Arkansas	89 ¹	2.0	99 ¹	0.8
California	89 ¹	2.9	98 ¹	0.7
Colorado	—	—	—	—
Connecticut	90 ¹	2.0	88 ¹	3.8
Delaware	93 ¹	1.2	89 ¹	2.8
Florida	91 ¹	1.6	92 ¹	2.5
Georgia	89 ¹	2.3	94 ¹	2.0
Hawaii	89 ¹	2.1	91 ¹	1.8
Idaho	84 ¹	2.6	88 ¹	3.0
Illinois	91 ¹	1.8	93 ¹	1.4
Indiana	96 ¹	1.1	96 ¹	2.0
Iowa	92 ¹	1.7	92 ¹	3.1
Kansas	92 ¹	1.7	97 ¹	0.6
Kentucky	89 ¹	2.5	83 ¹	5.8
Louisiana	—	—	—	—
Maine	92 ¹	1.5	96 ¹	2.2
Maryland	95 ¹	1.7	90 ¹	2.4
Massachusetts	91 ¹	1.8	95 ¹	1.6
Michigan	84 ¹	2.8	92 ¹	2.7
Minnesota	91 ¹	1.7	96 ¹	1.6
Mississippi	93 ¹	1.3	‡	†
Missouri	95 ¹	1.2	‡	†
Montana	93 ¹	1.8	98 ¹	1.7
Nebraska	93 ¹	1.4	95 ¹	1.7
Nevada	88 ¹	2.3	98 ¹	0.5
New Hampshire	94 ¹	1.0	95 ¹	2.6
New Jersey	91 ¹	2.0	83 ¹	4.5
New Mexico	93 ¹	1.3	95 ¹	1.1
New York	96 ¹	1.5	92 ¹	1.8
North Carolina	92 ¹	1.9	89 ¹	2.7
North Dakota	90 ¹	1.8	‡	†
Ohio	85 ¹	1.9	97 ¹	1.5
Oklahoma	93 ¹	1.4	95 ¹	1.8
Oregon	87 ¹	2.4	92 ¹	1.4
Pennsylvania	—	—	—	—
Rhode Island	94 ¹	1.6	87 ¹	2.9
South Carolina	94 ¹	1.5	95 ¹	1.3
South Dakota	91 ¹	1.4	86 ¹	4.6
Tennessee	92 ¹	1.5	97 ¹	1.5
Texas	84 ¹	2.6	97 ¹	0.9
Utah	93 ¹	2.3	95 ¹	2.0
Vermont	91 ¹	1.6	‡	†
Virginia	93 ¹	1.7	90 ¹	3.3
Washington	88 ¹	2.5	95 ¹	1.3
West Virginia	94 ¹	1.0	‡	†
Wisconsin	92 ¹	1.7	97 ¹	1.4
Wyoming	93 ¹	1.3	95 ¹	2.3
Other jurisdictions				
District of Columbia	—	—	—	—
DoDEA ²	88 ¹	1.9	91 ¹	2.1

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

† Not applicable. Standard error estimate cannot be accurately determined.

‡ Reporting standards not met. Sample size insufficient to permit a reliable estimate.

¹ The state/jurisdiction's inclusion rate is higher than or not significantly different from the National Assessment Governing Board goal of 85 percent.

² Department of Defense Education Activity (overseas and domestic schools).

NOTE: SD includes students identified as having an Individualized Education Program but excludes other students protected under Section 504 of the Rehabilitation Act of 1973.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2015 Science Assessment.

Table A-10.

Inclusion rate and standard error (SE) in NAEP science for eighth-grade public school students with disabilities (SD) and English language learners (ELL), as a percentage of identified SD or ELL students, by state/jurisdiction: 2015

State/jurisdiction	Percentage of identified SD or ELL students			
	SD		ELL	
	Inclusion rate	SE	Inclusion rate	SE
Nation	90 ¹	0.4	92 ¹	0.6
Public	90 ¹	0.4	92 ¹	0.6
Alabama	91 ¹	2.1	‡	†
Alaska	—	—	—	—
Arizona	91 ¹	2.6	89 ¹	3.8
Arkansas	86 ¹	2.6	94 ¹	1.8
California	91 ¹	2.2	96 ¹	1.2
Colorado	—	—	—	—
Connecticut	92 ¹	1.4	94 ¹	2.5
Delaware	94 ¹	1.4	‡	†
Florida	86 ¹	2.1	83 ¹	2.7
Georgia	88 ¹	2.1	96 ¹	2.1
Hawaii	84 ¹	2.1	90 ¹	1.8
Idaho	88 ¹	2.4	94 ¹	3.4
Illinois	96 ¹	1.2	93 ¹	2.5
Indiana	90 ¹	1.7	97 ¹	1.6
Iowa	91 ¹	1.8	88 ¹	4.7
Kansas	90 ¹	1.8	97 ¹	0.9
Kentucky	89 ¹	1.8	‡	†
Louisiana	—	—	—	—
Maine	89 ¹	1.6	94 ¹	3.0
Maryland	86 ¹	2.3	77 ¹	6.2
Massachusetts	93 ¹	1.6	89 ¹	2.5
Michigan	87 ¹	1.9	95 ¹	2.8
Minnesota	86 ¹	2.0	91 ¹	2.7
Mississippi	92 ¹	2.0	‡	†
Missouri	88 ¹	3.0	‡	†
Montana	91 ¹	1.8	‡	†
Nebraska	91 ¹	1.8	‡	†
Nevada	91 ¹	1.7	97 ¹	0.9
New Hampshire	94 ¹	1.3	‡	†
New Jersey	93 ¹	1.8	‡	†
New Mexico	92 ¹	1.5	96 ¹	1.2
New York	95 ¹	0.9	88 ¹	2.4
North Carolina	90 ¹	2.1	91 ¹	2.3
North Dakota	88 ¹	1.7	‡	†
Ohio	89 ¹	2.2	‡	†
Oklahoma	94 ¹	1.3	97 ¹	1.8
Oregon	87 ¹	1.8	89 ¹	4.2
Pennsylvania	—	—	—	—
Rhode Island	91 ¹	1.4	90 ¹	2.1
South Carolina	93 ¹	1.8	98 ¹	1.4
South Dakota	89 ¹	2.0	84 ¹	5.4
Tennessee	91 ¹	1.5	‡	†
Texas	81 ¹	3.3	93 ¹	1.8
Utah	91 ¹	1.7	93 ¹	3.4
Vermont	94 ¹	1.3	‡	†
Virginia	91 ¹	1.8	81 ¹	4.2
Washington	87 ¹	2.9	93 ¹	1.7
West Virginia	85 ¹	1.8	‡	†
Wisconsin	93 ¹	1.6	91 ¹	3.2
Wyoming	88 ¹	1.7	‡	†
Other jurisdictions				
District of Columbia	—	—	—	—
DoDEA ²	91 ¹	2.2	‡	†

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

† Not applicable. Standard error estimate cannot be accurately determined.

‡ Reporting standards not met. Sample size insufficient to permit a reliable estimate.

¹ The state/jurisdiction's inclusion rate is higher than or not significantly different from the National Assessment Governing Board goal of 85 percent.

² Department of Defense Education Activity (overseas and domestic schools).

NOTE: SD includes students identified as having an Individualized Education Program but excludes other students protected under Section 504 of the Rehabilitation Act of 1973.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2015 Science Assessment.

Accommodations

Prior to 1996, no testing accommodations were provided to students taking the NAEP assessments, resulting in the exclusion of students who could not be assessed without them. As the number of identified students with disabilities and English language learners increased over the years, the exclusion of those needing accommodations to participate in NAEP threatened the stability of trend lines (excluding more students in one assessment year than in another might lead to apparent rather than real differences), and threatened to compromise NAEP samples as optimally representative of target populations. Therefore, administration procedures allowing for many of the same testing accommodations provided on state and district assessments (e.g., extra testing time or individual rather than group administration) were introduced in 1996 for national NAEP assessments and in 2000 for NAEP state assessments.

The percentages of SD/ELL students assessed with the available accommodations in 2015 are presented in table A-11. Students assessed with accommodations typically received some combination of accommodations. For example, students assessed in small groups (as compared with standard NAEP sessions of about 30 students) were also usually given extended time and are included in counts for both groups in table A-11 and table A-12.

Table A-11.

Percentage of fourth-grade public and nonpublic school students identified as students with disabilities (SD) and/or English language learners (ELL) assessed in NAEP science with accommodations, by SD/ELL category and type of accommodation: 2015

Type of accommodation	SD and/or ELL	SD	ELL
Bilingual dictionary	0.8	0.1	0.8
Braille presentation	#	#	#
Braille response	#	#	#
Breaks	3.6	3.3	0.7
Cue to stay on task	1.2	1.1	0.2
Directions read aloud in English	1.6	1.3	0.6
Directions read aloud in Spanish	0.1	#	0.1
Extended time	11.2	8.4	3.9
Large-print booklet	0.1	0.1	#
Magnification device	#	#	#
One-on-one	0.5	0.5	0.1
Other	1.0	1.0	0.2
Read aloud (all)	6.4	5.5	1.7
Read aloud (occasional)	1.0	0.7	0.5
Read aloud in Spanish	#	#	#
School staff administers	0.3	0.3	0.1
Scribe	0.4	0.4	#
Sign language presentation	#	#	#
Sign language response	#	#	#
Small group	9.2	7.9	2.2
Spanish-English booklet	0.3	#	0.3
Special equipment	0.3	0.3	#

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. SD includes students identified as having either an Individualized Education Program or protection under Section 504 of the Rehabilitation Act of 1973.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2015 Science Assessment.

Table A-12.

Percentage of eighth-grade public and nonpublic school students identified as students with disabilities (SD) and/or English language learners (ELL) assessed in NAEP science with accommodations, by SD/ELL category and type of accommodation: 2015

Type of accommodation	SD and/or ELL	SD	ELL
Bilingual dictionary	0.9	0.1	0.9
Braille presentation	#	#	#
Braille response	#	#	#
Breaks	1.9	1.8	0.2
Cue to stay on task	0.6	0.6	#
Directions read aloud in English	1.4	1.2	0.3
Directions read aloud in Spanish	0.1	0.1	0.1
Extended time	9.5	8.0	2.2
Large-print booklet	#	#	#
Magnification device	#	#	#
One-on-one	0.3	0.3	#
Other	0.7	0.7	0.1
Read aloud (all)	3.9	3.7	0.6
Read aloud (occasional)	1.2	1.0	0.3
Read aloud in Spanish	#	#	#
School staff administers	0.2	0.1	#
Scribe	0.2	0.2	#
Sign language presentation	#	#	#
Sign language response	#	#	#
Small group	7.8	7.3	1.1
Spanish-English booklet	0.1	#	0.1
Special equipment	0.3	0.3	#

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. SD includes students identified as having either an Individualized Education Program or protection under Section 504 of the Rehabilitation Act of 1973.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2015 Science Assessment.

Exclusion Rates

Even with the availability of accommodations, some students are excluded from the NAEP assessments by their schools. The decision to exclude any student is made by school staff who, using NAEP guidelines and each student's Individualized Education Program (IEP), decide whether the student can meaningfully be assessed.

Students with Disabilities and English Language Learners at In 2013, the method used by school staff to determine whether or not a student should be excluded from the NAEP assessment was revised. Previously, a student who required an accommodation specified in their IEP that was not allowed by NAEP was excluded. Beginning in 2013, SD students could be excluded only if they took an alternate assessment with alternate achievement standards, and ELL students could be excluded only if they had been enrolled in U.S. schools for less than one year. All other students were encouraged to take the assessment, even if their accommodation was not allowed by NAEP. Schools, students, or parents could, however, refuse to allow such a student to be assessed. For weighting and reporting purposes, these refusals were counted as exclusions.

Jurisdictions vary in their proportions of special-needs students. These variations, as well as differences in policies and practices regarding the identification and inclusion of special-needs students, lead to differences in exclusion and accommodation rates. These differences should be considered when comparing student performance over time and across jurisdictions. While the effect of exclusion is not precisely known, the validity of comparisons of performance results could be affected if exclusion rates are comparatively high or vary widely over time.

The percentages of SD and/or ELL students at grade 4 in the nation and in each state/jurisdiction identified, excluded, and assessed in NAEP science are presented in table A-13. Data are reported separately for SD and ELL students at grade 4 in table A-14 and table A-15. The similar results for grade 8 are presented in tables A-16, A-17, and A-18.

The percentage of SD and/or ELL students excluded and assessed with and without accommodations as a percentage of students identified as SD and/or ELL are provided in tables A-19 to A-24 for both grades 4 and 8.

Table A-13.

Percentage of fourth-grade public school students with disabilities and/or English language learners identified, excluded, and assessed in NAEP science, as a percentage of all students, by state/jurisdiction: 2009 and 2015

State/jurisdiction	2009					2015				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	21	2	19	8	11	23	1	22	8	14
Public	23	2	20	9	12	24	2	23	9	14
Alabama	12	1	11	7	4	14	1	12	7	5
Alaska	—	—	—	—	—	—	—	—	—	—
Arizona	26	2	24	11	13	21	2	19	4	16
Arkansas	17	1	16	3	13	21	1	20	4	16
California	36	2	33	27	6	35	1	33	26	8
Colorado	21	1	20	6	14	—	—	—	—	—
Connecticut	18	2	16	2	14	19	2	17	3	14
Delaware	18	2	17	2	14	20	2	19	4	15
Florida	23	2	22	4	18	26	2	24	3	21
Georgia	14	1	13	4	9	19	2	17	3	14
Hawaii	20	1	19	6	13	16	2	15	5	10
Idaho	15	2	13	6	8	15	2	13	4	9
Illinois	22	2	19	5	14	22	2	20	6	14
Indiana	19	2	17	6	12	23	1	22	5	17
Iowa	18	2	17	3	13	20	2	19	3	15
Kansas	—	—	—	—	—	28	1	26	13	13
Kentucky	17	2	15	5	10	19	2	17	5	12
Louisiana	22	1	20	4	16	—	—	—	—	—
Maine	20	1	18	4	14	22	2	20	3	17
Maryland	19	3	16	2	14	21	1	19	4	15
Massachusetts	24	3	21	7	14	27	2	25	8	18
Michigan	17	2	15	6	8	19	2	16	7	9
Minnesota	21	3	19	8	10	23	2	21	12	10
Mississippi	10	1	9	3	6	14	1	13	5	8
Missouri	16	2	14	5	9	16	1	15	4	11
Montana	14	1	13	4	9	14	1	14	5	8
Nebraska	—	—	—	—	—	23	1	22	7	15
Nevada	30	2	28	11	17	33	2	32	12	20
New Hampshire	21	2	19	4	15	21	1	20	4	16
New Jersey	19	2	17	2	15	21	2	19	3	17
New Mexico	26	2	24	9	15	29	2	27	10	17
New York	22	1	21	1	20	25	1	23	1	23
North Carolina	19	2	18	5	12	19	2	17	6	12
North Dakota	17	3	15	4	11	15	1	14	4	10
Ohio	16	2	14	3	11	19	2	17	3	14
Oklahoma	19	3	15	5	10	24	2	22	9	13
Oregon	26	3	23	8	15	25	2	23	10	13
Pennsylvania	18	1	17	4	12	—	—	—	—	—
Rhode Island	22	2	20	5	15	20	2	18	5	14
South Carolina	19	1	18	8	10	21	1	20	8	12
South Dakota	16	2	14	7	8	19	2	17	7	10
Tennessee	16	2	14	3	11	20	1	18	4	15
Texas	29	3	26	16	9	34	2	32	14	18
Utah	19	2	17	6	11	16	1	15	7	8
Vermont	—	—	—	—	—	20	1	19	3	16
Virginia	20	2	18	5	13	18	1	17	3	14
Washington	21	2	19	8	11	24	2	22	9	13
West Virginia	17	2	16	7	9	21	1	20	7	12
Wisconsin	20	2	18	3	15	19	1	18	4	14
Wyoming	18	1	17	4	13	18	1	17	5	12
Other jurisdictions										
District of Columbia	—	—	—	—	—	—	—	—	—	—
DoDEA ¹	18	2	16	6	10	22	2	20	7	12

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

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

NOTE: 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 and 2015 Science Assessments.

Table A-14.

Percentage of fourth-grade public school students with disabilities identified, excluded, and assessed in NAEP science, as a percentage of all students, by state/jurisdiction: 2009 and 2015

State/jurisdiction	2009					2015				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	13	2	11	3	8	14	1	13	3	10
Public	13	2	12	3	9	15	1	13	3	11
Alabama	10	1	9	6	4	12	1	11	5	5
Alaska	—	—	—	—	—	—	—	—	—	—
Arizona	13	2	12	5	7	13	1	12	2	10
Arkansas	12	1	11	2	9	14	1	13	2	11
California	10	2	7	3	4	10	1	9	3	6
Colorado	11	1	10	2	8	—	—	—	—	—
Connecticut	13	2	12	2	10	13	1	12	2	10
Delaware	15	2	14	2	12	17	1	16	3	13
Florida	17	1	15	3	12	17	1	16	2	14
Georgia	10	1	10	3	7	14	1	13	2	11
Hawaii	10	1	10	2	8	10	1	9	1	7
Idaho	10	1	9	3	6	11	2	9	2	7
Illinois	15	1	14	3	10	13	1	12	3	9
Indiana	16	2	14	5	9	17	1	16	3	13
Iowa	14	1	13	2	10	13	1	12	2	10
Kansas	—	—	—	—	—	15	1	14	4	10
Kentucky	15	2	13	5	9	16	2	14	4	10
Louisiana	20	1	18	4	15	—	—	—	—	—
Maine	18	1	17	3	14	19	1	18	2	16
Maryland	14	2	12	2	10	13	1	12	1	11
Massachusetts	19	3	15	2	13	20	2	18	2	16
Michigan	14	2	12	4	8	14	2	12	4	8
Minnesota	14	2	12	5	8	14	1	13	5	8
Mississippi	9	1	9	3	6	12	1	11	4	7
Missouri	14	2	13	4	8	14	1	13	4	9
Montana	12	1	10	3	8	12	1	12	3	8
Nebraska	—	—	—	—	—	17	1	16	5	11
Nevada	12	2	10	3	6	12	1	10	2	8
New Hampshire	18	2	17	3	14	18	1	17	2	16
New Jersey	16	1	14	2	12	18	1	17	2	15
New Mexico	13	2	11	3	8	15	1	14	3	11
New York	16	1	15	1	14	18	1	18	1	17
North Carolina	15	2	13	4	9	13	1	12	3	10
North Dakota	16	3	13	4	10	13	1	12	3	9
Ohio	14	2	12	2	10	16	2	14	2	12
Oklahoma	15	3	12	3	9	18	1	17	5	12
Oregon	16	3	13	5	8	14	2	13	4	8
Pennsylvania	15	1	14	4	11	—	—	—	—	—
Rhode Island	17	2	16	3	13	14	1	13	1	12
South Carolina	14	1	13	6	8	14	1	13	4	9
South Dakota	15	2	13	6	7	16	2	15	6	9
Tennessee	14	2	12	3	9	15	1	14	3	11
Texas	10	2	8	2	5	14	1	13	2	11
Utah	12	2	10	4	7	12	1	12	4	7
Vermont	—	—	—	—	—	18	1	16	1	15
Virginia	14	1	13	3	10	13	1	12	2	11
Washington	12	2	11	3	7	13	1	12	4	8
West Virginia	17	2	16	7	9	20	1	19	7	12
Wisconsin	15	2	13	2	11	13	1	12	2	10
Wyoming	16	1	14	3	11	15	1	14	3	11
Other jurisdictions										
District of Columbia	—	—	—	—	—	—	—	—	—	—
DoDEA ¹	12	1	11	3	8	14	1	13	3	10

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

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

NOTE: 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 and 2015 Science Assessments.

Table A-15.

Percentage of fourth-grade public school English language learners identified, excluded, and assessed in NAEP science, as a percentage of all students, by state/jurisdiction: 2009 and 2015

State/jurisdiction	2009					2015				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	10	1	9	5	4	11	#	10	6	5
Public	10	1	10	6	4	12	1	11	6	5
Alabama	2	#	2	#	#	2	#	2	2	#
Alaska	—	—	—	—	—	—	—	—	—	—
Arizona	15	1	14	7	7	10	1	10	2	8
Arkansas	6	#	6	1	4	8	#	8	2	6
California	30	1	29	25	3	28	1	28	24	4
Colorado	11	#	10	4	6	—	—	—	—	—
Connecticut	6	1	5	1	4	7	1	6	1	5
Delaware	4	#	4	1	3	5	1	4	2	3
Florida	8	1	7	#	7	10	1	9	#	9
Georgia	4	#	4	1	3	6	#	5	1	4
Hawaii	10	1	10	4	6	8	1	7	3	4
Idaho	5	#	5	3	2	5	1	4	2	3
Illinois	8	1	7	2	5	10	1	10	3	7
Indiana	5	1	4	1	3	7	#	7	2	5
Iowa	5	#	4	1	3	8	1	7	1	6
Kansas	—	—	—	—	—	14	#	14	9	4
Kentucky	2	#	2	1	1	4	1	4	1	3
Louisiana	2	#	2	1	2	—	—	—	—	—
Maine	1	#	1	1	1	3	#	3	2	1
Maryland	6	1	5	#	5	8	1	7	2	5
Massachusetts	7	1	6	4	2	10	#	9	6	3
Michigan	4	#	3	3	1	5	#	5	3	2
Minnesota	8	1	7	4	3	10	#	9	7	3
Mississippi	1	#	1	#	1	2	#	2	1	1
Missouri	2	#	2	1	1	2	#	2	1	2
Montana	3	#	3	2	2	3	#	3	2	1
Nebraska	—	—	—	—	—	7	#	7	2	5
Nevada	20	1	20	8	12	24	#	24	10	14
New Hampshire	3	#	3	1	2	3	#	3	2	1
New Jersey	4	1	3	#	3	3	1	3	1	2
New Mexico	16	1	15	6	9	17	1	16	7	9
New York	8	1	7	#	7	8	1	8	#	8
North Carolina	6	#	6	2	4	6	1	6	3	3
North Dakota	2	#	1	#	1	2	#	2	1	1
Ohio	3	#	2	1	2	4	#	4	1	3
Oklahoma	4	1	4	2	2	7	#	6	4	3
Oregon	12	1	11	4	7	13	1	12	6	6
Pennsylvania	3	#	3	#	2	—	—	—	—	—
Rhode Island	6	1	6	2	3	8	1	7	4	3
South Carolina	5	#	5	3	2	8	#	8	4	3
South Dakota	2	#	2	1	1	3	#	3	1	2
Tennessee	3	#	2	#	2	5	#	5	1	4
Texas	21	2	19	15	5	23	1	22	12	10
Utah	9	1	8	3	5	5	#	4	3	2
Vermont	—	—	—	—	—	3	#	3	1	1
Virginia	6	1	6	2	4	7	1	6	1	5
Washington	10	1	9	4	5	13	1	12	6	7
West Virginia	#	#	#	#	#	1	#	1	1	#
Wisconsin	7	1	6	1	5	7	#	7	2	5
Wyoming	3	#	3	#	2	4	#	3	1	2
Other jurisdictions										
District of Columbia	—	—	—	—	—	—	—	—	—	—
DoDEA ¹	7	1	5	3	2	9	1	8	4	4

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

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

NOTE: 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 and 2015 Science Assessments.

Table A-16.

Percentage of eighth-grade public school students with disabilities and/or English language learners identified, excluded, and assessed in NAEP science, as a percentage of all students, by state/jurisdiction: 2009, 2011, and 2015

State/jurisdiction	2009					2011				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	17	2	15	5	10	17	2	15	4	11
Public	18	2	16	5	10	18	2	16	5	11
Alabama	11	1	10	7	3	12	1	11	7	4
Alaska	—	—	—	—	—	21	1	20	4	16
Arizona	16	2	14	5	9	12	1	11	2	9
Arkansas	16	1	14	3	11	16	1	15	3	12
California	25	2	24	18	6	23	2	22	14	8
Colorado	17	1	15	5	11	16	1	15	5	10
Connecticut	16	2	14	3	11	16	1	15	2	13
Delaware	17	1	16	2	14	16	2	14	2	12
Florida	19	2	17	1	16	19	1	17	1	16
Georgia	13	1	12	2	10	12	2	10	2	8
Hawaii	18	2	17	6	10	20	2	18	7	11
Idaho	12	1	11	4	7	12	1	10	4	7
Illinois	16	1	15	3	12	17	1	16	3	12
Indiana	16	2	14	3	12	17	1	16	3	13
Iowa	16	1	15	2	12	17	1	16	2	14
Kansas	—	—	—	—	—	18	1	16	7	9
Kentucky	13	2	10	2	9	13	3	10	2	8
Louisiana	16	1	14	2	12	15	1	14	1	13
Maine	19	2	17	3	14	20	2	18	4	14
Maryland	14	3	12	1	11	14	2	12	1	11
Massachusetts	21	4	17	3	14	22	3	19	3	16
Michigan	15	2	12	3	9	14	3	12	3	8
Minnesota	17	2	15	6	9	17	2	15	7	8
Mississippi	10	1	9	2	7	8	1	7	1	6
Missouri	14	1	12	3	10	14	1	13	3	10
Montana	14	2	12	3	9	13	2	12	3	9
Nebraska	—	—	—	—	—	16	1	15	3	12
Nevada	17	1	16	5	10	18	1	17	6	11
New Hampshire	21	2	19	5	14	20	2	18	5	13
New Jersey	18	2	16	1	14	19	1	18	1	17
New Mexico	21	3	18	8	11	22	2	20	10	10
New York	20	2	18	1	17	20	1	19	#	18
North Carolina	17	2	15	3	13	18	2	16	4	12
North Dakota	16	4	12	3	9	16	3	13	2	10
Ohio	15	2	13	1	12	16	2	14	2	12
Oklahoma	18	3	14	4	10	18	3	15	5	10
Oregon	18	2	16	8	9	18	2	16	6	10
Pennsylvania	19	2	17	2	15	17	1	16	2	15
Rhode Island	21	3	18	4	14	19	1	19	4	14
South Carolina	16	2	14	5	9	15	1	14	5	9
South Dakota	12	1	10	3	7	13	1	11	3	8
Tennessee	12	2	11	1	9	13	1	12	1	10
Texas	17	4	14	7	7	18	2	16	8	8
Utah	14	2	12	4	8	14	2	12	3	9
Vermont	—	—	—	—	—	20	1	18	4	14
Virginia	17	2	15	4	11	18	3	15	5	10
Washington	14	2	12	4	7	16	2	14	5	10
West Virginia	15	2	14	4	10	14	2	12	3	9
Wisconsin	18	2	16	3	13	18	2	16	3	14
Wyoming	15	2	13	3	10	14	1	13	2	11
Other jurisdictions										
District of Columbia	—	—	—	—	—	21	1	20	2	18
DoDEA ¹	13	2	11	3	7	14	1	13	3	10

See notes at end of table.

Table A-16.

Percentage of eighth-grade public school students with disabilities and/or English language learners identified, excluded, and assessed in NAEP science, as a percentage of all students, by state/jurisdiction: 2009, 2011, and 2015—Continued

State/jurisdiction	2015				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	18	2	16	5	12
Public	19	2	17	5	12
Alabama	11	1	10	5	5
Alaska	—	—	—	—	—
Arizona	14	1	13	3	10
Arkansas	19	2	17	4	13
California	22	1	21	13	8
Colorado	—	—	—	—	—
Connecticut	19	1	18	3	14
Delaware	19	1	18	2	15
Florida	20	3	17	1	16
Georgia	15	1	13	2	11
Hawaii	17	2	15	6	9
Idaho	13	1	12	2	9
Illinois	17	1	16	3	14
Indiana	19	1	18	3	15
Iowa	16	1	14	2	12
Kansas	22	2	21	11	10
Kentucky	14	1	12	1	11
Louisiana	—	—	—	—	—
Maine	21	2	19	4	15
Maryland	18	3	15	1	14
Massachusetts	24	2	22	4	18
Michigan	16	2	14	4	10
Minnesota	19	2	17	9	8
Mississippi	11	1	10	2	8
Missouri	15	1	13	2	11
Montana	13	1	12	4	9
Nebraska	17	2	15	3	12
Nevada	23	1	22	12	9
New Hampshire	19	1	18	4	14
New Jersey	20	2	18	1	17
New Mexico	24	1	22	11	12
New York	22	1	20	1	20
North Carolina	18	2	17	4	13
North Dakota	16	2	14	3	11
Ohio	19	2	17	1	16
Oklahoma	20	1	19	6	13
Oregon	17	2	15	5	10
Pennsylvania	—	—	—	—	—
Rhode Island	20	2	18	4	14
South Carolina	17	1	16	6	9
South Dakota	14	2	12	4	8
Tennessee	16	1	15	2	13
Texas	21	2	19	7	12
Utah	13	1	12	3	10
Vermont	20	1	19	3	16
Virginia	18	2	16	4	12
Washington	18	2	16	5	11
West Virginia	15	2	13	2	11
Wisconsin	17	1	16	3	12
Wyoming	16	2	14	2	12
Other jurisdictions					
District of Columbia	—	—	—	—	—
DoDEA ¹	15	1	14	5	9

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

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

NOTE: 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, 2011, and 2015 Science Assessments.

Table A-17.

Percentage of eighth-grade public school students with disabilities identified, excluded, and assessed in NAEP science, as a percentage of all students, by state/jurisdiction: 2009, 2011, and 2015

State/jurisdiction	2009					2011				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	12	2	11	2	9	12	1	11	2	9
Public	13	2	11	2	9	13	2	11	2	9
Alabama	10	1	9	6	3	10	1	9	5	4
Alaska	—	—	—	—	—	13	1	12	1	11
Arizona	12	2	10	2	7	11	1	10	1	8
Arkansas	12	1	11	2	9	11	1	10	1	9
California	9	1	8	3	5	10	2	8	2	6
Colorado	11	1	9	1	8	10	1	9	1	8
Connecticut	13	1	12	2	10	12	1	11	1	10
Delaware	15	1	14	1	13	14	2	13	2	11
Florida	15	1	14	1	12	14	1	13	1	12
Georgia	11	1	10	2	8	10	2	9	2	7
Hawaii	12	1	11	3	8	11	1	10	2	8
Idaho	9	1	8	3	5	8	1	7	2	5
Illinois	14	1	13	2	11	14	1	13	2	11
Indiana	14	2	12	1	10	14	1	13	2	11
Iowa	14	1	13	1	12	15	1	14	1	13
Kansas	—	—	—	—	—	12	1	10	2	8
Kentucky	12	2	9	1	8	12	2	9	1	8
Louisiana	15	1	13	2	12	14	1	13	1	13
Maine	17	2	16	3	13	18	2	17	3	14
Maryland	12	2	10	1	9	11	2	10	1	9
Massachusetts	19	3	15	2	13	19	3	16	1	14
Michigan	13	2	10	2	8	12	2	10	2	8
Minnesota	12	2	11	3	8	13	2	11	4	7
Mississippi	9	1	8	1	7	7	1	7	1	6
Missouri	13	1	12	3	9	13	1	12	2	10
Montana	12	2	10	1	9	12	2	10	2	9
Nebraska	—	—	—	—	—	14	1	13	2	11
Nevada	11	1	10	2	8	10	1	9	2	7
New Hampshire	20	2	18	5	13	18	2	16	4	12
New Jersey	16	2	14	1	13	17	1	16	1	16
New Mexico	13	3	10	3	7	12	2	11	3	8
New York	16	1	15	1	14	16	1	15	#	14
North Carolina	12	1	11	1	10	14	1	12	2	10
North Dakota	15	4	11	3	9	14	3	11	2	9
Ohio	15	2	12	1	11	15	2	13	1	12
Oklahoma	15	3	12	2	10	16	3	13	4	9
Oregon	13	2	11	5	7	13	2	12	3	9
Pennsylvania	17	2	16	2	14	16	1	14	1	13
Rhode Island	18	2	16	4	12	16	#	16	3	13
South Carolina	14	2	12	4	8	11	1	10	2	8
South Dakota	10	1	9	2	7	11	1	10	2	7
Tennessee	12	2	10	1	9	12	1	10	1	9
Texas	12	3	9	3	6	11	2	9	2	7
Utah	10	2	8	2	7	10	2	9	1	8
Vermont	—	—	—	—	—	18	1	17	3	14
Virginia	14	2	12	3	9	13	2	11	3	8
Washington	11	2	9	3	6	12	2	10	2	8
West Virginia	15	2	13	4	10	14	2	12	3	9
Wisconsin	14	2	12	2	10	14	2	12	2	10
Wyoming	14	1	12	3	10	13	1	12	1	11
Other jurisdictions										
District of Columbia	—	—	—	—	—	17	1	16	1	14
DoDEA ¹	8	1	8	1	6	10	1	9	1	8

See notes at end of table.

Table A-17.

Percentage of eighth-grade public school students with disabilities identified, excluded, and assessed in NAEP science, as a percentage of all students, by state/jurisdiction: 2009, 2011, and 2015—Continued

State/jurisdiction	2015				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	13	1	12	2	10
Public	13	1	12	2	10
Alabama	10	1	9	4	5
Alaska	—	—	—	—	—
Arizona	11	1	10	1	9
Arkansas	12	1	11	1	10
California	11	1	10	3	7
Colorado	—	—	—	—	—
Connecticut	16	1	15	2	13
Delaware	17	1	16	2	15
Florida	14	2	12	#	12
Georgia	12	1	11	1	9
Hawaii	11	2	9	2	7
Idaho	11	1	10	2	8
Illinois	13	#	13	1	12
Indiana	14	1	13	1	11
Iowa	13	1	12	1	11
Kansas	12	1	11	2	9
Kentucky	13	1	12	1	11
Louisiana	—	—	—	—	—
Maine	18	2	17	2	15
Maryland	15	2	13	#	12
Massachusetts	19	1	18	2	16
Michigan	13	2	11	1	10
Minnesota	13	2	12	4	7
Mississippi	10	1	9	2	8
Missouri	13	1	12	2	10
Montana	12	1	11	2	8
Nebraska	14	1	13	3	10
Nevada	10	1	9	3	7
New Hampshire	17	1	16	3	13
New Jersey	18	1	17	1	16
New Mexico	14	1	13	3	10
New York	17	1	16	#	16
North Carolina	15	1	13	2	11
North Dakota	14	2	13	3	10
Ohio	16	1	14	1	13
Oklahoma	16	1	15	4	12
Oregon	15	2	13	4	9
Pennsylvania	—	—	—	—	—
Rhode Island	16	1	14	1	13
South Carolina	12	1	12	3	9
South Dakota	12	1	10	3	7
Tennessee	14	1	13	1	12
Texas	12	2	10	1	9
Utah	11	1	10	1	9
Vermont	19	1	18	2	16
Virginia	14	1	13	2	10
Washington	12	1	11	1	9
West Virginia	14	2	12	1	11
Wisconsin	14	1	13	2	11
Wyoming	14	2	13	1	12
Other jurisdictions					
District of Columbia	—	—	—	—	—
DoDEA ¹	11	1	10	2	8

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

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

NOTE: 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, 2011, and 2015 Science Assessments.

Table A-18.

Percentage of eighth-grade public school English language learners identified, excluded, and assessed in NAEP science, as a percentage of all students, by state/jurisdiction: 2009, 2011, and 2015

State/jurisdiction	2009					2011				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	5	#	5	3	2	6	#	5	3	2
Public	6	1	5	3	2	6	#	6	3	2
Alabama	1	#	1	1	#	2	#	1	1	#
Alaska	—	—	—	—	—	11	#	10	3	7
Arizona	6	1	6	3	3	2	#	2	#	2
Arkansas	4	#	4	1	3	5	#	5	2	3
California	20	1	19	16	3	17	1	16	13	4
Colorado	7	#	7	3	3	7	#	7	4	3
Connecticut	4	1	3	1	2	4	#	4	1	3
Delaware	2	#	2	#	2	2	#	2	1	1
Florida	5	1	4	#	4	5	#	4	#	4
Georgia	2	#	2	#	1	2	#	2	#	2
Hawaii	7	1	6	3	3	9	1	8	5	3
Idaho	4	#	4	2	2	4	#	4	2	2
Illinois	3	1	3	1	2	4	#	4	2	2
Indiana	3	#	3	1	1	3	#	3	1	2
Iowa	2	#	2	1	1	3	#	3	1	2
Kansas	—	—	—	—	—	7	#	7	5	2
Kentucky	1	#	1	#	1	1	#	1	#	#
Louisiana	1	#	1	#	1	1	#	1	#	1
Maine	2	#	2	1	1	3	#	3	2	1
Maryland	2	#	2	#	2	3	#	2	#	2
Massachusetts	3	1	2	1	1	4	1	3	1	2
Michigan	2	#	2	2	#	3	#	2	1	1
Minnesota	6	1	5	4	1	5	#	5	3	2
Mississippi	1	#	1	#	#	1	#	1	#	1
Missouri	1	#	1	#	#	1	#	1	1	#
Montana	3	#	3	2	1	2	#	2	1	#
Nebraska	—	—	—	—	—	3	#	3	1	1
Nevada	8	#	8	4	4	10	#	10	4	6
New Hampshire	1	#	1	1	1	2	#	2	1	1
New Jersey	3	1	2	#	2	2	#	2	#	2
New Mexico	11	1	10	5	5	12	1	11	7	4
New York	5	1	4	#	4	6	#	5	#	5
North Carolina	5	#	5	2	3	5	#	4	2	2
North Dakota	2	1	1	1	#	2	#	2	#	2
Ohio	1	#	1	#	#	1	#	1	#	1
Oklahoma	3	#	3	2	1	3	#	3	2	1
Oregon	6	#	6	3	3	6	#	6	3	3
Pennsylvania	2	#	2	1	1	2	#	2	#	2
Rhode Island	3	1	2	1	1	3	#	3	1	2
South Carolina	3	#	3	1	2	5	#	5	2	2
South Dakota	1	#	1	1	#	2	#	2	1	1
Tennessee	1	#	1	#	1	2	#	2	#	1
Texas	7	1	6	4	1	9	1	8	7	1
Utah	5	#	4	2	2	5	#	5	2	3
Vermont	—	—	—	—	—	1	#	1	1	#
Virginia	3	#	3	1	2	6	1	5	3	2
Washington	4	#	3	2	2	5	#	5	3	2
West Virginia	1	#	1	#	#	#	#	#	#	#
Wisconsin	4	1	4	1	3	5	#	5	1	4
Wyoming	1	#	1	#	1	2	#	2	1	1
Other jurisdictions										
District of Columbia	—	—	—	—	—	6	#	5	1	4
DoDEA ¹	5	1	4	2	1	5	1	4	2	2

See notes at end of table.

Table A-18.

Percentage of eighth-grade public school English language learners identified, excluded, and assessed in NAEP science, as a percentage of all students, by state/jurisdiction: 2009, 2011, and 2015—Continued

State/jurisdiction	2015				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	6	1	6	3	3
Public	7	1	6	3	3
Alabama	2	#	1	1	#
Alaska	—	—	—	—	—
Arizona	4	#	3	2	2
Arkansas	7	#	7	3	4
California	15	1	14	11	3
Colorado	—	—	—	—	—
Connecticut	4	#	4	1	3
Delaware	2	#	2	1	1
Florida	6	1	5	#	5
Georgia	3	#	3	1	2
Hawaii	7	1	6	3	3
Idaho	3	#	3	1	2
Illinois	5	#	5	2	3
Indiana	5	#	5	2	3
Iowa	4	#	4	1	2
Kansas	11	#	10	9	1
Kentucky	1	#	1	#	1
Louisiana	—	—	—	—	—
Maine	3	#	2	2	1
Maryland	4	1	3	1	2
Massachusetts	6	1	5	3	3
Michigan	4	#	3	2	1
Minnesota	7	1	6	5	1
Mississippi	1	#	1	#	#
Missouri	2	#	2	1	1
Montana	2	#	2	1	1
Nebraska	2	#	2	1	1
Nevada	15	1	14	10	4
New Hampshire	2	#	2	#	1
New Jersey	2	1	2	#	2
New Mexico	14	1	13	8	5
New York	6	1	5	#	5
North Carolina	5	#	5	2	3
North Dakota	2	1	2	#	1
Ohio	3	#	3	#	2
Oklahoma	5	#	5	3	2
Oregon	4	#	3	1	2
Pennsylvania	—	—	—	—	—
Rhode Island	5	1	5	3	2
South Carolina	5	#	5	3	1
South Dakota	3	#	2	1	1
Tennessee	3	#	2	1	2
Texas	11	1	10	6	4
Utah	4	#	4	1	2
Vermont	2	#	1	#	1
Virginia	6	1	5	1	3
Washington	7	#	7	4	3
West Virginia	1	#	1	1	#
Wisconsin	4	#	4	1	2
Wyoming	2	#	2	1	1
Other jurisdictions					
District of Columbia	—	—	—	—	—
DoDEA ¹	5	#	4	3	1

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

Rounds to zero.

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

NOTE: 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, 2011, and 2015 Science Assessments.

Table A-19.

Percentage of fourth-grade public and nonpublic school students identified as students with disabilities (SD) and/or English language learners (ELL) excluded in NAEP science, as a percentage of all students, by state/jurisdiction: 2009 and 2015

State/jurisdiction	Percentage of identified SD and/or ELL students							
	2009				2015			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	9	91	39	52	6	94	35	58
Public	9	91	39	52	7	93	35	58
Alabama	8	92	60	31	10	90	50	40
Alaska	—	—	—	—	—	—	—	—
Arizona	7	93	43	51	8	92	17	75
Arkansas	8	92	19	73	6	94	20	74
California	7	93	76	17	4	96	74	22
Colorado	7	93	29	64	—	—	—	—
Connecticut	13	87	11	76	10	90	17	74
Delaware	9	91	13	78	8	92	20	72
Florida	7	93	15	77	7	93	10	83
Georgia	6	94	30	64	9	91	17	73
Hawaii	7	93	28	65	10	90	29	62
Idaho	11	89	37	52	14	86	25	61
Illinois	10	90	23	67	7	93	27	66
Indiana	11	89	29	61	4	96	21	75
Iowa	9	91	19	72	8	92	16	76
Kansas	—	—	—	—	5	95	47	48
Kentucky	12	88	30	57	11	89	25	64
Louisiana	7	93	19	74	—	—	—	—
Maine	7	93	20	73	7	93	14	79
Maryland	15	85	12	73	7	93	19	74
Massachusetts	14	86	28	58	7	93	29	64
Michigan	13	87	37	50	13	87	38	49
Minnesota	12	88	39	49	7	93	51	43
Mississippi	8	92	33	59	7	93	33	60
Missouri	11	89	31	58	5	95	28	67
Montana	11	89	29	61	6	94	36	59
Nebraska	—	—	—	—	6	94	29	64
Nevada	8	92	36	56	5	95	35	60
New Hampshire	8	92	19	73	5	95	17	77
New Jersey	9	91	11	80	8	92	13	78
New Mexico	8	92	33	58	5	95	34	61
New York	7	93	6	88	5	95	3	92
North Carolina	10	90	27	63	8	92	30	61
North Dakota	16	84	23	61	10	90	24	66
Ohio	11	89	18	71	11	89	14	75
Oklahoma	19	81	28	54	7	93	37	57
Oregon	11	89	32	57	9	91	41	51
Pennsylvania	8	92	22	69	—	—	—	—
Rhode Island	10	90	23	67	9	91	24	67
South Carolina	7	93	43	51	6	94	40	55
South Dakota	11	89	41	48	10	90	36	54
Tennessee	10	90	22	68	6	94	20	74
Texas	11	89	57	32	6	94	41	54
Utah	11	89	33	56	7	93	42	51
Vermont	—	—	—	—	7	93	13	79
Virginia	9	91	24	67	8	92	18	75
Washington	11	89	37	52	8	92	38	54
West Virginia	9	91	39	52	6	94	34	60
Wisconsin	10	90	16	74	6	94	23	72
Wyoming	8	92	22	71	6	94	26	68
Other jurisdictions								
District of Columbia	—	—	—	—	—	—	—	—
DoDEA ¹	11	89	33	56	10	90	33	57

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

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

NOTE: 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 and 2015 Science Assessments.

Table A-20.

Percentage of fourth-grade public and nonpublic school students with disabilities (SD) excluded in NAEP science, as a percentage of identified SD students, by state/jurisdiction: 2009 and 2015

State/jurisdiction	Percentage of identified SD students							
	2009				2015			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	12	88	23	64	8	92	19	73
Public	13	87	23	64	8	92	19	73
Alabama	9	91	56	36	9	91	45	46
Alaska	—	—	—	—	—	—	—	—
Arizona	12	88	34	54	9	91	16	75
Arkansas	10	90	16	73	9	91	16	75
California	23	77	32	46	10	90	27	63
Colorado	11	89	15	74	—	—	—	—
Connecticut	14	86	11	75	9	91	14	77
Delaware	10	90	11	78	7	93	15	78
Florida	8	92	19	73	7	93	14	78
Georgia	7	93	31	62	10	90	14	76
Hawaii	7	93	16	76	10	90	13	77
Idaho	14	86	27	59	15	85	19	66
Illinois	7	93	23	69	8	92	22	70
Indiana	11	89	31	58	3	97	17	80
Iowa	10	90	15	74	7	93	15	77
Kansas	—	—	—	—	7	93	26	67
Kentucky	12	88	30	58	11	89	24	65
Louisiana	7	93	18	75	—	—	—	—
Maine	8	92	18	74	8	92	8	84
Maryland	17	83	14	69	5	95	11	85
Massachusetts	17	83	13	70	8	92	9	83
Michigan	15	85	28	57	15	85	30	55
Minnesota	14	86	34	52	9	91	37	54
Mississippi	8	92	33	59	7	93	33	60
Missouri	12	88	30	57	5	95	27	68
Montana	13	87	23	65	6	94	28	66
Nebraska	—	—	—	—	7	93	29	64
Nevada	17	83	28	55	11	89	21	68
New Hampshire	9	91	17	74	5	95	9	86
New Jersey	8	92	12	80	7	93	12	81
New Mexico	14	86	21	66	7	93	20	73
New York	5	95	7	88	4	96	4	92
North Carolina	12	88	26	62	8	92	21	71
North Dakota	17	83	22	61	9	91	22	69
Ohio	13	87	17	70	13	87	12	75
Oklahoma	21	79	22	58	7	93	29	64
Oregon	17	83	29	54	13	87	30	57
Pennsylvania	8	92	23	69	—	—	—	—
Rhode Island	10	90	16	74	6	94	9	85
South Carolina	8	92	39	53	6	94	30	64
South Dakota	12	88	40	49	9	91	34	56
Tennessee	12	88	22	66	7	93	18	75
Texas	24	76	22	54	11	89	14	76
Utah	15	85	29	57	7	93	35	58
Vermont	—	—	—	—	8	92	8	84
Virginia	10	90	22	68	6	94	14	79
Washington	14	86	27	58	11	89	30	59
West Virginia	9	91	39	52	6	94	33	61
Wisconsin	12	88	14	74	7	93	17	75
Wyoming	9	91	22	70	7	93	22	71
Other jurisdictions								
District of Columbia	—	—	—	—	—	—	—	—
DoDEA ¹	9	91	25	67	10	90	22	68

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

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

NOTE: 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 and 2015 Science Assessments.

Table A-21.

Percentage of fourth-grade public and nonpublic school English language learners (ELL) excluded in NAEP science, as a percentage of identified ELL students, by state/jurisdiction: 2009 and 2015

State/jurisdiction	Percentage of identified ELL students							
	2009				2015			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	7	93	57	37	4	96	53	42
Public	7	93	57	37	4	96	53	43
Alabama	5	95	82	14	‡	‡	‡	‡
Alaska	—	—	—	—	—	—	—	—
Arizona	4	96	49	48	6	94	16	78
Arkansas	7	93	23	71	1	99	25	74
California	4	96	85	11	2	98	85	13
Colorado	3	97	42	55	—	—	—	—
Connecticut	13	87	10	77	12	88	18	69
Delaware	7	93	18	75	11	89	35	54
Florida	8	92	4	88	8	92	1	91
Georgia	2	98	28	70	6	94	25	69
Hawaii	8	92	37	55	9	91	44	47
Idaho	8	92	56	35	12	88	33	55
Illinois	16	84	21	63	7	93	30	63
Indiana	15	85	17	69	4	96	28	68
Iowa	3	97	29	68	8	92	15	77
Kansas	—	—	—	—	3	97	66	31
Kentucky	19	81	29	52	17	83	23	60
Louisiana	7	93	27	66	—	—	—	—
Maine	‡	‡	‡	‡	4	96	49	48
Maryland	16	84	6	78	10	90	30	60
Massachusetts	11	89	61	28	5	95	64	31
Michigan	8	92	72	20	8	92	58	35
Minnesota	13	87	44	43	4	96	67	29
Mississippi	‡	‡	‡	‡	‡	‡	‡	‡
Missouri	‡	‡	‡	‡	‡	‡	‡	‡
Montana	2	98	50	49	2	98	69	30
Nebraska	—	—	—	—	5	95	27	68
Nevada	5	95	38	58	2	98	40	58
New Hampshire	3	97	25	72	5	95	62	33
New Jersey	15	85	4	81	17	83	22	61
New Mexico	6	94	39	55	5	95	41	55
New York	9	91	2	89	8	92	1	91
North Carolina	5	95	29	66	11	89	46	42
North Dakota	‡	‡	‡	‡	‡	‡	‡	‡
Ohio	13	87	19	68	3	97	24	73
Oklahoma	14	86	48	38	5	95	55	40
Oregon	6	94	33	61	8	92	47	45
Pennsylvania	6	94	16	78	—	—	—	—
Rhode Island	11	89	39	50	13	87	47	39
South Carolina	3	97	51	46	5	95	53	43
South Dakota	‡	‡	‡	‡	14	86	37	49
Tennessee	2	98	15	83	3	97	21	76
Texas	7	93	70	23	3	97	54	44
Utah	7	93	33	59	5	95	56	40
Vermont	—	—	—	—	‡	‡	‡	‡
Virginia	8	92	26	66	10	90	21	70
Washington	7	93	44	49	5	95	43	52
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	9	91	16	75	3	97	30	67
Wyoming	‡	‡	‡	‡	5	95	36	59
Other jurisdictions								
District of Columbia	—	—	—	—	—	—	—	—
DoDEA ¹	17	83	46	37	9	91	49	41

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

‡ Reporting standards not met. Sample size insufficient to permit a reliable estimate.

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

NOTE: 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 and 2015 Science Assessments.

Table A-22.

Percentage of eighth-grade public and nonpublic school students identified as students with disabilities (SD) and/or English language learners (ELL) excluded in NAEP science, as a percentage of all students, by state/jurisdiction: 2009, 2011, and 2015

State/jurisdiction	Percentage of identified SD and/or ELL students							
	2009				2011			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	11	89	30	59	9	91	27	64
Public	11	89	30	58	10	90	27	63
Alabama	12	88	61	27	9	91	56	35
Alaska	—	—	—	—	5	95	18	77
Arizona	13	87	30	57	7	93	14	78
Arkansas	8	92	19	73	6	94	21	73
California	7	93	70	23	8	92	59	33
Colorado	9	91	27	64	6	94	29	65
Connecticut	10	90	20	70	8	92	12	79
Delaware	8	92	9	83	10	90	14	76
Florida	9	91	8	83	7	93	6	87
Georgia	11	89	16	73	13	87	16	71
Hawaii	9	91	34	56	10	90	35	55
Idaho	10	90	33	57	12	88	31	57
Illinois	9	91	18	73	7	93	20	73
Indiana	13	87	17	70	8	92	16	76
Iowa	7	93	15	78	6	94	10	84
Kansas	—	—	—	—	8	92	40	52
Kentucky	19	81	14	67	21	79	15	64
Louisiana	9	91	15	76	8	92	7	85
Maine	8	92	18	73	9	91	20	70
Maryland	18	82	9	73	14	86	8	78
Massachusetts	17	83	15	68	15	85	13	73
Michigan	17	83	23	60	19	81	23	58
Minnesota	13	87	36	50	12	88	38	50
Mississippi	10	90	17	73	11	89	14	75
Missouri	9	91	21	70	9	91	19	72
Montana	14	86	21	65	11	89	21	68
Nebraska	—	—	—	—	9	91	21	70
Nevada	8	92	31	61	7	93	31	62
New Hampshire	10	90	24	66	11	89	23	66
New Jersey	12	88	8	80	6	94	4	90
New Mexico	15	85	36	49	8	92	45	47
New York	9	91	5	86	7	93	2	91
North Carolina	10	90	16	74	9	91	22	69
North Dakota	25	75	19	55	20	80	15	64
Ohio	15	85	8	76	13	87	9	77
Oklahoma	19	81	23	58	16	84	29	55
Oregon	9	91	43	47	9	91	33	58
Pennsylvania	8	92	13	79	6	94	9	85
Rhode Island	14	86	21	66	3	97	22	75
South Carolina	13	87	31	56	8	92	30	62
South Dakota	11	89	27	62	10	90	27	64
Tennessee	13	87	11	76	11	89	11	78
Texas	21	79	41	39	13	87	45	42
Utah	12	88	27	61	13	87	19	67
Vermont	—	—	—	—	7	93	20	72
Virginia	11	89	25	64	15	85	29	56
Washington	15	85	32	52	12	88	28	60
West Virginia	10	90	26	64	11	89	23	65
Wisconsin	12	88	16	72	10	90	15	74
Wyoming	10	90	21	69	9	91	13	78
Other jurisdictions								
District of Columbia	—	—	—	—	7	93	11	82
DoDEA ¹	16	84	26	58	9	91	23	68

See notes at end of table.

Table A-22.

Percentage of eighth-grade public and nonpublic school students identified as students with disabilities (SD) and/or English language learners (ELL) excluded in NAEP science, as a percentage of all students, by state/jurisdiction: 2009, 2011, and 2015—Continued

State/jurisdiction	Percentage of identified SD and/or ELL students			
	2015			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	9	91	26	66
Public	9	91	26	66
Alabama	9	91	46	45
Alaska	—	—	—	—
Arizona	9	91	22	70
Arkansas	9	91	22	68
California	6	94	59	35
Colorado	—	—	—	—
Connecticut	6	94	17	77
Delaware	6	94	13	81
Florida	13	87	4	83
Georgia	9	91	14	77
Hawaii	14	86	32	54
Idaho	10	90	19	71
Illinois	5	95	16	80
Indiana	7	93	16	77
Iowa	9	91	14	77
Kansas	7	93	48	45
Kentucky	10	90	9	81
Louisiana	—	—	—	—
Maine	9	91	19	72
Maryland	14	86	6	80
Massachusetts	7	93	18	75
Michigan	11	89	23	66
Minnesota	12	88	46	43
Mississippi	8	92	18	75
Missouri	10	90	16	74
Montana	8	92	27	65
Nebraska	10	90	20	70
Nevada	5	95	55	40
New Hampshire	6	94	20	74
New Jersey	9	91	4	87
New Mexico	6	94	44	50
New York	6	94	2	91
North Carolina	9	91	21	70
North Dakota	12	88	17	70
Ohio	9	91	7	84
Oklahoma	6	94	30	64
Oregon	12	88	28	60
Pennsylvania	—	—	—	—
Rhode Island	8	92	21	70
South Carolina	6	94	37	57
South Dakota	11	89	32	57
Tennessee	8	92	13	79
Texas	10	90	34	57
Utah	9	91	20	71
Vermont	6	94	13	82
Virginia	11	89	20	69
Washington	10	90	28	61
West Virginia	13	87	12	75
Wisconsin	8	92	20	72
Wyoming	11	89	12	76
Other jurisdictions				
District of Columbia	—	—	—	—
DoDEA ¹	7	93	33	60

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

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

NOTE: 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, 2011, and 2015 Science Assessments.

Table A-23.

Percentage of eighth-grade public and nonpublic school students with disabilities (SD) excluded in NAEP science, as a percentage of identified SD students, by state/jurisdiction: 2009, 2011, and 2015

State/jurisdiction	Percentage of identified SD students							
	2009				2011			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	13	87	17	70	12	88	13	75
Public	14	86	17	70	12	88	13	75
Alabama	12	88	59	29	10	90	52	38
Alaska	—	—	—	—	7	93	10	83
Arizona	16	84	20	65	8	92	13	79
Arkansas	9	91	16	74	8	92	12	80
California	16	84	30	54	18	82	19	63
Colorado	12	88	12	76	9	91	9	82
Connecticut	10	90	17	73	10	90	11	79
Delaware	8	92	8	84	11	89	11	78
Florida	9	91	8	83	6	94	7	87
Georgia	13	87	14	73	15	85	17	69
Hawaii	8	92	27	65	9	91	18	73
Idaho	13	87	28	59	16	84	21	63
Illinois	6	94	16	78	7	93	12	81
Indiana	14	86	11	75	9	91	12	79
Iowa	8	92	10	82	6	94	6	88
Kansas	—	—	—	—	11	89	19	70
Kentucky	19	81	13	68	20	80	13	67
Louisiana	10	90	13	78	8	92	5	87
Maine	9	91	16	75	9	91	17	73
Maryland	20	80	9	71	14	86	6	80
Massachusetts	17	83	13	70	15	85	7	78
Michigan	19	81	15	67	19	81	17	64
Minnesota	14	86	22	63	14	86	28	58
Mississippi	10	90	15	75	11	89	11	78
Missouri	8	92	20	72	9	91	16	75
Montana	16	84	12	73	13	87	14	74
Nebraska	—	—	—	—	9	91	14	77
Nevada	12	88	19	69	11	89	17	72
New Hampshire	10	90	23	67	11	89	21	68
New Jersey	11	89	8	81	6	94	3	91
New Mexico	23	77	21	57	13	87	22	65
New York	7	93	4	89	7	93	2	91
North Carolina	11	89	9	80	11	89	14	75
North Dakota	27	73	17	57	23	77	13	64
Ohio	14	86	7	78	14	86	7	78
Oklahoma	21	79	16	63	17	83	23	60
Oregon	13	87	36	52	12	88	24	64
Pennsylvania	9	91	11	80	7	93	9	85
Rhode Island	10	90	20	69	3	97	19	78
South Carolina	14	86	28	58	10	90	20	70
South Dakota	12	88	23	65	10	90	22	69
Tennessee	14	86	11	75	12	88	11	77
Texas	26	74	25	49	18	82	16	66
Utah	15	85	18	67	16	84	9	74
Vermont	—	—	—	—	7	93	18	75
Virginia	12	88	21	67	15	85	21	64
Washington	17	83	27	56	14	86	16	70
West Virginia	11	89	24	66	12	88	22	66
Wisconsin	13	87	14	73	13	87	12	75
Wyoming	11	89	20	70	10	90	8	82
Other jurisdictions								
District of Columbia	—	—	—	—	7	93	7	86
DoDEA ¹	9	91	14	76	6	94	10	84

See notes at end of table.

Table A-23.

Percentage of eighth-grade public and nonpublic school students with disabilities (SD) excluded in NAEP science, as a percentage of identified SD students, by state/jurisdiction: 2009, 2011, and 2015—Continued

State/jurisdiction	Percentage of identified SD students			
	2015			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	9	91	12	79
Public	9	91	12	79
Alabama	9	91	42	49
Alaska	—	—	—	—
Arizona	8	92	13	79
Arkansas	12	88	9	79
California	9	91	25	66
Colorado	—	—	—	—
Connecticut	7	93	14	79
Delaware	5	95	9	86
Florida	12	88	2	86
Georgia	10	90	12	78
Hawaii	16	84	20	64
Idaho	11	89	14	75
Illinois	3	97	7	89
Indiana	9	91	10	81
Iowa	8	92	7	85
Kansas	10	90	17	73
Kentucky	9	91	8	83
Louisiana	—	—	—	—
Maine	10	90	11	79
Maryland	12	88	3	85
Massachusetts	6	94	10	84
Michigan	13	87	10	77
Minnesota	13	87	31	56
Mississippi	8	92	16	76
Missouri	11	89	12	77
Montana	9	91	21	70
Nebraska	9	91	18	73
Nevada	8	92	26	66
New Hampshire	6	94	19	75
New Jersey	6	94	4	90
New Mexico	7	93	22	71
New York	4	96	2	93
North Carolina	9	91	13	78
North Dakota	11	89	18	71
Ohio	9	91	5	86
Oklahoma	6	94	21	72
Oregon	12	88	24	64
Pennsylvania	—	—	—	—
Rhode Island	8	92	9	84
South Carolina	6	94	23	70
South Dakota	10	90	27	62
Tennessee	8	92	10	82
Texas	14	86	10	76
Utah	9	91	12	79
Vermont	5	95	11	84
Virginia	9	91	16	76
Washington	12	88	12	76
West Virginia	14	86	8	78
Wisconsin	7	93	15	78
Wyoming	12	88	6	82
Other jurisdictions				
District of Columbia	—	—	—	—
DoDEA ¹	8	92	18	75

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

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

NOTE: 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, 2011, and 2015 Science Assessments.

Table A-24.

Percentage of eighth-grade public and nonpublic school English language learners (ELL) excluded in NAEP science, as a percentage of identified ELL students, by state/jurisdiction: 2009, 2011, and 2015

State/jurisdiction	Percentage of identified ELL students							
	2009				2011			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	9	91	57	34	6	94	54	40
Public	9	91	56	35	6	94	54	40
Alabama	‡	‡	‡	‡	‡	‡	‡	‡
Alaska	—	—	—	—	3	97	26	71
Arizona	9	91	43	47	‡	‡	‡	‡
Arkansas	5	95	27	68	2	98	37	61
California	4	96	80	16	4	96	73	23
Colorado	5	95	47	47	2	98	52	46
Connecticut	17	83	29	53	7	93	15	78
Delaware	‡	‡	‡	‡	‡	‡	‡	‡
Florida	12	88	6	82	7	93	4	89
Georgia	#	100	25	75	‡	‡	‡	‡
Hawaii	13	87	45	42	11	89	54	36
Idaho	2	98	45	53	6	94	49	44
Illinois	22	78	25	53	6	94	43	51
Indiana	7	93	45	48	2	98	35	63
Iowa	10	90	41	49	2	98	29	69
Kansas	—	—	—	—	2	98	74	24
Kentucky	30	70	21	49	‡	‡	‡	‡
Louisiana	‡	‡	‡	‡	‡	‡	‡	‡
Maine	‡	‡	‡	‡	‡	‡	‡	‡
Maryland	10	90	6	83	‡	‡	‡	‡
Massachusetts	18	82	29	52	17	83	35	48
Michigan	11	89	74	15	‡	‡	‡	‡
Minnesota	13	87	64	23	5	95	62	33
Mississippi	‡	‡	‡	‡	‡	‡	‡	‡
Missouri	‡	‡	‡	‡	‡	‡	‡	‡
Montana	4	96	59	37	‡	‡	‡	‡
Nebraska	—	—	—	—	6	94	53	41
Nevada	4	96	43	52	4	96	41	55
New Hampshire	‡	‡	‡	‡	‡	‡	‡	‡
New Jersey	22	78	3	75	‡	‡	‡	‡
New Mexico	9	91	47	43	7	93	60	33
New York	16	84	5	79	8	92	2	90
North Carolina	8	92	34	58	5	95	42	54
North Dakota	‡	‡	‡	‡	‡	‡	‡	‡
Ohio	44	56	18	38	‡	‡	‡	‡
Oklahoma	12	88	58	31	‡	‡	‡	‡
Oregon	1	99	53	45	4	96	50	46
Pennsylvania	9	91	27	65	‡	‡	‡	‡
Rhode Island	38	62	23	39	8	92	35	57
South Carolina	8	92	39	53	1	99	52	47
South Dakota	‡	‡	‡	‡	‡	‡	‡	‡
Tennessee	‡	‡	‡	‡	‡	‡	‡	‡
Texas	15	85	64	22	9	91	75	16
Utah	5	95	43	51	5	95	37	58
Vermont	—	—	—	—	‡	‡	‡	‡
Virginia	8	92	39	53	17	83	42	41
Washington	12	88	43	45	4	96	56	40
West Virginia	‡	‡	‡	‡	‡	‡	‡	‡
Wisconsin	12	88	21	67	3	97	24	74
Wyoming	‡	‡	‡	‡	‡	‡	‡	‡
Other jurisdictions								
District of Columbia	—	—	—	—	9	91	22	70
DoDEA ¹	26	74	45	29	17	83	47	36

See notes at end of table.

Table A-24.

Percentage of eighth-grade public and nonpublic school English language learners (ELL) excluded in NAEP science, as a percentage of identified ELL students, by state/jurisdiction: 2009, 2011, and 2015—Continued

State/jurisdiction	Percentage of identified ELL students			
	2015			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
Nation	8	92	51	41
Public	8	92	50	42
Alabama	‡	‡	‡	‡
Alaska	—	—	—	—
Arizona	11	89	46	43
Arkansas	6	94	43	51
California	4	96	75	21
Colorado	—	—	—	—
Connecticut	6	94	25	69
Delaware	‡	‡	‡	‡
Florida	17	83	6	77
Georgia	4	96	22	75
Hawaii	10	90	49	41
Idaho	6	94	32	62
Illinois	7	93	33	60
Indiana	3	97	30	67
Iowa	12	88	35	53
Kansas	3	97	83	14
Kentucky	‡	‡	‡	‡
Louisiana	—	—	—	—
Maine	6	94	74	19
Maryland	23	77	15	62
Massachusetts	11	89	43	47
Michigan	5	95	65	29
Minnesota	9	91	71	20
Mississippi	‡	‡	‡	‡
Missouri	‡	‡	‡	‡
Montana	‡	‡	‡	‡
Nebraska	‡	‡	‡	‡
Nevada	3	97	69	28
New Hampshire	‡	‡	‡	‡
New Jersey	‡	‡	‡	‡
New Mexico	4	96	57	39
New York	12	88	2	86
North Carolina	9	91	39	52
North Dakota	‡	‡	‡	‡
Ohio	‡	‡	‡	‡
Oklahoma	3	97	56	41
Oregon	11	89	40	49
Pennsylvania	—	—	—	—
Rhode Island	10	90	58	33
South Carolina	2	98	71	27
South Dakota	16	84	47	37
Tennessee	‡	‡	‡	‡
Texas	7	93	55	38
Utah	7	93	39	54
Vermont	‡	‡	‡	‡
Virginia	19	81	25	56
Washington	7	93	53	40
West Virginia	‡	‡	‡	‡
Wisconsin	9	91	34	57
Wyoming	‡	‡	‡	‡
Other jurisdictions				
District of Columbia	—	—	—	—
DoDEA ¹	‡	‡	‡	‡

— Not available. The state/jurisdiction did not participate or did not meet the minimum participation guidelines for reporting.

‡ Reporting standards not met. Sample size insufficient to permit a reliable estimate.

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

NOTE: 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, 2011, and 2015 Science Assessments.

Data Collection

The NAEP 2015 science assessment was conducted from January to March 2015 by contractors to the U.S. Department of Education. Data collection for NAEP involves a collaborative effort among the participating schools, school districts, states, and NAEP staff. To reduce the burden on the participating schools, NAEP field staff perform most of the work associated with the assessment. The cooperation of the schools involves enlisting a school staff member to assist in coordinating selected students and providing space to administer the assessments.

Assessment sessions are scripted so that all students are given the same instructions and opportunity to demonstrate what they know and can do. Assessment administrators conduct the sessions under the supervision of their team's assessment coordinator. Training of assessment administrators focuses on their responsibilities in the classroom and on reading the scripts verbatim to administer the sessions in a uniform manner.

NAEP procedures guarantee the anonymity of participants. The names of students are never removed from the schools. The results of NAEP are reported on the national level and by region of the country, state, and for some urban districts—not by school or individual student.

Scoring

Four types of cognitive items were scored for the NAEP science assessment. Responses to multiple-choice questions were scored by high-speed scanners during student booklet processing. Dichotomous constructed-response (correct and incorrect), short constructed-response (correct, partial, and incorrect) and the extended constructed-response questions (those with four or five valid score points) were scored by trained personnel using high-definition images of student responses also captured during processing.

Scoring a large number of short and extended constructed responses with a high level of accuracy and reliability within a limited time frame is essential to the success of NAEP. To ensure reliable, efficient scoring, NAEP does the following:

- develops focused, explicit scoring guides for each item that match the criteria delineated in the assessment frameworks;
- pilot tests all items and adjusts the scoring guides (if necessary) to reflect actual student responses;
- recruits qualified and experienced scorers, trains them, and verifies their ability to score their assigned questions through practice assignments, and in certain cases, qualifying tests;
- employs an image-processing and scoring system that routes images of student responses directly to the scorers so they can focus on scoring rather than paper routing;
- monitors scorer consistency through a second scoring. This procedure randomly selects 5 percent of state samples and 25 percent of the national sample to score twice by different scorers;
- assesses the quality of scorer decision-making through constant monitoring by NAEP assessment experts; and
- documents all training, scoring, and quality control procedures in the technical reports.

For the 2015 science assessment, about one and a half million individual student responses were scored (including second scoring to monitor within-year interrater reliability). There are approximately 3/4 of the 2015 science items that had 90 percent or higher exact agreement between raters of the same student responses. Note that for scoring purposes, each individual part of a multipart item or the bilingual versions of a regular item that is given to the bilingual accommodated students were scored as separate items.

Data Analysis and Scaling

The goal of the analysis of NAEP data is to summarize the performance of groups of students. Initial analysis activities verify the accuracy of the data and data files used in the analysis and provide the first indication of aspects of the data and analysis that require special consideration and attention. The first step is to determine the percentages of students who gave various responses to each cognitive item. Next, the properties of the items are further examined using classical test theory measures of item difficulty and item discrimination. Some of these activities are conducted without student weights or with preliminary student weights, but final student weights are used whenever possible.

After the initial activities are completed, Item Response Theory (IRT) models are used to describe the relationships between the item responses provided by students and the underlying scale. The primary purpose of IRT scaling is to provide a common scale on which performance can be compared, even when students receive different blocks of items. Item parameters that are used in the models are estimated from student response data for each item. Different IRT models with different types of item parameters are used to describe multiple-choice items, dichotomous constructed-response items, and polytomous constructed-response items.

Because the NAEP matrix design gives each student a small proportion of the pool of assessment items, the assessment cannot provide reliable information about individual student performance. Traditional test scores for individual students, even those based on IRT, would result in misleading estimates of population characteristics, such as student group means and percentages of students at or above a certain scale-score level. However, it is NAEP's goal to estimate these population characteristics. NAEP's objectives can be achieved with methodologies that produce estimates of the population-level parameters using marginal estimation techniques for latent variables. Under the assumptions of the analysis models, these population estimates will be consistent in the sense that the estimates approach the population values as the sample size increases.

Prior to 2009, the overall science scale for each grade was a composite scale as a weighted average of subscales estimated for each of the science content areas. Starting in 2009, the overall science scale for each grade is estimated as a single scale. IRT and the NAEP marginal estimation methodology are used to estimate the overall score scale. The overall scale for each grade ranges from 0 to 300, and summarizes student performance across all three science content areas (physical science, life science, and Earth and space sciences) and across all three types of questions in the assessment (multiple choice, short constructed response, and extended constructed response). Summary statistics of the scale scores are estimated, and statistical tests are used to make inferences about the comparisons of results for different groups of students. Finally, NAEP scale score distributions are described via achievement levels and/or item mapping procedures. Additionally, score scales are estimated for each of the three science content areas. These subscale scores are also reported on a 0 to 300 scale. For more information about NAEP analysis, IRT, and scaling see <http://nces.ed.gov/nationsreportcard/tdw/analysis/>.

Variance Estimation

The averages and percentages in this report are estimates based on samples of students rather than on entire populations. Moreover, 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, and each assessed student takes only a subset of the entire collection of questions. Therefore, the results are subject to a measure of uncertainty, reflected in the standard error of the estimates—a range of up to a few points above or below the score or percentage—which takes into account potential score fluctuation due to both sampling error and measurement error.

Because NAEP uses complex sampling procedures, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate. NAEP uses a jackknife replication procedure to estimate standard errors. The jackknife standard error provides a reasonable measure of uncertainty for any student information that can be observed without error. However, because each student typically responds to only a few questions within any science content area, the estimated scale score for any single student would be imprecise. In this case, NAEP's marginal estimation methodology is used to describe the performance of groups of students without requiring precise estimates of individual student performance. The estimate of the variance of the students' scale score distributions (which reflect the imprecision due to lack of measurement accuracy) is computed. This component of variability is then included in the standard errors of NAEP scale scores.

Drawing Inferences from the NAEP Results

Drawing correct inferences from NAEP assessment results depends on the use of appropriate statistical procedures for comparing assessment results for population groups of interest and following guidelines to ensure the validity of the inferences. Comparisons of different groups of students with respect to scores or percentages of a certain attribute are of primary interest to users of NAEP results. The user is cautioned to rely on the results of statistical tests, rather than on the apparent magnitude of the difference between two estimates when determining whether differences are likely to represent actual differences among the groups in the population.

***t* Test Comparison:** By convention, references to differences in NAEP reports indicate that scores or percentages from two groups are different (e.g., one group performed higher or lower than another group) only when the difference in the point estimates for the groups being compared is statistically significant at an approximate level of .05.

Since 1998, *t* tests have been used for most NAEP comparisons. These tests are more appropriate than *z* tests (based on normal distribution approximations) when the statistics that are being compared are from distributions with proportionally larger extremes (i.e., thicker tails) than the normal distribution. One aspect of the use of *t* tests that contributes to the difficulty in their use for large-scale surveys is the determination of the appropriate degrees of freedom for the *t* distribution of interest.

Multiple Comparison Procedures: The t test used by NAEP and the certainty ascribed to intervals (e.g., a 95 percent confidence interval) are based on statistical theory that assumes that only one confidence interval or test of statistical significance is being performed. However, in some sections of a report, many different groups may be compared (i.e., multiple sets of confidence intervals are being analyzed). In sets of confidence intervals, statistical theory indicates that certainty associated with the entire set of intervals is less than that attributable to each individual comparison from the set. To hold the significance level for the set of comparisons at a particular level (e.g., .05), adjustments—called multiple comparison procedures—must be made to the methods.

To ensure that comparisons made using NAEP data are as accurate as possible, error rates are controlled when multiple comparisons are made. When making a number of comparisons in a single analysis, such as analyzing White student performance versus the performance of Black, Hispanic, Asian/Pacific Islander, and American Indian/Alaska Native students, the probability of finding significant differences by chance, for at least one comparison, increases with the family size or number of comparisons. There are several ways to take into account how many related comparisons are being made. In NAEP, the Benjamini-Hochberg False Discovery Rate (FDR) procedure is used to control for this.

Unlike other multiple comparison procedures (e.g., the Bonferroni procedure) that control the familywise error rate (i.e., the probability of making even one false rejection in the set of comparisons), the FDR procedure controls the expected proportion of falsely rejected hypotheses. Familywise procedures are considered conservative for large families of comparisons; therefore the FDR procedure is more suitable for multiple comparisons in NAEP than other procedures. There are two exceptions where the FDR is not applied: when comparing multiple years and when comparing multiple jurisdictions to the nation.

NAEP Reporting Groups

In addition to overall results assessed, NAEP results are reported for certain student groups provided there are sufficient numbers of students and adequate school representation. Results for some student groups may not be available for certain years, grades, or jurisdictions.

Race/Ethnicity: The school-recorded race/ethnicity variable records the race/ethnicity of each student as reported by the student's school. For 2015, the mutually exclusive racial/ethnic categories were White, Black, Hispanic, Asian, American Indian/Alaska Native, Native Hawaiian or Other Pacific Islander, and Two or More Races. Black includes African American and Hispanic includes Latino. Race categories exclude Hispanic origin unless specified.

Gender: The gender of the student assessed is taken from school records.

Eligibility for the National School Lunch Program: The school lunch variable is based on available school records. Students are classified as either currently eligible or not currently eligible for the national lunch component of the Department of Agriculture's National School Lunch Program. The classification refers only to the school year when the assessment was administered and is not based on eligibility in previous years. If school records are not available, the student is classified as "Information not available." If the school did not participate in the program, all students in that school were classified as "Information not available." Eligibility for the program is determined by students' family income in relation to the federally established poverty level. Free lunch qualification is set at 130 percent of the poverty level or below, and reduced-price lunch qualification is set at between 130 and 185 percent of the poverty level. (For the period July 1, 2013 through June 30, 2014, for a family of four, 130 percent of the poverty level was \$30,615, and 185 percent was \$43,568.) Additional information on eligibility may be found at the U.S. Department of Agriculture website at <http://www.fns.usda.gov/cnd/lunch/>.

Type of Location: Results for four mutually exclusive categories of school location are also reported: city, suburb, town, and rural. The categories are based on standard definitions established by the Federal Office of Management and Budget using population and geographic information from the U.S. Census Bureau. Schools are assigned to these categories in the NCES Common Core of Data based on their physical address. The classification system was revised for 2007; therefore, trend comparisons to previous years are not available. The new locale codes are based on an address's proximity to an urbanized area (a densely settled core with densely settled surrounding areas). This is a change from the original system based on metropolitan statistical areas. To distinguish the two systems, the new system is referred to as "urban-centric locale codes."

Parental Education: Eighth-graders assessed in 2015 were asked the following two questions, the responses to which were combined to derive the parental education variable:

How far in school did your mother go?

- She did not finish high school.
- She graduated from high school.
- She had some education after high school.
- She graduated from college.
- I don't know.

How far in school did your father go?

- He did not finish high school.
- He graduated from high school.
- He had some education after high school.
- He graduated from college.
- I don't know.

The information was combined into one parental-education reporting variable in the following way:

- If a student indicated the extent of education for only one parent, that level was included in the data. If a student indicated the extent of education for both parents, the higher of the two levels was included in the data.
- If a student responded "I don't know" for both parents, or responded "I don't know" for one parent and did not respond for the other, the parental education level was classified as "I don't know."
- If the student did not respond for either parent, the student was recorded as having provided no response.

Because fourth-graders' responses to the questions tend to be highly variable, the questions are not presented to students at grade 4.

Region of the Country: Prior to 2003, NAEP results were reported for four NAEP-defined regions of the nation: Northeast, Southeast, Central, and West. To align NAEP with other federal data collections, NAEP analysis and reports have used the U.S. Census Bureau's definition of "region" beginning in 2003. The four regions defined by the U.S. Census Bureau are Northeast, South, Midwest, and West. Therefore, trend data by region are not provided for assessment years prior to 2003.

Figure A-1 shows how states are subdivided into these census regions. All 50 states and the District of Columbia are listed. Other jurisdictions, including the Department of Defense Education Activity schools, are not assigned to any region.

Figure A-1.
States within regions of the country defined by the U.S. Census Bureau

Northeast	South	Midwest	West
Connecticut	Alabama	Illinois	Alaska
Maine	Arkansas	Indiana	Arizona
Massachusetts	Delaware	Iowa	California
New Hampshire	District of Columbia	Kansas	Colorado
New Jersey	Florida	Michigan	Hawaii
New York	Georgia	Minnesota	Idaho
Pennsylvania	Kentucky	Missouri	Montana
Rhode Island	Louisiana	Nebraska	Nevada
Vermont	Maryland	North Dakota	New Mexico
	Mississippi	Ohio	Oregon
	North Carolina	South Dakota	Utah
	Oklahoma	Wisconsin	Washington
	South Carolina		Wyoming
	Tennessee		
	Texas		
	Virginia		
	West Virginia		

Source: U.S. Department of Commerce Economics and Statistics Administration, U.S. Census Bureau.

Caution in Interpretations

As previously stated, the NAEP science scale makes it possible to examine relationships between students' performance and various background factors that NAEP measures. However, the relationship between achievement and another variable does not reveal its underlying cause, which may be influenced by a number of other variables. Similarly, the assessments do not reflect the influence of unmeasured variables. The results are most useful when considered in combination with other knowledge about the student population and the educational system, such as trends in instruction, changes in the school-age population, and societal demands and expectations.

Caution in interpretation is also warranted for some small population group estimates. At times in this report, smaller population groups show very large increases or decreases across years in average scores; however, it is necessary to interpret such score changes with extreme caution. The effects of exclusion-rate changes for small student groups may be more marked for small groups than they are for the whole population. In addition, standard errors are often quite large around the score estimates for small groups, which in turn means the standard error around the gain is also large.