



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

State-level results in mathematics are available for eight assessment years (at grade 8 in 1990; and at both grades 4 and 8 in 1992, 1996, 2000, 2003, 2005, 2007, and 2009), although not all states may have participated or met the criteria for reporting in every year. All 50 states, the District of Columbia, and the Department of Defense Schools participated in the 2009 mathematics assessment at grades 4 and 8. For the first time in 2009, grade 12 mathematics results are also available for the 11 states that volunteered for the assessment and met the reporting criteria. Grade 12 results follow the grade 4 and 8 results in the NAEP reporting schedule.

For more information about the assessment, see the NAEP website <http://nces.ed.gov/nationsreportcard/> which contains

- *The Nation's Report Card, Mathematics 2009*
- The full set of national and state results in an interactive database
- Released test questions, scoring guides, and question-level performance data

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

K E Y F I N D I N G S F O R 2 0 0 9

Grade 4:

- In 2009, the average mathematics score for fourth-grade students in Massachusetts was 252. This was higher than that of the nation's public schools (239).
- The average score for students in Massachusetts in 2009 (252) was higher than that in 1992 (227) and was not significantly different from that in 2007 (252).
- In 2009, the percentage of students in Massachusetts who performed at or above *Proficient* was 57 percent. This was greater than that for the nation's public schools (38 percent).
- The percentage of students in Massachusetts who performed at or above *Proficient* in 2009 (57 percent) was greater than that in 1992 (23 percent) and was not significantly different from that in 2007 (58 percent).
- In 2009, the percentage of students in Massachusetts who performed at or above *Basic* was 92 percent. This was greater than that for the nation's public schools (81 percent).
- The percentage of students in Massachusetts who performed at or above *Basic* in 2009 (92 percent) was greater than that in 1992 (68 percent) and was not significantly different from that in 2007 (93 percent).

Grade 8:

- In 2009, the average mathematics score for eighth-grade students in Massachusetts was 299. This was higher than that of the nation's public schools (282).
- The average score for students in Massachusetts in 2009 (299) was higher than that in 1992 (273) and was not significantly different from that in 2007 (298).
- In 2009, the percentage of students in Massachusetts who performed at or above *Proficient* was 52 percent. This was greater than that for the nation's public schools (33 percent).
- The percentage of students in Massachusetts who performed at or above *Proficient* in 2009 (52 percent) was greater than that in 1992 (23 percent) and was not significantly different from that in 2007 (51 percent).
- In 2009, the percentage of students in Massachusetts who performed at or above *Basic* was 85 percent. This was greater than that for the nation's public schools (71 percent).
- The percentage of students in Massachusetts who performed at or above *Basic* in 2009 (85 percent) was greater than that in 1992 (63 percent) and was not significantly different from that in 2007 (85 percent).

The U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) has provided software that generated user-selectable data, statistical significance test result statements, and technical descriptions of the NAEP assessments for this report. Content may be added or edited by states or other jurisdictions. This document, therefore, is not an official publication of the National Center for Education Statistics.

Introduction

What Was Assessed?

The content for each NAEP assessment is determined by the National Assessment Governing Board. The framework for each assessment documents the content and process areas to be measured and sets guidelines for the types of questions to be used. The mathematics frameworks were developed with the guidance of the Council of Chief State School Officers (CCSSO) and under the direction of the Governing Board. The current framework is available at the Governing Board's website <http://www.nagb.org/publications/frameworks/math-framework09.pdf>.

For grades 4 and 8, the mathematics framework for the 2009 assessment is similar to earlier versions that guided the 1990, 1992, 1996, 2000, 2003, 2005, and 2007 mathematics assessments. Although the frameworks are updated periodically, the mathematics content objectives for grades 4 and 8 have not changed, allowing students' performance in 2009 to be compared with previous years.

For 2005, the Governing Board adopted a new mathematics framework for grade 12 to reflect changes in high school standards and coursework. For 2009, the grade 12 mathematics framework was updated, adding objectives addressing mathematics content beyond that typically taught in a standard 3-year course of study in high school mathematics.

Content Areas and Mathematical Complexity

The 2009 mathematics framework classifies assessment questions in two dimensions, *content area* and *mathematical complexity*, that are used to guide the assessment. Each question is designed to measure one of the five content areas. However, certain aspects of mathematics, such as computation, occur in all content areas. Although the names of the content areas (as well as some topics in those areas) have changed from one framework to the next, a consistent focus has remained on measuring student performance in all five content areas. The distribution of questions among each content area differs by grade to reflect the knowledge and skills appropriate for each grade level. At grade 12, the measurement and geometry content areas are combined into one for reporting purposes to reflect the fact that the majority of measurement topics suitable for grade 12 students are geometric in nature.

- **Number properties and operations** measures students' understanding of ways to represent, calculate, and estimate with numbers.
- **Measurement** measures students' knowledge of measurement attributes, such as capacity and temperature, and geometric attributes, such as length, area, and volume.
- **Geometry** measures students' knowledge and understanding of shapes in a plane and in space.
- **Data analysis, statistics, and probability** measures students' understanding of data representation, characteristics of data sets, experiments and samples, and probability.
- **Algebra** measures students' understanding of patterns, using variables, algebraic representation, and functions.

The mathematical complexity of a question refers to the level of cognitive demand it places on students. Each level of complexity includes aspects of knowing and doing mathematics, such as performing procedures, understanding concepts, or solving problems.

- **Low complexity** questions typically specify what a student is to do, which is often to carry out a routine mathematical procedure.
- **Moderate complexity** questions involve more flexibility of thinking and often require a response with multiple steps.
- **High complexity** questions make heavier demands and often require abstract reasoning or analysis in a novel situation.

Assessment Design

Because of the breadth of the content covered in the NAEP mathematics assessment, each student took just a portion of the test, consisting of two 25-minute sections. Testing time was divided evenly between multiple-choice and constructed-response questions. Short constructed-response questions asked students to provide the answer for a numerical problem or to briefly describe the solution to a problem. Longer constructed-response questions required students to write both a solution and its justification, explanation, or interpretation. Released test questions, along with student performance data by state, are available on the NAEP website at <http://nces.ed.gov/nationsreportcard/itmrls/>.

Some questions in the 2009 assessment incorporated the use of calculators (four-function calculators at grade 4, and scientific or graphing calculators at grades 8 and 12), rulers, protractors (at grades 8 and 12), or manipulatives such as spinners and geometric shapes. Calculator use at all grades was permitted on approximately one-third of the assessment.

Who Was Assessed?

All 50 states, the District of Columbia, and the Department of Defense Schools participated in the 2009 mathematics assessment at grades 4 and 8. For the first time in 2009, grade 12 mathematics results are also available for the following 11 states that met the reporting criteria: Arkansas, Connecticut, Florida, Idaho, Illinois, Iowa, Massachusetts, New Hampshire, New Jersey, South Dakota, and West Virginia.

The overall participation rates for schools and students must meet guidelines established by the National Center for Education Statistics (NCES) and the National Assessment Governing Board for assessment results to be reported publicly. A participation rate of at least 85 percent for schools in each subject and grade was required. Participation rates for the 2009 mathematics assessment are available on the NAEP website at http://nationsreportcard.gov/math_2009/participation.asp.

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

How Is Student Mathematics Performance Reported?

The 2009 state results are compared to results from six earlier assessments at grade 4 and from seven earlier assessments at grade 8. At grade 12, state results are available for 2009 only.

Scale Scores: Student performance is reported as an average score based on the NAEP mathematics scale, which ranges from 0 to 500 for grades 4 and 8, and from 0 to 300 for grade 12. Because NAEP scales are developed independently for each subject and for each content area within a subject, the scores cannot be compared across subjects or across content areas within the same subject. Results are also reported at five percentiles (10th, 25th, 50th, 75th, and 90th) to show trends in performance for lower-, middle-, and higher-performing students.

Achievement Levels: Based on recommendations from policymakers, educators, and members of the general public, the Governing Board sets specific achievement levels for each subject area and grade. Achievement levels are performance standards indicating what students should know and be able to do. They provide another perspective with which to interpret student performance. NAEP results are reported in terms of three achievement levels—*Basic*, *Proficient*, and *Advanced*—and are expressed in terms of the percentage of students who attained each level. The three achievement levels are defined as follows:

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

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

As provided by law, NCES, upon review of congressionally mandated evaluations of NAEP, has determined that achievement levels are to be used on a trial basis and should be interpreted with caution. The NAEP achievement levels have been widely used by national and state officials. The mathematics achievement-level descriptions are summarized in figures 1-A and 1-B.

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

Basic Level (214)	Fourth-grade students performing at the <i>Basic</i> level should show some evidence of understanding the mathematical concepts and procedures in the five NAEP content areas.
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Fourth-graders performing at the *Basic* level should be able to estimate and use basic facts to perform simple computations with whole numbers, show some understanding of fractions and decimals, and solve some simple real-world problems in all NAEP content areas. Students at this level should be able to use—although not always accurately—four-function calculators, rulers, and geometric shapes. Their written responses are often minimal and presented without supporting information.

Proficient Level (249)	Fourth-grade students performing at the <i>Proficient</i> level should consistently apply integrated procedural knowledge and conceptual understanding to problem solving in the five NAEP content areas.
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Fourth-graders performing at the *Proficient* level should be able to use whole numbers to estimate, compute, and determine whether results are reasonable. They should have a conceptual understanding of fractions and decimals; be able to solve real-world problems in all NAEP content areas; and use four-function calculators, rulers, and geometric shapes appropriately. Students performing at the *Proficient* level should employ problem-solving strategies such as identifying and using appropriate information. Their written solutions should be organized and presented both with supporting information and explanations of how they were achieved.

Advanced Level (282)	Fourth-grade students performing at the <i>Advanced</i> level should apply integrated procedural knowledge and conceptual understanding to complex and nonroutine real-world problem solving in the five NAEP content areas.
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Fourth-graders performing at the *Advanced* level should be able to solve complex and nonroutine real-world problems in all NAEP content areas. They should display mastery in the use of four-function calculators, rulers, and geometric shapes. These students are expected to draw logical conclusions and justify answers and solution processes by explaining why, as well as how, they were achieved. They should go beyond the obvious in their interpretations and be able to communicate their thoughts clearly and concisely.

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

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

Basic Level (262)	Eighth-grade students performing at the <i>Basic</i> level should exhibit evidence of conceptual and procedural understanding in the five NAEP content areas. This level of performance signifies an understanding of arithmetic operations—including estimation—on whole numbers, decimals, fractions, and percents.
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Eighth-graders performing at the *Basic* level should complete problems correctly with the help of structural prompts such as diagrams, charts, and graphs. They should be able to solve problems in all NAEP content areas through the appropriate selection and use of strategies and technological tools—including calculators, computers, and geometric shapes. Students at this level also should be able to use fundamental algebraic and informal geometric concepts in problem solving.

As they approach the *Proficient* level, students at the *Basic* level should be able to determine which of the available data are necessary and sufficient for correct solutions and use them in problem solving. However, these eighth-graders show limited skill in communicating mathematically.

Proficient Level (299)	Eighth-grade students performing at the <i>Proficient</i> level should apply mathematical concepts and procedures consistently to complex problems in the five NAEP content areas.
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Eighth-graders performing at the *Proficient* level should be able to conjecture, defend their ideas, and give supporting examples. They should understand the connections among fractions, percents, decimals, and other mathematical topics such as algebra and functions. Students at this level are expected to have a thorough understanding of *Basic* level arithmetic operations—an understanding sufficient for problem solving in practical situations.

Quantity and spatial relationships in problem solving and reasoning should be familiar to them, and they should be able to convey underlying reasoning skills beyond the level of arithmetic. They should be able to compare and contrast mathematical ideas and generate their own examples. These students should make inferences from data and graphs, apply properties of informal geometry, and accurately use the tools of technology. Students at this level should understand the process of gathering and organizing data and be able to calculate, evaluate, and communicate results within the domain of statistics and probability.

Advanced Level (333)	Eighth-grade students performing at the <i>Advanced</i> level should be able to reach beyond the recognition, identification, and application of mathematical rules in order to generalize and synthesize concepts and principles in the five NAEP content areas.
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Eighth-graders performing at the *Advanced* level should be able to probe examples and counterexamples in order to shape generalizations from which they can develop models. Eighth-graders performing at the *Advanced* level should use number sense and geometric awareness to consider the reasonableness of an answer. They are expected to use abstract thinking to create unique problem-solving techniques and explain the reasoning processes underlying their conclusions.

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

Assessing Students With Disabilities and/or English Language Learners

Testing accommodations, such as extra testing time or individual (rather than group) administration, are provided for students with disabilities (SD) or English language learners (ELL) who could not fairly and accurately demonstrate their abilities without modified test administration procedures. In 1996, administration procedures were introduced at the national level allowing certain accommodations for students requiring such accommodations to participate.

In state NAEP mathematics assessments prior to 2000, no testing accommodations or adaptations were permitted for SD or ELL students. In 2000, NAEP was administered using a split sample of schools—one sample in which accommodations were permitted for special-needs students who normally received them and another sample in which accommodations were not permitted. Therefore, there were two different sets of results available for 2000, and both are shown in the tables in this report. Results for the assessment years where accommodations were not permitted in state NAEP assessments (1990, 1992, 1996) are reported in the same tables as the results where accommodations were permitted (2000, 2003, 2005, 2007, 2009).

Even with the availability of accommodations, however, some students may still be excluded from the NAEP assessment. Due to differences in policies and practices regarding the identification and inclusion of SD and ELL students, variations in exclusion and accommodation rates should be considered when comparing students' performance over time and across states. The types of accommodations used in the 2009 NAEP mathematics assessment are available on the NAEP website at http://nationsreportcard.gov/math_2009/type_accomm.asp

Interpreting Results

The scores and percentages in this report are estimates based on samples of students rather than on entire populations. In addition, the collection of questions used at each grade level is only a sample of the many questions that could have been asked to assess the skills and abilities described in the NAEP framework. 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 sampling error and measurement error. Statistical tests that factor in these standard errors are used to determine whether the differences between average scores or percentages are significant. All differences were tested for statistical significance at the .05 level using unrounded numbers.

NAEP sample sizes have increased since 2002 compared to previous years, resulting in smaller standard errors. As a consequence, smaller differences are detected as statistically significant than were detected in previous assessments. In addition, estimates based on smaller groups are likely to have relatively large standard errors. Thus, some seemingly large differences may not be statistically significant. That is, it cannot be determined whether these differences are due to sampling error, or to true differences in the population of interest.

Differences between scores or between percentages are discussed in this report only when they are significant from a statistical perspective. Significant differences between 2009 and prior assessments are marked with a notation (*) in the tables. Any differences in scores within a year or across years that are mentioned in the text as "higher," "lower," "greater," or "smaller" are statistically significant.

The reader is cautioned against making simple causal inferences between student performance and the other variables (e.g., race/ethnicity, gender, and type of school location) discussed in this report. A statistically significant relationship between a variable and measures of student performance does not imply that the variable causes differences in how well students perform. The relationship may be influenced by a number of other variables not accounted for in this report, such as family income, parental involvement, or student attitudes.

NAEP 2009 Mathematics Overall Scale Score and Achievement-Level Results for Public School Students

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

Prior to 2000, testing accommodations were not provided for students with special needs in NAEP state mathematics assessments. For 2000, results are displayed for both the sample in which accommodations were permitted and the sample in which they were not permitted. Subsequent assessment results were based on the more inclusive samples. In the text of this report, comparisons to 2000 results refer only to the sample in which accommodations were permitted.

Overall Scale Score Results

Student performance is reported as an average score based on the NAEP mathematics scale, which ranges from 0 to 500 for grades 4 and 8, and from 0 to 300 for grade 12.

Tables 1-A and 1-B show the overall performance results of grades 4 and 8 public school students in Massachusetts, the nation (public), and the region. The list of states making up a given region for NAEP prior to 2003 differed from the list used by the U.S. Census Bureau, which has been used in NAEP from 2003 onward. Therefore, the data for the state's region are given only for 2003, 2005, 2007, and 2009. The first column of results presents the average score on the NAEP mathematics scale. The remaining columns show the scores at selected percentiles. A percentile indicates the percentages of students whose scores fell at or below a particular score. For example, the 25th percentile demarks the cut point for the lowest 25 percent of students within the distribution of scale scores.

Grade 4 Scale Score Results

- In 2009, the average scale score for students in Massachusetts was 252. This was higher than that of students across the nation (239).
- In Massachusetts, the average scale score for students in 2009 was not significantly different from that in 2007 (252). Similarly, the average scale score for students in public schools across the nation in 2009 was not significantly different from that in 2007 (239).
- In Massachusetts, the average scale score for students in 2009 was higher than the scores in 1992, 1996, 2000, 2003, and 2005. However, it was not significantly different from the score in 2007.

Grade 8 Scale Score Results

- In 2009, the average scale score for students in Massachusetts was 299. This was higher than that of students across the nation (282).
- In Massachusetts, the average scale score for students in 2009 was not significantly different from that in 2007 (298). However, the average scale score for students in public schools across the nation in 2009 was higher than that in 2007 (280).
- In Massachusetts, the average scale score for students in 2009 was higher than the scores in 1992, 1996, 2000, 2003, and 2005. However, it was not significantly different from the score in 2007.

**Table
1-A**

Average scale scores and selected percentile scores in NAEP mathematics for fourth-grade public school students, by assessment year and jurisdiction: Various years, 1992–2009

Year and jurisdiction		Average scale score	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
1992 ¹	Nation (public)	219 *	176 *	197 *	220 *	241 *	259
	Massachusetts	227 *	187 *	207 *	228 *	248 *	264
1996 ¹	Nation (public)	222 *	180 *	201 *	224 *	244 *	261
	Massachusetts	229 *	193 *	211 *	230 *	248 *	264
2000 ¹	Nation (public)	226 *	185 *	206 *	228 *	249 *	265
	Massachusetts	235 *	197 *	218 *	238 *	255 *	269
2000	Nation (public)	224 *	183 *	203 *	225 *	247 *	264
	Massachusetts	233 *	195 *	216 *	237 *	254 *	268
2003	Nation (public)	234 *	196 *	215 *	235 *	254 *	270
	Northeast ²	238 *	200 *	219 *	239 *	258 *	272
	Massachusetts	242 *	206 *	224 *	243 *	261 *	275
2005	Nation (public)	237 *	199 *	219 *	239 *	257 *	272
	Northeast ²	241 *	204 *	224 *	243 *	261 *	275
	Massachusetts	247 *	215	231 *	248 *	264 *	279
2007	Nation (public)	239	201	221	241	259	274
	Northeast ²	245	209	228 *	247	264	279
	Massachusetts	252	220	237	254	269	283
2009	Nation (public)	239	201	221	241	259	275
	Northeast ²	244	208	226	246	264	279
	Massachusetts	252	219	236	253	270	285

* Value is significantly different ($p < .05$) from the value for the same jurisdiction in 2009.

¹ Accommodations were not permitted for this assessment.

² Region in which jurisdiction is located. Regional data are not provided for years prior to 2003 to be consistent with the U.S. Census Bureau defined regions.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2009 Mathematics Assessments.

**Table
1-B**

Average scale scores and selected percentile scores in NAEP mathematics for eighth-grade public school students, by assessment year and jurisdiction: Various years, 1992–2009

Year and jurisdiction		Average scale score	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
1992 ¹	Nation (public)	267 *	219 *	242 *	268 *	293 *	314
	Massachusetts	273 *	230 *	250 *	274 *	297 *	316
1996 ¹	Nation (public)	271 *	222 *	247 *	272 *	296 *	316
	Massachusetts	278 *	233 *	255 *	279 *	301 *	320
2000 ¹	Nation (public)	274 *	225 *	250 *	276 *	300 *	321
	Massachusetts	283 *	241 *	263 *	285 *	306 *	325
2000	Nation (public)	272 *	221 *	247 *	274 *	299 *	320
	Massachusetts	279 *	232 *	256 *	281 *	304 *	323
2003	Nation (public)	276 *	228 *	253 *	278 *	301 *	321
	Northeast ²	281 *	233 *	258 *	283 *	306 *	325
	Massachusetts	287 *	240 *	263 *	288 *	311 *	330
2005	Nation (public)	278 *	230 *	254 *	279 *	303 *	323
	Northeast ²	282 *	235 *	259 *	284 *	307 *	327
	Massachusetts	292 *	246 *	268 *	293 *	316 *	335
2007	Nation (public)	280 *	234	257 *	281 *	305 *	325
	Northeast ²	285 *	239	262 *	287 *	310 *	330
	Massachusetts	298	252	276	300	322	341
2009	Nation (public)	282	235	258	283	307	328
	Northeast ²	288	240	265	290	314	334
	Massachusetts	299	252	276	301	324	344

* Value is significantly different ($p < .05$) from the value for the same jurisdiction in 2009.

¹ Accommodations were not permitted for this assessment.

² Region in which jurisdiction is located. Regional data are not provided for years prior to 2003 to be consistent with the U.S. Census Bureau defined regions.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2009 Mathematics Assessments.

Overall Achievement-Level Results

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

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

Grade 4 Achievement-Level Results

- In 2009, the percentage of Massachusetts' students who performed at or above *Proficient* was 57 percent. This was greater than the percentage of the nation's public school students who performed at or above *Proficient* (38 percent).
- In Massachusetts, the percentage of students who performed at or above *Proficient* in 2009 was greater than the percentages in 1992, 1996, 2000, 2003, and 2005, but was not significantly different from the percentage in 2007.
- In 2009, the percentage of Massachusetts' students who performed at or above *Basic* was 92 percent. This was greater than the percentage of the nation's public school students who performed at or above *Basic* (81 percent).
- In Massachusetts, the percentage of students who performed at or above *Basic* in 2009 was greater than the percentages in 1992, 1996, 2000, and 2003, but was not significantly different from the percentages in 2005 and 2007.

Grade 8 Achievement-Level Results

- In 2009, the percentage of Massachusetts' students who performed at or above *Proficient* was 52 percent. This was greater than the percentage of the nation's public school students who performed at or above *Proficient* (33 percent).
- In Massachusetts, the percentage of students who performed at or above *Proficient* in 2009 was greater than the percentages in 1992, 1996, 2000, 2003, and 2005, but was not significantly different from the percentage in 2007.
- In 2009, the percentage of Massachusetts' students who performed at or above *Basic* was 85 percent. This was greater than the percentage of the nation's public school students who performed at or above *Basic* (71 percent).
- In Massachusetts, the percentage of students who performed at or above *Basic* in 2009 was greater than the percentages in 1992, 1996, 2000, 2003, and 2005, but was not significantly different from the percentage in 2007.

**Table
2-A**

Percentage of fourth-grade public school students at or above NAEP mathematics achievement levels, by assessment year and jurisdiction: Various years, 1992–2009

Year and jurisdiction		Below <i>Basic</i>	At or above <i>Basic</i>	At or above <i>Proficient</i>	At <i>Advanced</i>
1992 ¹	Nation (public)	43*	57*	17*	2*
	Massachusetts	32*	68*	23*	2*
1996 ¹	Nation (public)	38*	62*	20*	2*
	Massachusetts	29*	71*	24*	2*
2000 ¹	Nation (public)	33*	67*	25*	2*
	Massachusetts	21*	79*	33*	3*
2000	Nation (public)	36*	64*	22*	2*
	Massachusetts	23*	77*	31*	3*
2003	Nation (public)	24*	76*	31*	4*
	Northeast ²	20*	80*	36*	5*
	Massachusetts	16*	84*	41*	6*
2005	Nation (public)	21*	79*	35*	5*
	Northeast ²	16*	84*	41*	6*
	Massachusetts	9	91	49*	8*
2007	Nation (public)	19	81	39	5
	Northeast ²	13	87	47	8
	Massachusetts	7	93	58	11
2009	Nation (public)	19	81	38	6
	Northeast ²	14	86	46	8
	Massachusetts	8	92	57	12

* Value is significantly different ($p < .05$) from the value for the same jurisdiction in 2009.

¹ Accommodations were not permitted for this assessment.

² Region in which jurisdiction is located. Regional data are not provided for years prior to 2003 to be consistent with the U.S. Census Bureau defined regions.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. 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), various years, 1992–2009 Mathematics Assessments.

**Table
2-B**

Percentage of eighth-grade public school students at or above NAEP mathematics achievement levels, by assessment year and jurisdiction: Various years, 1992–2009

Year and jurisdiction		Below <i>Basic</i>	At or above <i>Basic</i>	At or above <i>Proficient</i>	At <i>Advanced</i>
1992 ¹	Nation (public)	44*	56*	20*	3*
	Massachusetts	37*	63*	23*	3*
1996 ¹	Nation (public)	39*	61*	23*	4*
	Massachusetts	32*	68*	28*	5*
2000 ¹	Nation (public)	35*	65*	26*	5*
	Massachusetts	24*	76*	32*	6*
2000	Nation (public)	38*	62*	25*	5*
	Massachusetts	30*	70*	30*	5*
2003	Nation (public)	33*	67*	27*	5*
	Northeast ²	29*	71*	33*	6*
	Massachusetts	24*	76*	38*	8*
2005	Nation (public)	32*	68*	28*	6*
	Northeast ²	27*	73*	33*	7*
	Massachusetts	20*	80*	43*	11*
2007	Nation (public)	30*	70*	31*	7*
	Northeast ²	25*	75*	37*	9*
	Massachusetts	15	85	51	15
2009	Nation (public)	29	71	33	7
	Northeast ²	22	78	40	11
	Massachusetts	15	85	52	17

* Value is significantly different ($p < .05$) from the value for the same jurisdiction in 2009.

¹ Accommodations were not permitted for this assessment.

² Region in which jurisdiction is located. Regional data are not provided for years prior to 2003 to be consistent with the U.S. Census Bureau defined regions.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. 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), various years, 1992–2009 Mathematics Assessments.

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

All 50 states, the District of Columbia, and the Department of Defense Schools participated in the 2009 mathematics assessment at grades 4 and 8. For the first time in 2009, grade 12 mathematics results are also available for 11 states that met the reporting criteria. References to "jurisdictions" in the results statements may include states, the District of Columbia, and/or Department of Defense Schools.

Comparisons by Average Scale Scores

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

Grade 4 Scale Score Comparison Results

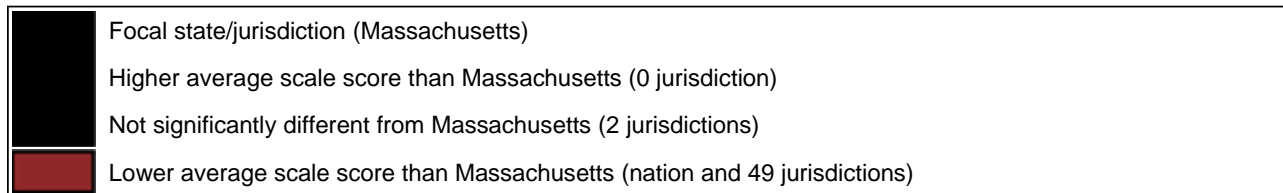
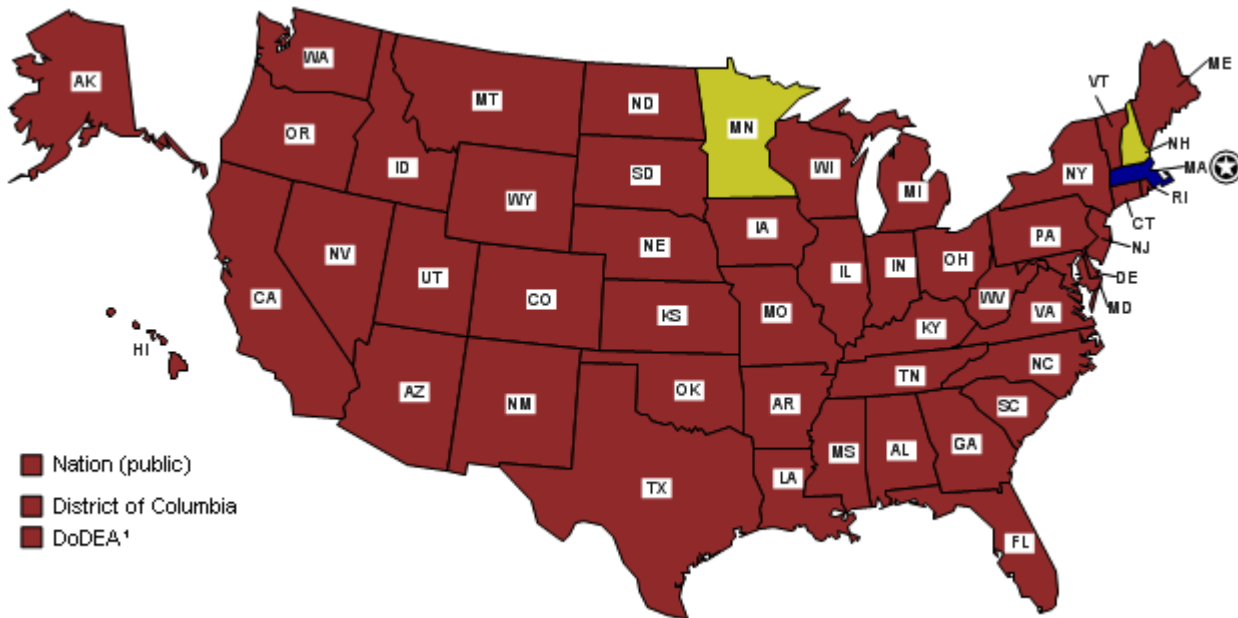
- Students' average score in Massachusetts was higher than the scores in 49 jurisdictions, and not significantly different from those in 2 jurisdictions.

Grade 8 Scale Score Comparison Results

- Students' average score in Massachusetts was higher than the scores in 51 jurisdictions.

Figure 2-A

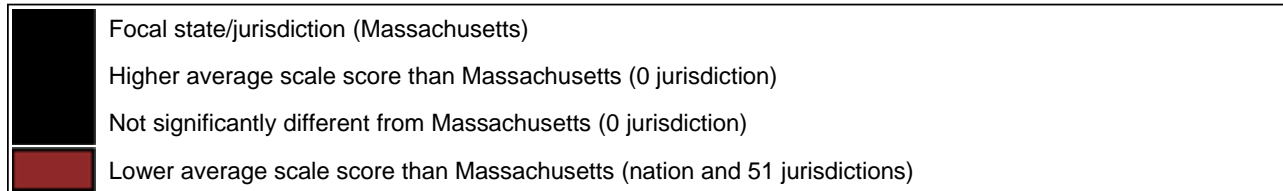
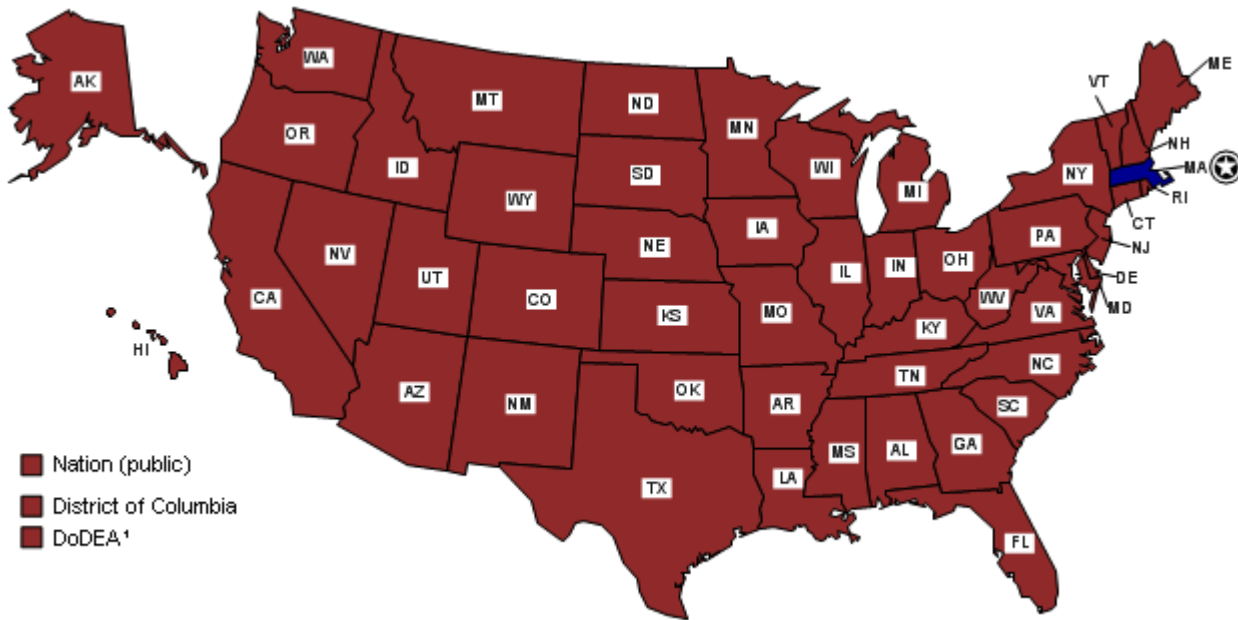
Massachusetts' average scale score in NAEP mathematics for fourth-grade public school students compared with scores for the nation and other participating jurisdictions: 2009



¹ Department of Defense Education Activity schools (domestic and overseas).
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

Figure 2-B

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



¹ Department of Defense Education Activity schools (domestic and overseas).
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

Comparisons by Achievement Levels

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

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

Grade 4 Achievement-Level Comparison Results

- The percentage of students performing at or above the *Proficient* level in Massachusetts was higher than the percentage in 49 jurisdictions, and not significantly different from those in 2 jurisdictions.
- The percentage of students performing at or above the *Basic* level in Massachusetts was higher than the percentage in 49 jurisdictions, and not significantly different from those in 2 jurisdictions (data not shown).

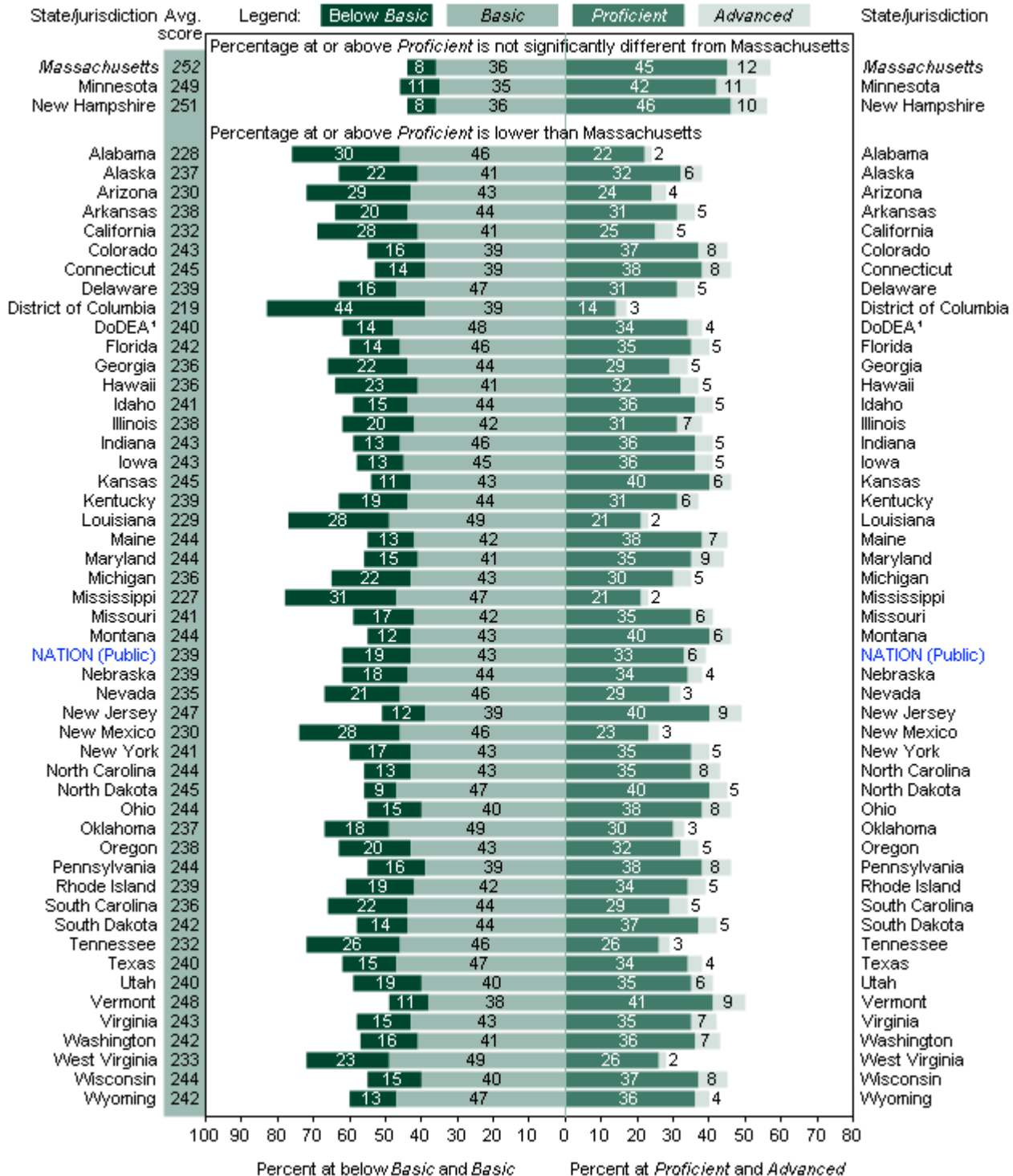
Grade 8 Achievement-Level Comparison Results

- The percentage of students performing at or above the *Proficient* level in Massachusetts was higher than the percentage in 51 jurisdictions.
- The percentage of students performing at or above the *Basic* level in Massachusetts was higher than the percentage in 46 jurisdictions, and not significantly different from those in 5 jurisdictions (data not shown).

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Figure 3-A

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



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

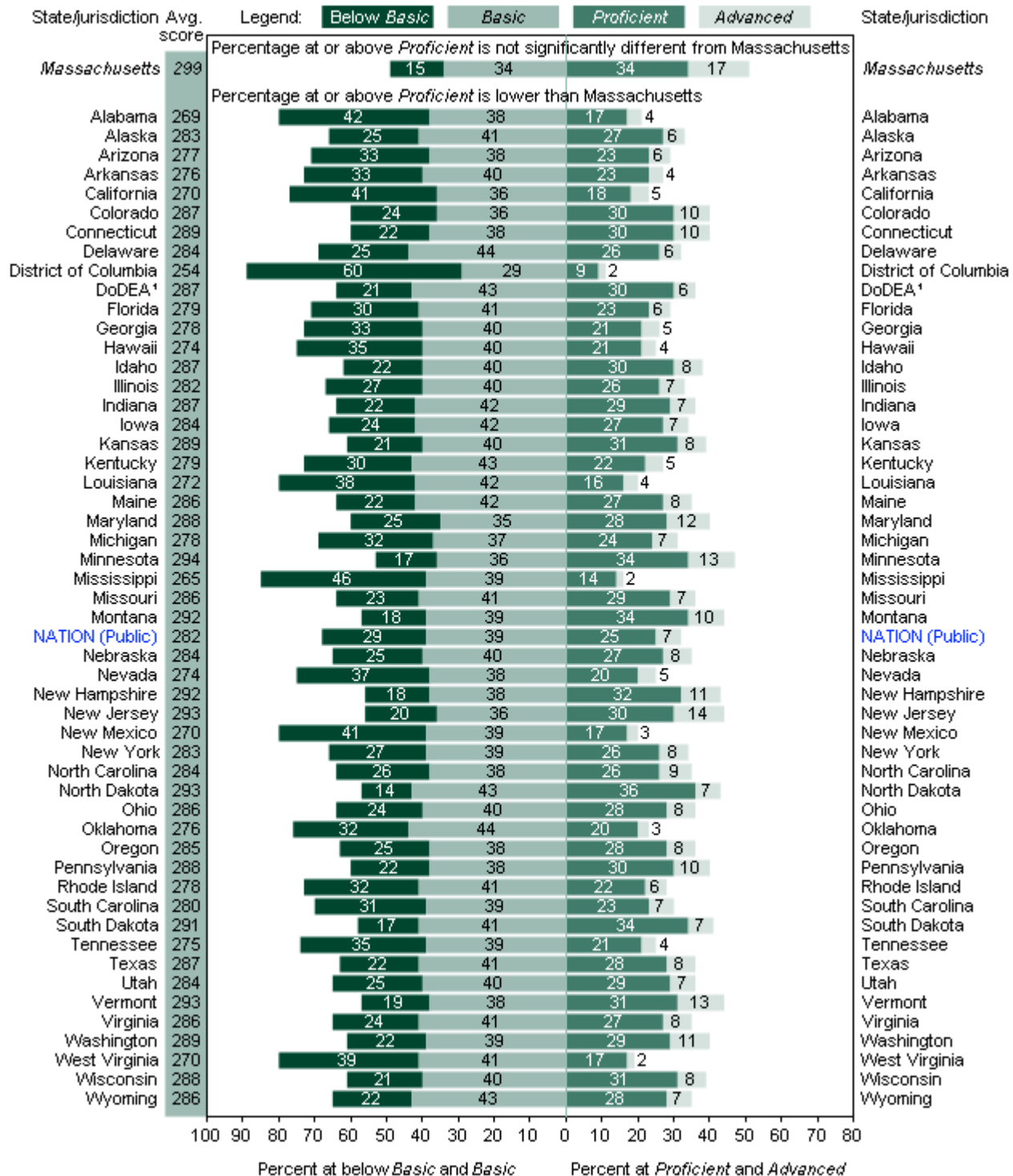
NOTE: The bars above contain percentages of students in each NAEP mathematics achievement level. Achievement levels corresponding to each population of students are aligned at the point where the *Proficient* category begins, so that they may be compared at *Proficient* and above. Detail may not sum to totals because of rounding. The shaded bars are graphed using unrounded numbers. Significance tests used a multiple-comparison procedure based on all jurisdictions that participated.

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

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Figure 3-B

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



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

NOTE: The bars above contain percentages of students in each NAEP mathematics achievement level. Achievement levels corresponding to each population of students are aligned at the point where the *Proficient* category begins, so that they may be compared at *Proficient* and above. Detail may not sum to totals because of rounding. The shaded bars are graphed using unrounded numbers. Significance tests used a multiple-comparison procedure based on all jurisdictions that participated.

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

Mathematics Performance of Selected Student Groups

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

- race/ethnicity
- gender
- student eligibility for the National School Lunch Program
- type of school location (for 2007 and 2009 only)
- parents' highest level of education

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

Two sets of results from the 2000 mathematics assessment are included in the tables for grades 4 and 8: one obtained from student samples for which accommodations were permitted and one for which accommodations were not permitted. Comparisons to the 2000 results made in the summary statements, however, are based solely on the sample for which accommodations were permitted.

Results by students' race/ethnicity and gender include statements about score point differences between student groups (e.g., between White and Black or White and Hispanic students, or between male and female students) in 2009 and in the first assessment year. Because these differences are calculated using unrounded values, they may differ slightly from what would be obtained by subtracting the rounded values that appear in the tables. Statements indicating a narrowing or widening of the gap in students' scores are only made if the change in the gap from the first assessment year to 2009 was found to be statistically significant.

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

Race/Ethnicity

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

Grade 4 Scale Score Results by Race/Ethnicity

- In 2009, White students in Massachusetts had an average scale score that was higher than the scores of Black and Hispanic students, but lower than the score of Asian/Pacific Islander students.
- In 2009, the average scale scores of White, Black, and Hispanic students in Massachusetts were higher than the scores of their corresponding peers in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the score in 2007.
- In 2009, the average scale score of Asian/Pacific Islander students in Massachusetts was higher than the scores of their corresponding peers in 1992, 1996, 2000, and 2003, but not found to be significantly different from the scores of their corresponding peers in 2005 and 2007.
- In 2009, Black students in Massachusetts had an average score that was lower than that of White students by 21 points. This performance gap was narrower than that of 1992 (36 points).
- In 2009, Hispanic students in Massachusetts had an average score that was lower than that of White students by 26 points. This performance gap was narrower than that of 1992 (34 points).

Grade 4 Achievement-Level Results by Race/Ethnicity

- In Massachusetts in 2009, the percentage of White students performing at or above *Proficient* was greater than the corresponding percentages of Black and Hispanic students, but not found to be significantly different from the percentage of Asian/Pacific Islander students.
- In 2009, the percentage of White students in Massachusetts performing at or above *Proficient* was greater than the percentages of their respective peers in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the percentage in 2007.
- In 2009, the percentages of Black and Hispanic students in Massachusetts performing at or above *Proficient* were greater than the percentages of their respective peers in 1996, 2000, 2003, and 2005, but not found to be significantly different from the percentages of their respective peers in 1992 and 2007.
- In 2009, the percentage of Asian/Pacific Islander students in Massachusetts performing at or above *Proficient* was greater than the percentages of their respective peers in 1992, 1996, 2000, and 2003, but not found to be significantly different from the percentages of their respective peers in 2005 and 2007.

**Table
3-A**

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009

Race/ethnicity, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
White							
1992 ¹	Nation (public)	72*	227*	32*	68*	22*	2*
	Massachusetts	83*	231*	25*	75*	26*	3*
1996 ¹	Nation (public)	71*	230*	27*	73*	25*	3*
	Massachusetts	82*	232*	23*	77*	27*	2*
2000 ¹	Nation (public)	67*	234*	22*	78*	32*	3*
	Massachusetts	78*	241*	14*	86*	39*	3*
2000	Nation (public)	62*	233*	24*	76*	30*	3*
	Massachusetts	77*	239*	15*	85*	36*	3*
2003	Nation (public)	58*	243*	13*	87*	42*	5*
	Massachusetts	73*	247*	9*	91*	49*	7*
2005	Nation (public)	57*	246*	11*	89*	47*	7*
	Massachusetts	75*	252*	5	95	57*	10*
2007	Nation (public)	55*	248	9	91	51	8
	Massachusetts	75*	257	3	97	65	12
2009	Nation (public)	54	248	10	90	50	8
	Massachusetts	68	258	3	97	67	14
Black							
1992 ¹	Nation (public)	18*	192*	78*	22*	2*	#
	Massachusetts	8	195*	75*	25*	1	#
1996 ¹	Nation (public)	17	199*	70*	30*	4*	#
	Massachusetts	7	206*	65*	35*	6*	#
2000 ¹	Nation (public)	17	204*	64*	36*	5*	#
	Massachusetts	7	210*	55*	45*	7*	#
2000	Nation (public)	17	203*	65*	35*	4*	#
	Massachusetts	7	213*	49*	51*	7*	1
2003	Nation (public)	17*	216*	46*	54*	10*	#*
	Massachusetts	11*	222*	38*	62*	13*	#
2005	Nation (public)	17*	220*	40*	60*	13*	1
	Massachusetts	9	228*	27*	73*	18*	1
2007	Nation (public)	17	222	37	63	15	1
	Massachusetts	7	232	25	75	26	2
2009	Nation (public)	16	222	37	63	15	1
	Massachusetts	8	236	16	84	30	2

See notes at end of table.

**Table
3-A**

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009–Continued

Race/ethnicity, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Hispanic							
1992 ¹	Nation (public)	7*	201*	68*	32*	5*	#
	Massachusetts	4*	197*	72*	28*	4	#
1996 ¹	Nation (public)	9*	204*	63*	37*	7*	#
	Massachusetts	7*	206*	62*	38*	5*	#
2000 ¹	Nation (public)	11*	209*	55*	45*	8*	#
	Massachusetts	9*	208*	58*	42*	7*	1
2000	Nation (public)	16*	207*	59*	41*	7*	#*
	Massachusetts	10*	203*	64*	36*	7*	1
2003	Nation (public)	19*	221*	38*	62*	15*	1*
	Massachusetts	12*	222*	37*	63*	13*	1
2005	Nation (public)	20*	225*	33*	67*	19*	1
	Massachusetts	11*	225*	27	73	14*	1
2007	Nation (public)	21	227	31	69	22	1
	Massachusetts	11*	231	23	77	23	2
2009	Nation (public)	22	227	30	70	21	1
	Massachusetts	17	232	22	78	25	2
Asian/Pacific Islander							
1992 ¹	Nation (public)	3*	231*	26*	74*	27*	4*
	Massachusetts	4	229*	35*	65*	30*	6*
1996 ¹	Nation (public)	3*	225*	35*	65*	20*	5*
	Massachusetts	3*	236*	25*	75*	32*	8
2000 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	4	237*	22*	78*	39*	8*
2000	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	4	237*	23*	77*	36*	8*
2003	Nation (public)	4*	246*	13*	87*	48*	10*
	Massachusetts	4*	248*	11	89	49*	13*
2005	Nation (public)	4*	251*	11*	89*	54*	14
	Massachusetts	5	258	5	95	64	16
2007	Nation (public)	5	254	9	91	59	16
	Massachusetts	6	259	5	95	66	21
2009	Nation (public)	5	255	9	91	61	18
	Massachusetts	6	264	4	96	70	28

See notes at end of table.

**Table
3-A**

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009–Continued

Race/ethnicity, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
American Indian/Alaska Native							
1992 ¹	Nation (public)	1	‡	‡	‡	‡	‡
	Massachusetts	#	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	1*	‡	‡	‡	‡	‡
	Massachusetts	#	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	1	‡	‡	‡	‡	‡
	Massachusetts	#	‡	‡	‡	‡	‡
2000	Nation (public)	1	207*	61*	39*	8*	#
	Massachusetts	#	‡	‡	‡	‡	‡
2003	Nation (public)	1	224	35	65	18*	1
	Massachusetts	#	‡	‡	‡	‡	‡
2005	Nation (public)	1	227	31	69	22	2
	Massachusetts	#	‡	‡	‡	‡	‡
2007	Nation (public)	1	229	28	72	26	3
	Massachusetts	#	‡	‡	‡	‡	‡
2009	Nation (public)	1	227	32	68	23	2
	Massachusetts	#	‡	‡	‡	‡	‡
Unclassified²							
1992 ¹	Nation (public)	#*	‡	‡	‡	‡	‡
	Massachusetts	#*	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	1*	‡	‡	‡	‡	‡
	Massachusetts	1	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	1*	‡	‡	‡	‡	‡
	Massachusetts	1*	‡	‡	‡	‡	‡
2000	Nation (public)	1*	‡	‡	‡	‡	‡
	Massachusetts	1	‡	‡	‡	‡	‡
2003	Nation (public)	1*	236*	20*	80*	32*	3*
	Massachusetts	#*	‡	‡	‡	‡	‡
2005	Nation (public)	1*	240	18	82	38	5
	Massachusetts	#*	‡	‡	‡	‡	‡
2007	Nation (public)	1*	240	16	84	39	6
	Massachusetts	1*	‡	‡	‡	‡	‡
2009	Nation (public)	2	242	14	86	41	6
	Massachusetts	2	‡	‡	‡	‡	‡

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

² The unclassified category includes students whose school-reported race/ethnicity was "other" or unavailable, or was missing, and whose race/ethnicity category could not be determined from self-reported information.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2009 Mathematics Assessments.

Grade 8 Scale Score Results by Race/Ethnicity

- In 2009, White students in Massachusetts had an average scale score that was higher than the scores of Black and Hispanic students, but not found to be significantly different from the score of Asian/Pacific Islander students.
- In 2009, the average scale scores of White and Black students in Massachusetts were higher than the scores of their corresponding peers in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the score in 2007.
- In 2009, the average scale score of Hispanic students in Massachusetts was higher than the scores of their corresponding peers in 1992, 1996, 2000, and 2003, but not found to be significantly different from the scores of their corresponding peers in 2005 and 2007.
- In 2009, the average scale score of Asian/Pacific Islander students in Massachusetts was higher than the scores of their corresponding peers in 1996 and 2000, but not found to be significantly different from the scores of their corresponding peers in 2003, 2005, and 2007.
- In 2009, Black students in Massachusetts had an average score that was lower than that of White students by 33 points. In 1992, the average score for Black students was lower than that of White students by 34 points.
- In 2009, Hispanic students in Massachusetts had an average score that was lower than that of White students by 34 points. In 1992, the average score for Hispanic students was lower than that of White students by 38 points.

Grade 8 Achievement-Level Results by Race/Ethnicity

- In Massachusetts in 2009, the percentage of White students performing at or above *Proficient* was greater than the corresponding percentages of Black and Hispanic students, but not found to be significantly different from the percentage of Asian/Pacific Islander students.
- In 2009, the percentage of White students in Massachusetts performing at or above *Proficient* was greater than the percentages of their respective peers in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the percentage in 2007.
- In 2009, the percentage of Hispanic students in Massachusetts performing at or above *Proficient* was greater than the percentages of their respective peers in 1992, 1996, 2000, and 2003, but not found to be significantly different from the percentages of their respective peers in 2005 and 2007.
- In 2009, the percentage of Asian/Pacific Islander students in Massachusetts performing at or above *Proficient* was greater than the percentages of their respective peers in 1996 and 2000, but not found to be significantly different from the percentages of their respective peers in 2003, 2005, and 2007.
- In 2009, the percentage of Black students in Massachusetts performing at or above *Proficient* was greater than the percentages of their respective peers in 1992, 1996, 2000, 2003, and 2007, but not found to be significantly different from the percentage in 2005.

**Table
3-B**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009

Race/ethnicity, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
White							
1992 ¹	Nation (public)	72*	276*	34*	66*	25*	3*
	Massachusetts	85*	277*	32*	68*	26*	3*
1996 ¹	Nation (public)	70*	280*	28*	72*	29*	5*
	Massachusetts	82*	283*	25*	75*	31*	5*
2000 ¹	Nation (public)	69*	284*	24*	76*	33*	6*
	Massachusetts	79*	288*	18*	82*	36*	6*
2000	Nation (public)	63*	283*	25*	75*	33*	6*
	Massachusetts	79*	284*	24*	76*	34*	6*
2003	Nation (public)	62*	287*	21*	79*	36*	7*
	Massachusetts	77	292*	17*	83*	44*	9*
2005	Nation (public)	60*	288*	21*	79*	37*	7*
	Massachusetts	76	297*	14*	86*	49*	13*
2007	Nation (public)	58*	290*	19*	81*	41*	9*
	Massachusetts	75	305	9	91	58	17
2009	Nation (public)	56	292	18	82	43	10
	Massachusetts	73	305	9	91	59	20
Black							
1992 ¹	Nation (public)	17*	236*	81*	19*	2*	#
	Massachusetts	5	243*	72*	28*	6*	#
1996 ¹	Nation (public)	16	241*	74*	26*	4*	#
	Massachusetts	7	250*	65*	35*	8*	1
2000 ¹	Nation (public)	14*	245*	70*	30*	5*	#*
	Massachusetts	8	254*	55*	45*	9*	#
2000	Nation (public)	17	243*	70*	30*	5*	#*
	Massachusetts	7	258*	57*	43*	9*	#
2003	Nation (public)	17*	252*	61*	39*	7*	#*
	Massachusetts	8	260*	52*	48*	10*	1
2005	Nation (public)	17*	254*	59*	41*	8*	1*
	Massachusetts	8	263*	50	50	15	2
2007	Nation (public)	17*	259	53*	47*	11	1
	Massachusetts	8	264	46	54	13*	1
2009	Nation (public)	16	260	51	49	12	1
	Massachusetts	8	272	38	62	23	3

See notes at end of table.

**Table
3-B**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009–Continued

Race/ethnicity, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Hispanic							
1992 ¹	Nation (public)	8*	247*	67*	33*	6*	#*
	Massachusetts	7	239*	78*	22*	3*	#
1996 ¹	Nation (public)	9*	250*	62*	38*	8*	1
	Massachusetts	7*	239*	76*	24*	3*	#
2000 ¹	Nation (public)	11*	252*	60*	40*	8*	#*
	Massachusetts	7*	253*	58*	42*	10*	1
2000	Nation (public)	14*	252*	60*	40*	8*	#*
	Massachusetts	8	246*	66*	34*	8*	1
2003	Nation (public)	15*	258*	53*	47*	11*	1
	Massachusetts	10	255*	59*	41*	9*	1
2005	Nation (public)	17*	261*	50*	50*	13*	1*
	Massachusetts	10	265	45	55	15	1
2007	Nation (public)	19*	264	46	54	15	2
	Massachusetts	10	270	41	59	19	5
2009	Nation (public)	21	266	44	56	17	2
	Massachusetts	11	271	38	62	21	4
Asian/Pacific Islander							
1992 ¹	Nation (public)	2*	290	25	75	43	14
	Massachusetts	2*	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	4	277*	35*	65*	28*	3
2000 ¹	Nation (public)	4*	286*	27*	73*	40*	12*
	Massachusetts	4	295*	19	81	50*	13*
2000	Nation (public)	4*	287*	27*	73*	40*	12
	Massachusetts	4	292*	21	79	44*	13*
2003	Nation (public)	4*	289*	23*	77*	42*	12*
	Massachusetts	4	304	12	88	57	20
2005	Nation (public)	5*	294*	19*	81*	46*	16*
	Massachusetts	5	314	9	91	68	31
2007	Nation (public)	5	296	18	82	49	17
	Massachusetts	5	315	6	94	74	28
2009	Nation (public)	5	300	16	84	53	20
	Massachusetts	6	314	10	90	66	35

See notes at end of table.

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**Table
3-B**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by race/ethnicity, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009—Continued

Race/ethnicity, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
American Indian/Alaska Native							
1992 ¹	Nation (public)	1	‡	‡	‡	‡	‡
	Massachusetts	#	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	1	‡	‡	‡	‡	‡
	Massachusetts	#	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	1	264	47	53	14	2
	Massachusetts	#	‡	‡	‡	‡	‡
2000	Nation (public)	1	263	47	53	13	3
	Massachusetts	#	‡	‡	‡	‡	‡
2003	Nation (public)	1	265	46	54	16*	2
	Massachusetts	#	‡	‡	‡	‡	‡
2005	Nation (public)	1	266	45	55	14*	2*
	Massachusetts	#	‡	‡	‡	‡	‡
2007	Nation (public)	1*	265	44	56	17	2
	Massachusetts	#	‡	‡	‡	‡	‡
2009	Nation (public)	1	267	43	57	20	3
	Massachusetts	#	‡	‡	‡	‡	‡
Unclassified²							
1992 ¹	Nation (public)	1	258*	55*	45*	8*	#
	Massachusetts	#*	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	#*	‡	‡	‡	‡	‡
	Massachusetts	#*	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	#*	‡	‡	‡	‡	‡
	Massachusetts	1	‡	‡	‡	‡	‡
2000	Nation (public)	1*	‡	‡	‡	‡	‡
	Massachusetts	1	‡	‡	‡	‡	‡
2003	Nation (public)	1*	276*	30	70	24*	3
	Massachusetts	#*	‡	‡	‡	‡	‡
2005	Nation (public)	1*	278*	31	69	29	7
	Massachusetts	#*	‡	‡	‡	‡	‡
2007	Nation (public)	1*	282	28	72	32	8
	Massachusetts	1	‡	‡	‡	‡	‡
2009	Nation (public)	1	283	28	72	33	7
	Massachusetts	1	‡	‡	‡	‡	‡

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

² The unclassified category includes students whose school-reported race/ethnicity was "other" or unavailable, or was missing, and whose race/ethnicity category could not be determined from self-reported information.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2009 Mathematics Assessments.

Gender

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

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

Grade 4 Scale Score Results by Gender

- In 2009, male students in Massachusetts had an average score that was not found to be significantly different from that of female students. In 1992, male students in Massachusetts had an average score that was not found to be significantly different from that of female students.
- In 2009, male students in Massachusetts had an average scale score in mathematics (253) that was higher than that of male students in public schools across the nation (240). Similarly, female students in Massachusetts had an average scale score (251) that was higher than that of female students across the nation (238).
- In Massachusetts, the average scale score of male students in 2009 was higher than the scores of male students in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the score of male students in 2007.
- In Massachusetts, the average scale score of female students in 2009 was higher than the scores of female students in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the score of female students in 2007.

Grade 4 Achievement-Level Results by Gender

- The percentage of male students in Massachusetts' public schools who were at or above *Proficient* in 2009 (59 percent) was greater than that of male students in the nation (40 percent).
- The percentage of female students in Massachusetts' public schools who were at or above *Proficient* in 2009 (55 percent) was greater than that of female students in the nation (37 percent).
- In Massachusetts, the percentage of male students performing at or above *Proficient* in 2009 was greater than the corresponding percentages of students in 1992, 1996, 2000, 2003, and 2005, but not significantly different from the percentage of students in 2007.
- In Massachusetts, the percentage of female students performing at or above *Proficient* in 2009 was greater than the corresponding percentages of students in 1992, 1996, 2000, 2003, and 2005, but not significantly different from the percentage of students in 2007.

**Table
4-A**

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by gender, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009

Gender, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Male							
1992 ¹	Nation (public)	50	220	41 *	59 *	19*	2*
	Massachusetts	51	228	30 *	70 *	25*	3*
1996 ¹	Nation (public)	51	224	37 *	63 *	22*	3*
	Massachusetts	52	230	27 *	73 *	27*	2*
2000 ¹	Nation (public)	51	227	32 *	68 *	27*	3*
	Massachusetts	50	237	20 *	80 *	36*	4*
2000	Nation (public)	51	225	35 *	65 *	25*	3*
	Massachusetts	50	235	22 *	78 *	33*	3*
2003	Nation (public)	51	235	23 *	77 *	34*	5*
	Massachusetts	51	244	14 *	86 *	44*	7*
2005	Nation (public)	51	238	20 *	80 *	37*	6*
	Massachusetts	49	248	9	91	50*	9*
2007	Nation (public)	51*	240	18	82	41	7
	Massachusetts	51	254	7	93	60	13
2009	Nation (public)	51	240	19	81	40	7
	Massachusetts	50	253	8	92	59	14
Female							
1992 ¹	Nation (public)	50	218	44 *	56 *	16*	1*
	Massachusetts	49	225	33 *	67 *	21*	2*
1996 ¹	Nation (public)	49	221	39 *	61 *	17*	1*
	Massachusetts	48	228	30 *	70 *	22*	2*
2000 ¹	Nation (public)	49	225	34 *	66 *	22*	2*
	Massachusetts	50	233	23 *	77 *	31*	2*
2000	Nation (public)	49	223	38 *	62 *	20*	1*
	Massachusetts	50	232	25 *	75 *	29*	2*
2003	Nation (public)	49	233	25 *	75 *	29*	3*
	Massachusetts	49	239	18 *	82 *	38*	4*
2005	Nation (public)	49	236	21 *	79 *	33*	4*
	Massachusetts	51	247	10	90	48*	7
2007	Nation (public)	49*	238	19	81	36	4
	Massachusetts	49	251	7	93	55	9
2009	Nation (public)	49	238	19	81	37	5
	Massachusetts	50	251	7	93	55	10

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. 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), various years, 1992–2009 Mathematics Assessments.

Grade 8 Scale Score Results by Gender

- In 2009, male students in Massachusetts had an average score that was not found to be significantly different from that of female students. In 1992, male students in Massachusetts had an average score that was not found to be significantly different from that of female students.
- In 2009, male students in Massachusetts had an average scale score in mathematics (300) that was higher than that of male students in public schools across the nation (283). Similarly, female students in Massachusetts had an average scale score (298) that was higher than that of female students across the nation (281).
- In Massachusetts, the average scale score of male students in 2009 was higher than the scores of male students in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the score of male students in 2007.
- In Massachusetts, the average scale score of female students in 2009 was higher than the scores of female students in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the score of female students in 2007.

Grade 8 Achievement-Level Results by Gender

- The percentage of male students in Massachusetts' public schools who were at or above *Proficient* in 2009 (53 percent) was greater than that of male students in the nation (34 percent).
- The percentage of female students in Massachusetts' public schools who were at or above *Proficient* in 2009 (50 percent) was greater than that of female students in the nation (31 percent).
- In Massachusetts, the percentage of male students performing at or above *Proficient* in 2009 was greater than the corresponding percentages of students in 1992, 1996, 2000, 2003, and 2005, but not significantly different from the percentage of students in 2007.
- In Massachusetts, the percentage of female students performing at or above *Proficient* in 2009 was greater than the corresponding percentages of students in 1992, 1996, 2000, 2003, and 2005, but not significantly different from the percentage of students in 2007.

**Table
4-B**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by gender, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009

Gender, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Male							
1992 ¹	Nation (public)	52	266	45 *	55 *	20*	3*
	Massachusetts	50	274	37 *	63 *	26*	3*
1996 ¹	Nation (public)	52*	270	40 *	60 *	24*	4*
	Massachusetts	52	278	31 *	69 *	29*	5*
2000 ¹	Nation (public)	50	276	34 *	66 *	29*	6*
	Massachusetts	51	285	23 *	77 *	34*	7*
2000	Nation (public)	50	273	38 *	62 *	26*	5*
	Massachusetts	52*	279	30 *	70 *	31*	6*
2003	Nation (public)	50	277	33 *	67 *	29*	6*
	Massachusetts	51	289	22 *	78 *	42*	10*
2005	Nation (public)	51	278	32 *	68 *	30*	6*
	Massachusetts	49	291	21 *	79 *	43*	11*
2007	Nation (public)	51	281	29 *	71 *	33*	8*
	Massachusetts	49	300	14	86	53	17
2009	Nation (public)	51	283	28	72	34	8
	Massachusetts	50	300	14	86	53	18
Female							
1992 ¹	Nation (public)	48	267	44 *	56 *	20*	3*
	Massachusetts	50	272	38 *	62 *	21*	2*
1996 ¹	Nation (public)	48*	271	39 *	61 *	21*	3*
	Massachusetts	48	277	32 *	68 *	26*	5*
2000 ¹	Nation (public)	50	273	36 *	64 *	24*	4*
	Massachusetts	49	281	26 *	74 *	30*	5*
2000	Nation (public)	50	271	38 *	62 *	23*	4*
	Massachusetts	48*	278	30 *	70 *	29*	4*
2003	Nation (public)	50	275	34 *	66 *	26*	4*
	Massachusetts	49	284	26 *	74 *	35*	7*
2005	Nation (public)	49	277	33 *	67 *	27*	5*
	Massachusetts	51	292	19 *	81 *	43*	12*
2007	Nation (public)	49	279	30	70	29*	6*
	Massachusetts	51	296	16	84	48	13
2009	Nation (public)	49	281	29	71	31	7
	Massachusetts	50	298	15	85	50	16

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. 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), various years, 1992–2009 Mathematics Assessments.

Student Eligibility for the National School Lunch Program

NAEP collects data on eligibility for the federal program providing free or reduced-price school lunches. The free/reduced-price lunch component of the National School Lunch Program (NSLP) offered through the U.S. Department of Agriculture (USDA) is designed to ensure that children near or below the poverty line receive nourishing meals. Eligibility is determined through the USDA's Income Eligibility Guidelines, and results for this category of students are included as an indicator of lower family income. NAEP first collected information on participation in this program in 1996; therefore, cross-year comparisons to assessments prior to 1996 cannot be made.

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

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

- In 2009, students in Massachusetts eligible for free/reduced-price lunch had an average mathematics scale score of 237. This was lower than that of students in Massachusetts not eligible for this program (260).
- In 2009, students in Massachusetts who were eligible for free/reduced-price school lunch had an average score that was lower than that of students who were not eligible for free/reduced-price school lunch by 23 points. In 1996, the average score for students in Massachusetts who were eligible for free/reduced-price school lunch was lower than the score of those not eligible by 21 points.
- Students in Massachusetts eligible for free/reduced-price lunch had an average scale score (237) in 2009 that was higher than that of students in the nation who were eligible (228).
- In Massachusetts, students eligible for free/reduced-price lunch had an average mathematics scale score in 2009 that was higher than that of eligible students in 1996, 2000, 2003, and 2005, but not found to be significantly different from that of eligible students in 2007.

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

- In Massachusetts, 31 percent of students who were eligible for free/reduced-price lunch and 70 percent of those who were not eligible for this program performed at or above *Proficient* in 2009. These percentages were found to be significantly different from one another.
- For students in Massachusetts in 2009 who were eligible for free/reduced-price lunch, the percentage at or above *Proficient* (31 percent) was greater than the corresponding percentage for their counterparts around the nation (22 percent).
- In Massachusetts, the percentage of students eligible for free/reduced-price lunch who performed at or above *Proficient* for 2009 was greater than the corresponding percentages for 1996, 2000, 2003, and 2005, but not found to be significantly different from the percentage for 2007.

**Table
5-A**

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by eligibility status, year, and jurisdiction, assessment year and jurisdiction: Various years, 1996–2009

Eligibility status, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Eligible							
1996 ¹	Nation (public)	34*	207*	59*	41*	8*	#*
	Massachusetts	24*	213*	50*	50*	8*	#
2000 ¹	Nation (public)	35*	210*	54*	46*	9*	#*
	Massachusetts	26*	213*	49*	51*	9*	1
2000	Nation (public)	40*	208*	57*	43*	7*	#*
	Massachusetts	26*	210*	53*	47*	8*	#
2003	Nation (public)	44*	222*	38*	62*	15*	1*
	Massachusetts	29	226*	31*	69*	17*	1*
2005	Nation (public)	46*	225*	33*	67*	19*	1
	Massachusetts	29*	231*	22*	78*	22*	2
2007	Nation (public)	46*	227	30	70	22	1
	Massachusetts	27*	237	17	83	32	3
2009	Nation (public)	48	228	29	71	22	1
	Massachusetts	34	237	17	83	31	3
Not eligible							
1996 ¹	Nation (public)	52	231*	27*	73*	25*	3*
	Massachusetts	66	235*	21*	79*	30*	2*
2000 ¹	Nation (public)	52	236*	21*	79*	33*	4*
	Massachusetts	67	243*	10*	90*	42*	4*
2000	Nation (public)	49	235*	23*	77*	32*	4*
	Massachusetts	67	242*	11*	89*	39*	4*
2003	Nation (public)	52	244*	12*	88*	45*	6*
	Massachusetts	63	249*	9*	91*	52*	8*
2005	Nation (public)	52*	248*	10*	90*	50*	8*
	Massachusetts	71*	254*	4	96	60*	11*
2007	Nation (public)	53*	249	9	91	53	9*
	Massachusetts	72*	258	3	97	67	14
2009	Nation (public)	51	250	9	91	54	10
	Massachusetts	66	260	3	97	70	17

See notes at end of table.

**Table
5-A**

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by eligibility status, year, and jurisdiction, assessment year and jurisdiction: Various years, 1996–2009–Continued

Eligibility status, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Information not available							
1996 ¹	Nation (public)	13*	230	28	72	28	3
	Massachusetts	11	229	30	70	26	3
2000 ¹	Nation (public)	13*	235	23	77	35	3
	Massachusetts	7	236	25	75	41	3
2000	Nation (public)	11*	236	22	78	35	4
	Massachusetts	7	234	26	74	35	4
2003	Nation (public)	4*	235	23	77	34	4
	Massachusetts	8	242	16	84	44	4
2005	Nation (public)	2*	237	21	79	36	5
	Massachusetts	#	‡	‡	‡	‡	‡
2007	Nation (public)	1	243	17	83	44	8
	Massachusetts	#	‡	‡	‡	‡	‡
2009	Nation (public)	1	240	22	78	42	7
	Massachusetts	#	‡	‡	‡	‡	‡

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. 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), various years, 1996–2009 Mathematics Assessments.

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

- In 2009, students in Massachusetts eligible for free/reduced-price lunch had an average mathematics scale score of 278. This was lower than that of students in Massachusetts not eligible for this program (307).
- In 2009, students in Massachusetts who were eligible for free/reduced-price school lunch had an average score that was lower than that of students who were not eligible for free/reduced-price school lunch by 29 points. In 1996, the average score for students in Massachusetts who were eligible for free/reduced-price school lunch was lower than the score of those not eligible by 30 points.
- Students in Massachusetts eligible for free/reduced-price lunch had an average scale score (278) in 2009 that was higher than that of students in the nation who were eligible (266).
- In Massachusetts, students eligible for free/reduced-price lunch had an average mathematics scale score in 2009 that was higher than that of eligible students in 1996, 2000, and 2003, but not found to be significantly different from that of eligible students in 2005 and 2007.

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

- In Massachusetts, 29 percent of students who were eligible for free/reduced-price lunch and 61 percent of those who were not eligible for this program performed at or above *Proficient* in 2009. These percentages were found to be significantly different from one another.
- For students in Massachusetts in 2009 who were eligible for free/reduced-price lunch, the percentage at or above *Proficient* (29 percent) was greater than the corresponding percentage for their counterparts around the nation (17 percent).
- In Massachusetts, the percentage of students eligible for free/reduced-price lunch who performed at or above *Proficient* for 2009 was greater than the corresponding percentages for 1996, 2000, and 2003, but not found to be significantly different from the corresponding percentages for 2005 and 2007.

**Table
5-B**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by eligibility status, year, and jurisdiction, assessment year and jurisdiction: Various years, 1996–2009

Eligibility status, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Eligible							
1996 ¹	Nation (public)	30*	252*	61*	39*	8*	1*
	Massachusetts	18*	254*	59*	41*	7*	#
2000 ¹	Nation (public)	28*	255*	56*	44*	10*	1*
	Massachusetts	20*	261*	48*	52*	11*	1*
2000	Nation (public)	31*	253*	59*	41*	10*	1*
	Massachusetts	22*	257*	55*	45*	10*	1*
2003	Nation (public)	36*	258*	53*	47*	11*	1*
	Massachusetts	23*	261*	51*	49*	13*	1*
2005	Nation (public)	39*	261*	49*	51*	13*	1*
	Massachusetts	29	273	36	64	22	3
2007	Nation (public)	41*	265*	45*	55*	15*	2
	Massachusetts	26	275	35	65	25	4
2009	Nation (public)	43	266	43	57	17	2
	Massachusetts	29	278	31	69	29	5
Not eligible							
1996 ¹	Nation (public)	56	279*	29*	71*	29*	5*
	Massachusetts	75	284*	24*	76*	33*	6*
2000 ¹	Nation (public)	55	285*	24*	76*	35*	7*
	Massachusetts	74	289*	18*	82*	38*	7*
2000	Nation (public)	54	283*	26*	74*	34*	7*
	Massachusetts	71	286*	22*	78*	37*	7*
2003	Nation (public)	58*	287*	22*	78*	37*	7*
	Massachusetts	65	295*	15*	85*	46*	10*
2005	Nation (public)	59*	288*	21*	79*	39*	8*
	Massachusetts	69	299*	13*	87*	52*	15*
2007	Nation (public)	58*	291*	19*	81*	42*	10*
	Massachusetts	74	306	8	92	60	19
2009	Nation (public)	56	293	17	83	45	12
	Massachusetts	71	307	8	92	61	22

See notes at end of table.

**Table
5-B**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by eligibility status, year, and jurisdiction, assessment year and jurisdiction: Various years, 1996–2009–Continued

Eligibility status, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Information not available							
1996 ¹	Nation (public)	14*	278	31	69	29	5
	Massachusetts	7*	269	41	59	24	4
2000 ¹	Nation (public)	16*	273	37*	63*	26*	4*
	Massachusetts	6*	286	22	78	35	6
2000	Nation (public)	15*	271	38*	62*	24*	4*
	Massachusetts	7*	274	36	64	27	5
2003	Nation (public)	6*	278	32	68	29	6
	Massachusetts	12*	291	21	79	43	12
2005	Nation (public)	3*	277	34	66	28	6
	Massachusetts	2	296	19	81	49	15
2007	Nation (public)	1	274	36	64	28	6
	Massachusetts	#	‡	‡	‡	‡	‡
2009	Nation (public)	1	284	28	72	35	10
	Massachusetts	#	‡	‡	‡	‡	‡

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. 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), various years, 1996–2009 Mathematics Assessments.

Type of Location

Schools that participated in the assessment were classified as being located in four mutually exclusive types of communities: city, suburb, town, and rural. These categories indicate the geographic locations of schools. "City" is a geographical term meaning the principal city of a U.S. Census Bureau-defined Core-Based Statistical Area and is not synonymous with "inner city." The criteria for classifying schools with respect to type of location changed for 2007; therefore, only comparisons between 2007 and 2009 are available. More detail on the changes for the classification of type of location is available at http://nces.ed.gov/ccd/Rural_Locales.asp.

Tables 6-A and 6-B show average scale scores and achievement-level data for public school students at grades 4 and 8 in Massachusetts and the nation, by type of location (for 2007 and 2009 only).

Grade 4 Scale Score Results by Type of Location

- In 2009 in Massachusetts, the average scale score of students attending public schools in city locations was lower than the scores of students in suburban and rural schools.
- In 2009, students attending public schools in city, suburban, and rural locations in Massachusetts had average scale scores that were higher than the average scale scores of students in city, suburban, and rural locations in the nation.
- In 2009, students attending public schools in city, suburban, and rural locations in Massachusetts had average scale scores that were not found to be significantly different from the average scale scores of students in city, suburban, and rural locations in 2007 in Massachusetts.

Grade 4 Achievement-Level Results by Type of Location

- In 2009, the percentage of students in Massachusetts' public schools in city locations who performed at or above *Proficient* was smaller than the corresponding percentages of students in suburban and rural schools.
- The percentages of students in Massachusetts' public schools in city, suburban, and rural locations who performed at or above *Proficient* in 2009 were greater than those of students in city, suburban, and rural locations in the nation.
- The percentages of students in Massachusetts' public schools in city, suburban, and rural locations who performed at or above *Proficient* in 2009 were not found to be significantly different from those of students in city, suburban, and rural locations in 2007 in Massachusetts.

**Table
6-A**

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by type of location, year, and jurisdiction, assessment year and jurisdiction: 2007 and 2009

Type of location, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
City							
2007	Nation (public)	29	233	26	74	32	5
	Massachusetts	19	241	17	83	41	8
2009	Nation (public)	30	234	25	75	32	5
	Massachusetts	20	244	14	86	42	8
Suburb							
2007	Nation (public)	37	243	15	85	44	7
	Massachusetts	71	255	5	95	61	11
2009	Nation (public)	36	243	16	84	44	7
	Massachusetts	68	255	6	94	61	14
Town							
2007	Nation (public)	12	238	18	82	36	4
	Massachusetts	1	‡	‡	‡	‡	‡
2009	Nation (public)	12	237	19	81	35	4
	Massachusetts	2	‡	‡	‡	‡	‡
Rural							
2007	Nation (public)	22	240	16	84	39	5
	Massachusetts	10	257	3	97	63	13
2009	Nation (public)	22	240	16	84	39	5
	Massachusetts	10	254	6	94	60	12

‡ Reporting standards not met.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. 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), 2007 and 2009 Mathematics Assessments.

Grade 8 Scale Score Results by Type of Location

- In 2009 in Massachusetts, the average scale score of students attending public schools in city locations was lower than the scores of students in suburban and rural schools.
- In 2009, students attending public schools in city locations in Massachusetts had average scale score that was not found to be significantly different from the average scale score of students in city locations in the nation.
- In 2009, students attending public schools in suburban and rural locations in Massachusetts had average scale scores that were higher than the average scale scores of students in suburban and rural locations in the nation.
- In 2009, students attending public schools in city, suburban, and rural locations in Massachusetts had average scale scores that were not found to be significantly different from the average scale scores of students in city, suburban, and rural locations in 2007 in Massachusetts.

Grade 8 Achievement-Level Results by Type of Location

- In 2009, the percentage of students in Massachusetts' public schools in city locations who performed at or above *Proficient* was smaller than the corresponding percentages of students in suburban and rural schools.
- The percentage of students in Massachusetts' public schools in city locations who performed at or above *Proficient* in 2009 was not found to be significantly different from those of students in city locations in the nation.
- The percentages of students in Massachusetts' public schools in suburban and rural locations who performed at or above *Proficient* in 2009 were greater than those of students in suburban and rural locations in the nation.
- The percentages of students in Massachusetts' public schools in city, suburban, and rural locations who performed at or above *Proficient* in 2009 were not found to be significantly different from those of students in city, suburban, and rural locations in 2007 in Massachusetts.

**Table
6-B**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by type of location, year, and jurisdiction, assessment year and jurisdiction: 2007 and 2009

Type of location, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
City							
2007	Nation (public)	28	273	38 *	62 *	25 *	5 *
	Massachusetts	21	286	26	74	39	10
2009	Nation (public)	27	276	36	64	28	6
	Massachusetts	19	282	31	69	33	10
Suburb							
2007	Nation (public)	36	285	26	74	36	9 *
	Massachusetts	65	301	13	87	54	16
2009	Nation (public)	36	286	25	75	37	10
	Massachusetts	67	302	12	88	55	19
Town							
2007	Nation (public)	13	280	29	71	29	5
	Massachusetts	3	‡	‡	‡	‡	‡
2009	Nation (public)	14	279	30	70	29	5
	Massachusetts	3	‡	‡	‡	‡	‡
Rural							
2007	Nation (public)	22	282	26	74	32 *	6
	Massachusetts	12	302	9	91	54	16
2009	Nation (public)	23	284	25	75	33	7
	Massachusetts	11	306	7	93	61	18

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. 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), 2007 and 2009 Mathematics Assessments.

Parents' Highest Level of Education

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

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

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

- In 2009, students in Massachusetts who reported that a parent had graduated from college had an average scale score that was higher than the average scores of students with a parent in any of the following education categories: some education after high school, graduated from high school, and did not finish high school.
- In 2009, the average scale scores for students in Massachusetts who reported that a parent had graduated from college, had some education after high school, had graduated from high school, or had not finished high school were higher than the corresponding scores of students in the nation.
- In 2009, the average scale scores for students in Massachusetts who reported that a parent had graduated from college or had graduated from high school were higher than the corresponding scores of students in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the corresponding scores of students in 2007.
- In 2009, the average scale scores for students in Massachusetts who reported that a parent had some education after high school or had not finished high school were higher than the corresponding scores of students in 1992, 1996, 2000, and 2003, but not found to be significantly different from the corresponding scores of students in 2005 and 2007.

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

- In 2009, the percentage of students performing at or above *Proficient* in Massachusetts who reported that a parent had graduated from college was greater than the percentage for students whose parents' highest level of education was in any of the following education categories: some education after high school, graduated from high school, and did not finish high school.
- In 2009 in Massachusetts, the percentages of students reporting that a parent had graduated from college, had some education after high school, had graduated from high school, or had not finished high school who performed at or above *Proficient* were greater than the corresponding percentages of students in the nation.
- In 2009, the percentage of students reporting that a parent graduated from college who performed at or above *Proficient* was greater than the percentage of students in 1992, 1996, 2000, 2003, and 2005, but not found to be significantly different from the percentage of students in 2007.
- In 2009, the respective percentages of students reporting that a parent had some education after high school, had graduated from high school, or had not finished high school who performed at or above *Proficient* were greater than the corresponding percentages of students in 1992, 1996, 2000, and 2003, but not found to be significantly different from the corresponding percentages of students in 2005 and 2007.

**Table
7**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by parental education level, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009

Parental education level, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Did not finish high school							
1992 ¹	Nation (public)	8	249 *	66 *	34 *	6 *	1
	Massachusetts	7	249 *	67 *	33 *	4 *	#
1996 ¹	Nation (public)	8	254 *	56 *	44 *	8 *	1
	Massachusetts	6	254 *	61 *	39 *	4 *	#
2000 ¹	Nation (public)	7 *	255 *	55 *	45 *	8 *	1
	Massachusetts	4	261 *	52	48	9 *	1
2000	Nation (public)	8	253 *	57 *	43 *	7 *	# *
	Massachusetts	4	256 *	60 *	40 *	9 *	1
2003	Nation (public)	7 *	256 *	56 *	44 *	9 *	1 *
	Massachusetts	5	262 *	53 *	47 *	13 *	2
2005	Nation (public)	8 *	259 *	52 *	48 *	11 *	1 *
	Massachusetts	5	271	39	61	17	3
2007	Nation (public)	8	263 *	48	52	12 *	1
	Massachusetts	5	277	32	68	27	3
2009	Nation (public)	8	265	45	55	14	1
	Massachusetts	5	275	34	66	26	3
Graduated from high school							
1992 ¹	Nation (public)	25 *	257 *	55 *	45 *	10 *	1 *
	Massachusetts	21 *	262 *	49 *	51 *	11 *	1 *
1996 ¹	Nation (public)	23 *	260 *	50 *	50 *	12 *	1
	Massachusetts	18 *	263 *	47 *	53 *	11 *	#
2000 ¹	Nation (public)	21 *	263 *	47 *	53 *	16 *	1
	Massachusetts	18 *	271 *	34 *	66 *	16 *	1
2000	Nation (public)	21 *	260 *	49 *	51 *	15 *	1
	Massachusetts	20 *	265 *	45 *	55 *	15 *	1
2003	Nation (public)	18 *	267 *	42 *	58 *	16 *	2 *
	Massachusetts	14	271 *	38 *	62 *	20 *	3
2005	Nation (public)	18 *	267 *	42 *	58 *	17 *	2
	Massachusetts	15	278 *	30	70	24	4
2007	Nation (public)	18	270	40	60	19	2
	Massachusetts	13	284	23	77	33	4
2009	Nation (public)	17	270	38	62	19	2
	Massachusetts	14	285	21	79	32	5

See notes at end of table.

**Table
7**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by parental education level, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009–Continued

Parental education level, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Some education after high school							
1992 ¹	Nation (public)	18*	270*	40*	60*	20*	3*
	Massachusetts	17*	273*	35*	65*	19*	1*
1996 ¹	Nation (public)	19*	279*	29*	71*	26*	4
	Massachusetts	15	277*	28*	72*	22*	3
2000 ¹	Nation (public)	18	279*	28*	72*	27*	3
	Massachusetts	15	284*	19	81	29*	4
2000	Nation (public)	18	277*	30*	70*	26*	3*
	Massachusetts	14	280*	24	76	26*	3
2003	Nation (public)	18*	280*	27*	73*	28*	4*
	Massachusetts	14	281*	26*	74*	29*	3
2005	Nation (public)	18*	280*	27*	73*	28*	4*
	Massachusetts	14	285	20	80	33	5
2007	Nation (public)	17	283	24	76	32	5
	Massachusetts	14	294	14	86	45	9
2009	Nation (public)	17	283	24	76	32	5
	Massachusetts	13	290	18	82	40	7
Graduated from college							
1992 ¹	Nation (public)	40*	279*	30*	70*	31*	5*
	Massachusetts	48*	284*	24*	76*	35*	5*
1996 ¹	Nation (public)	40*	281*	28*	72*	34*	7*
	Massachusetts	51*	290*	19*	81*	42*	8*
2000 ¹	Nation (public)	43*	286*	24*	76*	39*	9*
	Massachusetts	52*	294*	15*	85*	45*	9*
2000	Nation (public)	41*	285*	25*	75*	38*	9*
	Massachusetts	50*	292*	17*	83*	44*	9*
2003	Nation (public)	45	287*	23*	77*	39*	8*
	Massachusetts	57	298*	13*	87*	51*	13*
2005	Nation (public)	45*	289*	22*	78*	41*	10*
	Massachusetts	58	301*	13*	87*	56*	17*
2007	Nation (public)	46	291*	20*	80*	43*	11*
	Massachusetts	60	307	10	90	61	21
2009	Nation (public)	46	294	18	82	46	13
	Massachusetts	58	310	7	93	65	26

See notes at end of table.

**Table
7**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by parental education level, year, and jurisdiction, assessment year and jurisdiction: Various years, 1992–2009–Continued

Parental education level, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
Unknown							
1992 ¹	Nation (public)	9*	251	62 *	38 *	9*	#
	Massachusetts	7	249	68 *	32 *	6*	#
1996 ¹	Nation (public)	11	253	59 *	41 *	10*	1*
	Massachusetts	10	256	56 *	44 *	10*	1
2000 ¹	Nation (public)	11	255	55 *	45 *	11*	1*
	Massachusetts	11	260	50 *	50 *	13*	1
2000	Nation (public)	12	253	59 *	41 *	9*	1*
	Massachusetts	11*	255	56 *	44 *	10*	1
2003	Nation (public)	11	258	53 *	47 *	12*	1*
	Massachusetts	10	268	43	57	20	2
2005	Nation (public)	11*	260	51 *	49 *	13*	1*
	Massachusetts	8	273	38	62	24	3
2007	Nation (public)	12	263	48	52	15	2
	Massachusetts	8	281	27	73	31	5
2009	Nation (public)	12	264	47	53	16	2
	Massachusetts	9	275	35	65	27	6

Rounds to zero.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. 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), various years, 1992–2009 Mathematics Assessments.

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

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

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

Prior to 2000, testing accommodations were not provided for students with special needs in NAEP state mathematics assessments. For 2000, results are displayed for both the sample in which accommodations were permitted and the sample in which they were not permitted. Subsequent assessment results were based on the more inclusive samples.

Tables 8-A and 8-B display data for 4th and 8th grade students in Massachusetts who were identified as SD and/or ELL, by whether they were excluded, assessed with accommodations, or assessed under standard conditions, as a percent of all 4th or 8th grade students in the state.

Tables 9-A and 9-B show the percentages of students assessed in Massachusetts by disability status and their performance on the NAEP assessment in terms of average scale scores and percentages performing below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced* for grades 4 and 8 .

Tables 10-A and 10-B present the percentages of students assessed in Massachusetts by ELL status, their average scale scores, and their performance in terms of the percentages below *Basic*, the percentages at or above *Basic*, at or above *Proficient*, and at *Advanced* for grades 4 and 8 .

Tables 11-A and 11-B present the total number of grades 4 and 8 students assessed in each of the participating states and the percentage of students sampled who were excluded.

**Table
8-A**

Fourth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL) in NAEP mathematics, by assessment year and testing status, as a percentage of all students: Various years, 1992–2009

Year and testing status		SD and/or ELL		SD		ELL	
		Massachusetts	Nation	Massachusetts	Nation	Massachusetts	Nation
1992 ¹	Identified	18	10	15	7	3	3
	Excluded	7	7	6	5	1	2
	Assessed without accommodations	11	4	9	3	2	1
1996 ¹	Identified	18	16	15	12	4	4
	Excluded	9	6	7	5	2	2
	Assessed without accommodations	9	9	8	7	1	2
2000	Identified	19	19	14	13	6	7
	Excluded	3	4	1	3	2	1
	Assessed without accommodations	7	10	5	5	2	5
	Assessed with accommodations	10	5	9	4	2	1
2003	Identified	22	22	18	14	5	11
	Excluded	3	4	2	3	1	1
	Assessed without accommodations	4	10	2	4	2	7
	Assessed with accommodations	15	8	14	7	2	2
2005	Identified	24	23	18	14	7	10
	Excluded	4	3	3	3	1	1
	Assessed without accommodations	6	10	3	4	3	7
	Assessed with accommodations	13	10	12	8	2	3
2007	Identified	23	23	18	14	6	11
	Excluded	5	3	5	3	1	1
	Assessed without accommodations	6	10	3	3	4	7
	Assessed with accommodations	12	10	11	8	2	3
2009	Identified	24	23	19	13	7	10
	Excluded	5	2	5	2	1	1
	Assessed without accommodations	7	9	2	3	5	6
	Assessed with accommodations	13	11	12	8	2	4

¹ Accommodations were not permitted for this assessment year.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2009 Mathematics Assessments.

**Table
8-B**

Eighth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL) in NAEP mathematics, by assessment year and testing status, as a percentage of all students: Various years, 1992–2009

Year and testing status		SD and/or ELL		SD		ELL	
		Massachusetts	Nation	Massachusetts	Nation	Massachusetts	Nation
1992 ¹	Identified	18	10	14	8	4	2
	Excluded	8	6	6	5	2	2
	Assessed without accommodations	9	4	8	3	1	1
1996 ¹	Identified	17	11	15	9	2	3
	Excluded	8	5	7	4	1	1
	Assessed without accommodations	9	7	9	5	#	2
2000	Identified	19	14	16	11	4	4
	Excluded	3	4	2	3	2	1
	Assessed without accommodations	8	7	7	5	1	3
	Assessed with accommodations	9	3	8	2	1	1
2003	Identified	18	19	16	14	3	6
	Excluded	3	4	2	3	1	1
	Assessed without accommodations	4	8	4	5	1	4
	Assessed with accommodations	11	7	10	6	1	1
2005	Identified	20	19	17	13	3	6
	Excluded	6	4	6	3	1	1
	Assessed without accommodations	4	7	2	3	1	4
	Assessed with accommodations	10	8	9	7	1	1
2007	Identified	20	18	17	13	3	7
	Excluded	9	4	9	4	1	1
	Assessed without accommodations	3	6	2	2	1	4
	Assessed with accommodations	7	8	6	6	1	2
2009	Identified	21	18	19	13	3	6
	Excluded	6	3	5	3	1	#
	Assessed without accommodations	4	5	3	2	1	3
	Assessed with accommodations	11	10	10	8	1	2

Rounds to zero.

¹ Accommodations were not permitted for this assessment year.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2009 Mathematics Assessments.

Table 9-A

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by students with disabilities (SD) status, assessment year and jurisdiction: Various years, 1992–2009

SD status, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
SD							
1992 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000	Nation (public)	10*	198*	71*	29*	6*	1*
	Massachusetts	14	216*	46*	54*	12*	1
2003	Nation (public)	11	214*	50*	50*	12*	1*
	Massachusetts	16	224*	35*	65*	19*	1*
2005	Nation (public)	12	218*	44*	56*	16*	2*
	Massachusetts	15	230*	26	74	22*	1
2007	Nation (public)	11	220	40	60	19	2
	Massachusetts	14	238	17	83	33	4
2009	Nation (public)	12	220	41	59	19	2
	Massachusetts	15	237	19	81	32	4
Not SD							
1992 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000	Nation (public)	90*	227*	33*	67*	24*	3*
	Massachusetts	86	236*	19*	81*	34*	3*
2003	Nation (public)	89	236*	21*	79*	34*	4*
	Massachusetts	84	245*	12*	88*	46*	7*
2005	Nation (public)	88	240*	17*	83*	38*	5*
	Massachusetts	85	251*	6	94	54*	9*
2007	Nation (public)	89	241	16	84	41	6
	Massachusetts	86	255	5	95	61	12
2009	Nation (public)	88	242	16	84	41	6
	Massachusetts	85	255	6	94	61	13

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. Performance comparisons may be affected by differences in exclusion rates for students with disabilities in the NAEP samples and by differences in sample sizes. 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), various years, 1992–2009 Mathematics Assessments.

Table 9-B

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by students with disabilities (SD) status, assessment year and jurisdiction: Various years, 1992–2009

SD status, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
SD							
1992 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000	Nation (public)	8*	229*	80*	20*	4*	#
	Massachusetts	15	243*	72*	28*	6*	1
2003	Nation (public)	11*	242*	71*	29*	6*	1*
	Massachusetts	15	254*	59*	41*	9*	1
2005	Nation (public)	11	244*	69*	31*	7*	1*
	Massachusetts	12	264	49	51	17	3
2007	Nation (public)	9*	246*	67*	33*	8	1
	Massachusetts	9*	271	38	62	18	2
2009	Nation (public)	10	249	64	36	9	1
	Massachusetts	14	271	41	59	21	4
Not SD							
1992 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000	Nation (public)	92*	275*	35*	65*	26*	5*
	Massachusetts	85	285*	22*	78*	34*	6*
2003	Nation (public)	89*	280*	29*	71*	30*	5*
	Massachusetts	85	292*	18*	82*	43*	10*
2005	Nation (public)	89	281*	28*	72*	31*	6*
	Massachusetts	88	295*	16*	84*	47*	13*
2007	Nation (public)	91*	284*	26*	74*	33*	7*
	Massachusetts	91*	301	13	87	54	16
2009	Nation (public)	90	285	24	76	35	8
	Massachusetts	86	304	11	89	57	19

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. Performance comparisons may be affected by differences in exclusion rates for students with disabilities in the NAEP samples and by differences in sample sizes. 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), various years, 1992–2009 Mathematics Assessments.

**Table
10-A**

Percentage of fourth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by English language learner (ELL), assessment year and jurisdiction: Various years, 1992–2009

ELL status, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
ELL							
1992 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000	Nation (public)	6*	199*	70*	30*	4*	#
	Massachusetts	4*	‡	‡	‡	‡	‡
2003	Nation (public)	9	214*	51*	49*	9*	#
	Massachusetts	4*	217	45	55	9	1
2005	Nation (public)	10	216	46*	54*	11	1
	Massachusetts	6	226	32	68	19	2
2007	Nation (public)	10	217	44	56	13	1
	Massachusetts	6	230	26	74	24	2
2009	Nation (public)	10	218	43	57	12	1
	Massachusetts	7	221	38	62	15	1
Not ELL							
1992 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000	Nation (public)	94*	226*	34*	66*	24*	3*
	Massachusetts	96*	235*	21*	79*	32*	3*
2003	Nation (public)	91	236*	21*	79*	34*	4*
	Massachusetts	96*	243*	14*	86*	43*	6*
2005	Nation (public)	90	239*	18*	82*	38*	5*
	Massachusetts	94	249*	8*	92*	51*	9*
2007	Nation (public)	90	242	16	84	42	6
	Massachusetts	94	254	6	94	60	11
2009	Nation (public)	90	242	16	84	41	6
	Massachusetts	93	254	6	94	60	13

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 4 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 213 or lower; *Basic*, 214–248; *Proficient*, 249–281; and *Advanced*, 282 and above. Performance comparisons may be affected by differences in exclusion rates for English language learners in the NAEP samples and by differences in sample sizes. 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), various years, 1992–2009 Mathematics Assessments.

**Table
10-B**

Percentage of eighth-grade public school students, average scale score, and percentage at or above achievement levels in NAEP mathematics, by English language learner (ELL), assessment year and jurisdiction: Various years, 1992–2009

ELL status, year, and jurisdiction		Percentage of students	Average scale score	Below Basic	At or above Basic	At or above Proficient	At Advanced
ELL							
1992 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000	Nation (public)	3*	234*	80*	20*	2*	#
	Massachusetts	2	‡	‡	‡	‡	‡
2003	Nation (public)	5	241	74	26	5	1
	Massachusetts	2	242	71	29	4	#
2005	Nation (public)	6	244	71	29	6	1
	Massachusetts	2	242	73	27	8	1
2007	Nation (public)	6	245*	70	30	6	1
	Massachusetts	3	251	67	33	16	3
2009	Nation (public)	6	243	72	28	5	1
	Massachusetts	2	238	78	22	8	1
Not ELL							
1992 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
1996 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000 ¹	Nation (public)	‡	‡	‡	‡	‡	‡
	Massachusetts	‡	‡	‡	‡	‡	‡
2000	Nation (public)	97*	273*	37*	63*	26*	5*
	Massachusetts	98	280*	29*	71*	31*	5*
2003	Nation (public)	95	278*	31*	69*	29*	5*
	Massachusetts	98	287*	23*	77*	39*	9*
2005	Nation (public)	94	280*	30*	70*	30*	6*
	Massachusetts	98	293*	19*	81*	44*	12*
2007	Nation (public)	94	282*	27*	73*	33*	7*
	Massachusetts	97	299	13	87	52	15
2009	Nation (public)	94	284	26	74	34	8
	Massachusetts	98	300	13	87	53	18

Rounds to zero.

‡ Reporting standards not met.

* Value is significantly different ($p < .05$) from the value for the same jurisdiction and student group in 2009.

¹ Accommodations were not permitted for this assessment.

NOTE: The NAEP grade 8 mathematics scale ranges from 0 to 500. Achievement levels correspond to the following points on the NAEP mathematics scales: below *Basic*, 261 or lower; *Basic*, 262–298; *Proficient*, 299–332; and *Advanced*, 333 and above. Performance comparisons may be affected by differences in exclusion rates for English language learners in the NAEP samples and by differences in sample sizes. 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), various years, 1992–2009 Mathematics Assessments.

**Table
11-A**

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

State/jurisdiction	Number assessed	Weighted percentage excluded
Nation (public)	163,000	2
Alabama	2,700	1
Alaska	2,600	1
Arizona	3,100	1
Arkansas	2,800	1
California	7,400	2
Colorado	2,700	2
Connecticut	2,700	2
Delaware	2,800	3
Florida	4,700	2
Georgia	4,000	1
Hawaii	2,800	1
Idaho	3,100	1
Illinois	4,100	3
Indiana	2,800	2
Iowa	2,800	2
Kansas	3,000	3
Kentucky	3,800	3
Louisiana	2,900	2
Maine	2,700	2
Maryland	3,400	5
Massachusetts	3,700	5
Michigan	3,400	3
Minnesota	3,300	2
Mississippi	2,900	1
Missouri	2,600	3
Montana	2,700	2
Nebraska	3,000	3
Nevada	3,000	3
New Hampshire	2,700	2
New Jersey	2,900	3
New Mexico	2,800	2
New York	4,100	1
North Carolina	4,400	2
North Dakota	2,000	4
Ohio	3,400	3
Oklahoma	2,900	4
Oregon	2,800	3
Pennsylvania	3,600	3
Rhode Island	2,500	2
South Carolina	2,900	2
South Dakota	2,700	2
Tennessee	2,900	3
Texas	6,300	3
Utah	3,300	2
Vermont	2,700	2
Virginia	2,900	2
Washington	3,200	2
West Virginia	2,800	2
Wisconsin	3,800	2
Wyoming	2,000	1
Other jurisdictions		
District of Columbia	1,800	4
DoDEA ¹	2,000	2

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

NOTE: The number of students assessed is rounded to the nearest hundred.

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

**Table
11-B**

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

State/jurisdiction	Number assessed	Weighted percentage excluded
Nation (public)	156,200	3
Alabama	2,700	2
Alaska	2,400	3
Arizona	2,900	2
Arkansas	2,600	1
California	7,100	2
Colorado	2,700	2
Connecticut	2,800	2
Delaware	2,700	3
Florida	4,300	2
Georgia	3,500	3
Hawaii	2,800	2
Idaho	3,000	1
Illinois	4,100	3
Indiana	2,600	4
Iowa	2,600	3
Kansas	2,700	3
Kentucky	3,700	5
Louisiana	2,600	2
Maine	2,700	2
Maryland	3,200	7
Massachusetts	3,600	6
Michigan	3,400	3
Minnesota	2,900	3
Mississippi	2,800	2
Missouri	2,700	3
Montana	2,600	3
Nebraska	2,700	3
Nevada	2,800	2
New Hampshire	2,500	3
New Jersey	2,800	2
New Mexico	2,500	3
New York	3,800	3
North Carolina	4,400	2
North Dakota	2,200	5
Ohio	3,500	5
Oklahoma	2,600	6
Oregon	2,900	3
Pennsylvania	3,600	3
Rhode Island	2,700	2
South Carolina	2,800	4
South Dakota	2,800	2
Tennessee	2,900	4
Texas	5,800	5
Utah	2,900	3
Vermont	2,800	2
Virginia	2,800	4
Washington	2,800	2
West Virginia	2,900	2
Wisconsin	3,500	3
Wyoming	1,900	2
Other jurisdictions		
District of Columbia	1,700	6
DoDEA ¹	1,600	2

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

NOTE: The number of students assessed is rounded to the nearest hundred.

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

Where to Find More Information

The NAEP Mathematics Assessment

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

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

The *Mathematics Framework for the 2009 National Assessment of Educational Progress*, on which this assessment is based, is available at the National Assessment Governing Board website at <http://www.nagb.org/publications/frameworks/math-framework09.pdf>

The NAEP Data Explorer (NDE)

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

Technical Documentation on the Web (TDW)

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

Publications on the inclusion of students with disabilities and English language learners

References for a variety of research publications related to the assessment of students with special needs may be found at <http://nces.ed.gov/nationsreportcard/about/inclusion.asp#research>.

To order publications

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

Education Publications Center (ED Pubs)
U.S. Department of Education
P.O. Box 1398
Jessup, MD 20794-1398

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

What is the Nation's Report Card™?

The Nation's Report Card informs the public about the academic achievement of elementary and secondary students in the United States. Report cards communicate the findings of the National Assessment of Educational Progress (NAEP), a continuing and nationally representative measure of achievement in various subjects over time.

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

NAEP is a congressionally authorized project of the National Center for Education Statistics (NCES) within the Institute of Education Sciences of the U.S. Department of Education. The Commissioner of Education Statistics is responsible for carrying out the NAEP project. The National Assessment Governing Board oversees and sets policy for NAEP.

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