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Achievement Gaps

How Hispanic and White Students in Public Schools Perform in Mathematics and Reading on the National Assessment of Educational Progress

Statistical Analysis Report

NCES 2011-459

U.S. DEPARTMENT OF EDUCATION

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NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

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The National Assessment of Educational Progress (NAEP), a congressionally mandated project of the U.S. Department of Education, informs the public periodically about the academic achievement of elementary and secondary students in reading, mathematics, science, writing and other subjects. Only information related to academic achievement and relevant variables is collected under this program from students representing the country. By making objective information available on performance of all race/ethnic groups at the national and state levels, NAEP is an integral part of our nation's evaluation of the condition and progress of education. While the National Center for Education Statistics (NCES) within the Institute of Education Sciences (IES) of the U.S. Department of Education conducts the survey, the National Assessment Governing Board oversees and sets policies for NAEP.

Executive Summary

This report provides detailed information on the size of the achievement gaps between Hispanic and White public school students at the national and state levels and describes how those achievement gaps have changed over time. Additional information about race/ethnicity in NAEP is given in appendix A. Most of the data in this report is derived from the results of the 2009 National Assessment of Educational Progress (NAEP) main assessments in mathematics and reading; however the trend data provided is derived from results from as early as 1990. *Achievement Gaps: How Hispanic and White Students in Public Schools Perform in Mathematics and Reading on the National Assessment of Educational Progress*, follows our previous report that provided similar information on the achievement gap between Black and White students (Vanneman et al. 2009).

Hispanics are the fastest-growing segment of the United States population. According to the U.S. Census Bureau data (Guzman 2001), the Hispanic[1] population increased by about 58 percent, from 22 million in 1990 to 35 million in 2000, compared with an increase of about 13 percent for the total U.S. population. In 2010, the U.S. Census Bureau estimated the number of Hispanics to be about 50.5 million, or about 16 percent of the U.S. population, up 43 percent from the 2000 census. The increase of over 15 million Hispanics from 2000 to 2010 accounted for more than half of the total population increase in the U.S. during that time (Humes, Jones, and Ramirez 2011). As these data reflect, the proportion of the U.S. population that is Hispanic is increasing over time. Additionally, data collected in 2009 by the U.S. Department of Education indicate that a substantial proportion of Hispanic students in grades 4 (37 percent) and 8 (21 percent) are English language learners (table 2). These two facts—the growing size of the Hispanic population in the United States and the percentage of fourth- and eighth-grade Hispanic students that are English language learners—underlie the achievement gap between Hispanic and White fourth- and eighth-graders. Closing the Hispanic-White achievement gap remains a challenge. While Hispanic students' average scores have increased across the assessment years, White students had higher scores, on average, on all assessments.

The NAEP 2009 Reading and Mathematics Assessments included grade 4 and grade 8 students nationally and for all 50 states, as well as the District of Columbia and the Department of Defense Education Activity (hereinafter referred to as states).[2]

Mathematics

In 2009, NAEP mathematics scores for both Hispanic and White students in grades 4 and 8 nationwide were higher than in 1990, the first assessment year for both Hispanic and

[1] According to the U.S. Census, Hispanics or Latinos are those people who classified themselves in one of the specific Spanish, Hispanic, or Latino categories listed on the Census 2010 questionnaire. People who identify their origin as Spanish, Hispanic, or Latino may be of any race. For further information see U.S. Census Bureau, 2010 Census of Population, Public Law 94-171 Redistricting Data File. Available online: http://factfinder2.census.gov.

[2] Not all states had Hispanic (or White) student populations large enough to provide reliable data, and not all states participated in the earliest NAEP assessments.

Table A. Trends in NAEP mathematics at grades 4 and 8 since earliest comparison year, by grade and student group: 2009

	Gap	Scores	
		Hispanic	White
4th Grade			
National Public	↔	↑	↑
Gender			
Male	↔	↑	↑
Female	↔	↑	↑
NSLP[1]			
Eligible	↔	↑	↑
Not Eligible	↔	↑	↑
8th Grade			
National Public	↔	↑	↑
Gender			
Male	↔	↑	↑
Female	↔	↑	↑
NSLP[1]			
Eligible	Narrowed	↑	↑
Not Eligible	↔	↑	↑

↔ no significant change in score gap.
↑ increased score.
[1] National School Lunch Program
NOTE: Comparison year for National Public and Gender is 1990; NSLP comparisons are made to 2003.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), Various years: 1990-2009 Mathematics Assessments.

White public school students. Mathematics scores increased, but the achievement gap between Hispanic and White students did not change significantly at either grade 4 or 8 from 1990 to 2009. From 2007 to 2009, scores for Hispanic and White fourth-graders remained unchanged and the gap persisted at 21 points. For eighth-graders, scores increased for both Hispanic and White students from 2007 to 2009, but the gap remained at 26 points, which was not significantly different from the gap in 1990 or 2007. At grade 8, the 2009 mathematics achievement gap for Hispanic and White students eligible for the National School Lunch Program was narrower than in 2003 (table A).

- In 2009 at grade 4, eleven states had a smaller Hispanic-White gap than the nation, and six states had a gap that was larger (table B).

Table B. State gaps in mathematics compared to the nation: 2009

	National Hispanic-White gap	States with gaps that are:	
		Smaller than nation	Larger than nation
Grade 4	21 points	AK, DoDEA,[1] FL, GA, KY, LA, MO, MT, NY, OK, WY	CA, CT, DC, MA, RI, UT
Grade 8	26 points	AK, AR, DE, DoDEA,[1] FL, GA, HI, IN, KY, MI, MO, OK, TN, VA, WY	CA, CO, CT, NY, RI, WA

[1] Department of Defense Education Activity (overseas and domestic schools).
NOTE: Gaps are significantly different ($p<.05$) from the national gap.
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 C. State trends in mathematics score gaps: Various years, 1990–2009

	Since first assessment	Since 2007
Grade 4		
Narrowed	CT, DC, DE, DoDEA,[1] MA, MI, MO, NJ, NY, OR, RI	None
Widened	None	RI, TX
Grade 8		
Narrowed	CT, DE, HI, MO, RI	AR, DE
Widened	MD, UT	None

[1] Department of Defense Education Activity (overseas and domestic schools).
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990-2009 Mathematics Assessments.

- At grade 4, in all 21 states for which 1992 data were available, both Hispanic and White students achieved higher average scores in mathematics in 2009 than in 1992. In six of those states (Connecticut, the District of Columbia, Massachusetts, New Jersey, New York, and Rhode Island) the gap narrowed as Hispanic students' scores increased more than White students' scores. In five additional states (Delaware, the Department of Defense Education Activity, Michigan, Missouri, and Oregon) the gap narrowed between Hispanic and White students since the first NAEP assessment year for that state or the first year for which Hispanic student results are reportable. Since all states did not participate in the grade 4 NAEP mathematics assessment in 1992, the first NAEP assessment year varies (table C).
- In 2009 at grade 8, fifteen states had a smaller Hispanic-White gap than the nation, and six had a gap that was larger (table B).
- At grade 8, in 14 of the 15 states for which 1990 data were available, the mathematics scores of Hispanic and White students were higher in 2009 than in 1990. In both Connecticut and Rhode Island, the gap was narrower in 2009 than in 1990. In three additional states, Delaware, Hawaii, and Missouri, the gap narrowed between Hispanic and White students since the first year for which Hispanic student results are reportable.
- In Maryland, the gap was wider in 2009 than in 1990, as White eighth-graders' scores increased more than those of their Hispanic peers. In Utah, the gap was wider in 2009 than in 1992, the first NAEP assessment year for that state. Since all states did not participate in the grade 8 NAEP mathematics assessment in 1990, the first NAEP assessment year varies (table C).
- Hispanic-White mathematics gap data were not available in 2009 for fourth graders in Maine, Mississippi, North Dakota, Vermont, or West Virginia, or for eighth-graders in the District of Columbia, Louisiana, Maine, Mississippi, North Dakota, Vermont, or West Virginia because the size of the NAEP sample of Hispanic or White students was too small to provide reliable results.

Reading

At the national level, reading scores increased for both groups significantly, but the achievement gap between Hispanic and White students did not change for fourth- or eighth-graders when comparing 1992 to 2009. From 2007 to 2009, scores did not change significantly for either group at the fourth grade. The 26-point gap for fourth-graders in 2007 was not significantly different from the 25-point gap in 2009. The 25-point gap for eighth-graders in 2007 was not significantly different from the 24-point gap in 2009, though scores for both Hispanic and White students have increased. At grades 4 and 8, the 2009 reading achievement gap for Hispanic and White students eligible for the National School Lunch Program was narrower than in 2003 (table D).

- At grade 4, thirteen states had a smaller Hispanic-White gap than the nation, and six had a gap that was larger (table E).
- At grade 4, in 11 of the 21 states for which 1992 data were available, the reading scores of Hispanic and White students were higher in 2009 than in 1992. Both New Jersey and New York had a narrower gap in 2009 than 1992. In Colorado, the gap widened when comparing 2009 to 1992. In Indiana the gap widened between Hispanic and White students when comparing 2009 to 2002, the first NAEP assessment year for which Hispanic student results are reportable for that state. All states did not participate in the first grade 4 state NAEP reading assessment in 1992, so the first year for which data were available varies (table F).
- At grade 8, seven states had a smaller Hispanic-White gap than the nation, and no state had a gap that was larger (table E).

Table D. Trends in NAEP reading at grades 4 and 8 since earliest comparison year, by grade and student group: 2009

	Gap	Scores	
		Hispanic	White
4th Grade			
National Public	↔	↑	↑
Gender			
Male	↔	↑	↑
Female	↔	↑	↑
NSLP[1]			
Eligible	Narrowed	↑	↑
Not Eligible	↔	↑	↑
8th Grade			
National Public	↔	↑	↑
Gender			
Male	↔	↑	↑
Female	↔	↑	↑
NSLP[1]			
Eligible	Narrowed	↑	↔
Not Eligible	↔	↑	↑

↔ no significant change in score or score gap.
↑ increased score.
[1] National School Lunch Program
NOTE: Comparison year for National Public and Gender is 1990; NSLP comparisons are made to 2003.
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 Reading Assessments.

Table E. State gaps in reading compared to the nation: 2009

	National Hispanic-White gap	States with gaps that are:	
		Smaller than nation	Larger than nation
Grade 4	25 points	AK, DE, DoDEA,[1] FL, HI, IA, KY, LA, MD, MO, MT, SD, WY	CA, CO, CT, DC, MN, UT
Grade 8	24 points	AK, DoDEA,[1] FL, KY, MO, SC, WY	None

[1] Department of Defense Education Activity (overseas and domestic schools).
NOTE: Gaps are significantly different ($p<.05$) from the national gap.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Reading Assessment.

Table F. State trends in reading score gaps: Various years, 1992–2009

	Since first assessment	Since 2007
Grade 4		
Narrowed	NJ, NY	AK
Widened	CO, IN	None
Grade 8		
Narrowed	AK	RI, SC, WY
Widened	None	None

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 Reading Assessments.

- At grade 8 state-level data were available for 22 states starting in 1998. When comparing 2009 to 1998, the grade 8 reading gap did not change significantly in any state. In Wyoming, both Hispanic and White students scored higher in 2009 than in 1998. In Alaska, the gap narrowed between Hispanic and White students when comparing 2009 to 2003, the first NAEP assessment year for that state. All states did not participate in the first grade 8 state NAEP reading assessment in 1998, so the first year for which data were available varies (table F).
- Hispanic-White reading gap data were not available in 2009 for fourth-graders in Maine, North Dakota, Vermont, or West Virginia, or for eighth-graders in the District of Columbia, Louisiana, Maine, Mississippi, Montana, North Dakota, South Dakota, Vermont, or West Virginia because the size of the NAEP sample of Hispanic and White students was too small to provide reliable results.

The NAEP reading and mathematics scales make it possible to examine relationships between students' performance and various background factors measured by NAEP, such as race. However, a relationship that exists between achievement and another variable does not reveal its underlying cause, which may be influenced by a number of other variables. Similarly, the assessments do not reflect the influence of unmeasured variables. The results are most useful when they are considered in combination with other information about the student population and the education system, such as trends in instruction, changes in the school-age population, and societal demands and expectations.

All differences discussed in this report are significant at the .05 level after controlling for multiple comparisons. The technical notes for this report provide information about sampling, accommodations, interpreting statistical significance, and other technical features.

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Introduction

When the earliest National Assessment of Educational Progress (NAEP) reading assessment was administered in 1971, no separate scores were recorded for any racial/ethnic groups except White and Black students. Together, these two groups included about 98 percent of all U.S. students surveyed by NAEP (Campbell, Hombo, and Mazzeo 2000). All other students, constituting two percent of the population, were classified as "Other." In 2009, at the fourth grade, 56 percent of all U.S. students were White, 16 percent Black, 21 percent Hispanic, 5 percent Asian/Pacific Islander, and 1 percent American Indian/Alaska Native, according to 2009 NAEP Mathematics Assessment data. In less than 40 years, Hispanic students have gone from being an almost unobserved racial/ethnic group to the largest, and fastest growing, racial/ethnic group in the United States (Humes, Jones, and Ramirez 2011). In three states—New Mexico, California and Texas—about 50 percent of the fourth-grade population is of Hispanic descent. Figure 1 shows the change in the percentage of Hispanic students in grade 4 from 2003 to 2009 based on NAEP reading data.

As measured by NAEP, the educational performance of Hispanic students has generally lagged behind the performance of White students. The gap in scores between White and Hispanic students in mathematics in 1990, when the current main NAEP mathematics assessment was first administered, was not significantly different from the gap in scores in 2009, for either grade 4 or grade 8 (National Center for Education Statistics 2009). The same is true in reading, comparing results in 2009 with the scores for 1992, when the current main NAEP reading assessment was first administered (National Center for Education Statistics 2010). At the state level, in 2009 gaps between Hispanic and White students were statistically significant in almost every state for which reliable results were available in both reading and mathematics at both grades 4 and 8.

The major questions addressed in this study are:

1) *How do score gaps in 2009 mathematics and reading performance compare to the gaps in the initial and most recent prior years of the NAEP national and state assessment series?*

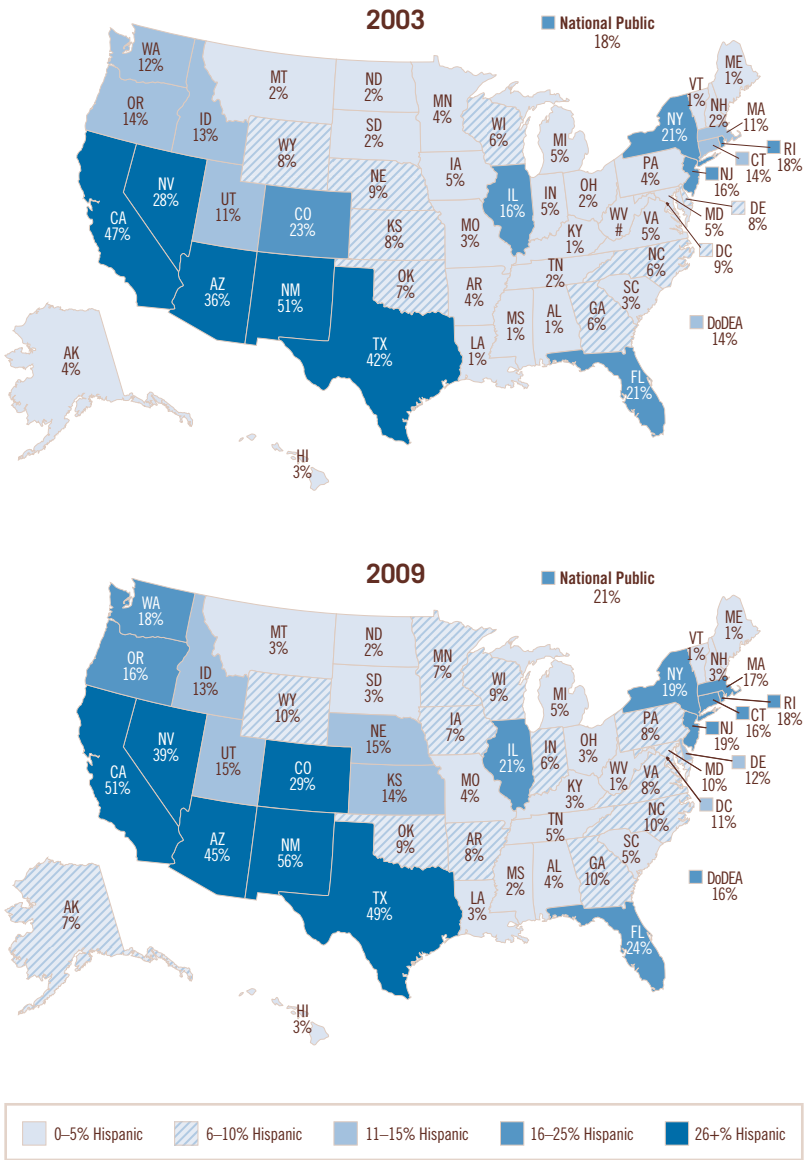
2) *How do Hispanic and White scores and gaps in mathematics and reading at the state level compare to the national scores and gaps in 2009?*

The Elementary and Secondary Education Act of 1965 intended to improve the education achievement of low-performing students in reading and mathematics. Subsequent reauthorizations of the act have reaffirmed the importance of closing the achievement gaps. This report uses NAEP data to examine the progress of the nation and each of the states in reducing the gap between Hispanic and White students at grades 4 and 8 in both reading and mathematics. Because NAEP is designed to report results for public school students at the state level, all of the results that appear in the body of this report, including national results, are for public school students only.

Issues relating to the Hispanic-White achievement gap have been addressed by a number of recent studies. *Status and Trends in the Education of Racial and Ethnic Groups* (KewalRamani, Fox, and Aud 2010), issued by the National Center for Education Statistics (NCES), examined the educational performance and attainment of all major racial and ethnic groups in the United States from prekindergarten through the postsecondary level, along with employment and income data for these groups. The report identified a variety of factors that may be associated with the achievement gap between Hispanic and White students. For example, Hispanic students were more likely than White students to come from low-income families (as defined by student eligibility for the National School Lunch Program), which is associated with lower educational performance. Other reports have also used NAEP data, as well as data from other sources, in analyses to identify important factors related to the Hispanic-White achievement gap. *Parsing the Achievement Gap II* (Barton and Coley 2009) examined educational achievement gaps in terms of differences in life experiences among racial/ethnic and socioeconomic subgroups that could affect differences in academic achievement. The report also reviewed student performance over time to determine if the gaps were changing. *Latinos and Education: Explaining the Attainment Gap* (Lopez 2009), a national survey of Latinos, concluded

that the biggest reason for the relatively limited educational attainment of many Latinos was due to a decision to discontinue education in order to support a family. Many Latinos also discontinued their education because of poor English skills or a dislike of school, the study said. *How Far Behind in Math and Reading are English Language Learners?* (Fry 2007) examined the performance of English language learners, using NAEP data supplemented with results from selected state assessments. *The Family: America's Smallest School* (Barton and Coley 2007) examined the effects of children's home life on academic performance of Hispanic and other students in terms of such factors as out-of-wedlock births, two-parent versus one-parent families, family income, home literacy development, child care, educational resources in the home, and the parent-school relationship. In many cases, Hispanic children were more likely than White children to be raised in circumstances associated with below average academic performance—lack of two parents in the home, for example, or low family income, or access to quality day care. *Hispanics and the Future of America* (National Research Council 2006) analyzed data from a variety of sources to identify differences, if any, between Hispanics and other immigrant and minority groups. The report also discussed the likelihood of social integration of both immigrant and native-born Hispanics.

Figure 1. Percentage of Hispanic public school students in the NAEP reading assessment at grade 4, by state: 2003 and 2009



Rounds to zero.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 and 2009 Reading Assessments.

The distribution of the Hispanic population

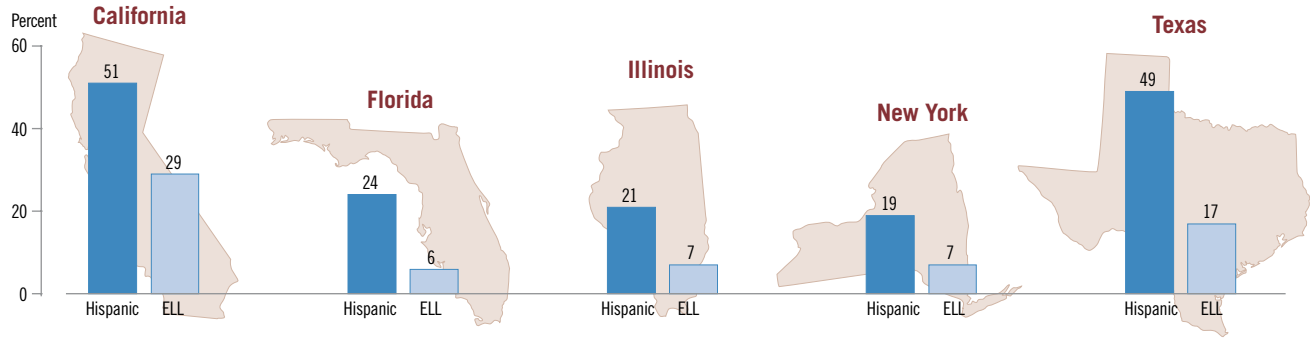
Hispanics are the second largest racial/ethnic group in the United States, comprising 16 percent of the nation's population in 2010. This was an increase of 43 percent compared to 2000, when Hispanics constituted 12.5 percent of the population (Humes, Jones, and Ramirez 2011).

The concentration of the Hispanic population varies by region. In 2010, the West had a higher percentage of its population who were Hispanic—29 percent. In contrast, in the Midwest the population was 7 percent Hispanic. In the South the percentage was 16 percent; in the Northeast, 13 percent. New Mexico was the state with the largest percentage of its population who were Hispanic (46 percent). Other states with large percentages included California and Texas (both 38 percent). California, Florida, Illinois, New York, and Texas are the five states with the largest number of Hispanics (U.S. Census Bureau 2010).

A large percentage of the Hispanic population is foreign born—44 percent in 2007, as compared to 14 percent for the entire U.S. population. In addition, 11 percent of the Hispanic population under 18 was foreign born in 2007. Approximately 65 percent of those who were under 18 and foreign born were Mexican, while about 9 percent were South American, 8 percent were Puerto Rican, 4 percent were Dominican, 3 percent were Salvadoran, 6 percent were Other Central American, and about 3 percent each were Cuban and Other Hispanic/Latino (KewalRamani, Fox, and Aud 2010).

Mexican American students, whether foreign born or native to the United States, made up about two thirds of Hispanic eighth-graders in public schools nationally in 2009, according to data collected by the 2009 NAEP Reading Assessment. They also constituted about 80 percent of Hispanic eighth-graders in California, Illinois, and Texas. In Florida, about 18 percent of the Hispanic population were Mexican American, and in New York about 11 percent. About 23 percent of Hispanic students in Florida were Cuban American.

Figure 2. Hispanic and English language learner population in NAEP reading in selected states at grade 4: 2009



NOTE: Other states may have higher Hispanic population density. ELL includes Hispanic and non-Hispanic students.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Reading Assessment.

Thirty-five percent of all Hispanic fourth-graders and 20 percent of all Hispanic eighth-graders were identified as English language learners (ELL) in the 2009 NAEP Reading Assessment, compared to 9 percent and 5 percent, respectively, for all students (including Hispanics) at the two grades. Figure 2 shows the percentage of Hispanic and ELL students at grade 4 in the five states with the largest Hispanic population.

In 1998, the first year for which the NAEP Reading Assessment has separate data for ELL Hispanic students, 22 percent of Hispanic students were ELL at grade 4. Fifteen percent at grade 8 were ELL. In 2009, the percentages for ELL Hispanic students were 35 percent at grade 4 and 20 percent at grade 8. The differences between the percentages for 1998 and 2009 are only statistically significant at grade 4.

In this report, the performances of ELL and non-ELL Hispanic students are compared to each other, and the performance of non-ELL Hispanic students is compared to that of White students, using national NAEP data (1996–2009 in mathematics, 1998–2009 in reading). Because the percentage of ELL White students is so small (one percent or less), all references to White students will include both ELL and non-ELL White students unless otherwise noted.

The data

This report compares national public school student performance for Hispanic and White students in mathematics and reading for 2009 to their performance in all prior NAEP assessments. NAEP state-level assessments were introduced in different years during the 1990s. Therefore, state-level comparisons go back to 1990 for grade 8 mathematics, to 1992 for grade 4 reading and mathematics, and to 1998 for grade 8 reading (figure 3).

NAEP assessments allow the examination of trends in the Hispanic and White performance gap in every state, plus the District of Columbia and the Department of Defense Education Activity (DoDEA) schools. Discussion of NAEP grade 12 assessments is omitted in this report because these assessments were conducted at the national level only prior to 2009. Additional information on the national and state assessments is given in appendix A.

All data presented in this report are for public school students only. NAEP provides national results for both public and private school students, but NAEP state results are for public school students only. To maintain consistency of data for comparison purposes, this report uses only public school data at the national level as well.

Hispanic-White achievement gaps results for NAEP have been available to users in two ways: 1) online, using the NAEP Data Explorer at http://nces.ed.gov/nationsreportcard/naepdata/, and 2) in print, in the report cards for a given assessment. *Achievement Gaps: How Hispanic and White Students in Public Schools Perform in Mathematics and Reading on the National Assessment of Educational Progress* is the first NCES publication to present the Hispanic and White NAEP achievement gaps across time for all the states and the nation, including results for every assessment year since state assessments began.

NAEP does not have Hispanic-White gap data for all states going back to the 1990 mathematics and 1992 reading assessments. The 2001 reauthorization of the Elementary and Secondary Education Act required each state to participate in the NAEP mathematics and reading assessments if they were to receive Title I education funding (Public Law 107-110 Title I Part A, Sec. 1111), effective in 2003. Prior to the passage of the Act, participation was voluntary and about 40 states participated in each assessment. (In this report, "state" and "jurisdiction" will be used interchangeably to refer to the 50 states, the District of Columbia, and the DoDEA schools.) Beginning in 2003, all 52 states have participated in all NAEP reading and mathematics assessments.

In addition, in many states NAEP did not obtain samples for Hispanic students large enough to permit the reporting

Figure 3. Administration of main NAEP national and state mathematics and reading assessments: Various years, 1990–2009

			1990	1992	1994	1996	1998	2000	2002	2003	2005	2007	2009
Mathematics	4th Grade	National	✓	✓		✓		✓		✓	✓	✓	✓
		State		✓		✓		✓		✓	✓	✓	✓
	8th Grade	National	✓	✓		✓		✓		✓	✓	✓	✓
		State	✓	✓		✓		✓		✓	✓	✓	✓
Reading	4th Grade	National		✓	✓		✓	✓	✓	✓	✓	✓	✓
		State		✓	✓		✓		✓	✓	✓	✓	✓
	8th Grade	National		✓	✓		✓		✓	✓	✓	✓	✓
		State					✓		✓	✓	✓	✓	✓

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2009 Assessments.

of reliable results for the early assessments. For example, at grade 4 in mathematics, results for Hispanic students were not reported for 21 states in the state's first assessment. In the most recent NAEP mathematics assessment in 2009, there were only five states without results for Hispanic students.

Since 1996 (1998 at the state level), students receiving accommodations on their state assessment received the same accommodations on NAEP, except where an accommodation would change the nature of what is being tested (see appendix A for details). The 2009 mathematics assessment results are based on nationally representative samples of 168,800 fourth-graders and 161,700 eighth-graders. The reading assessment results are based on nationally representative samples of 178,800 fourth-graders and 160,900 eighth-graders. The main NAEP samples are large because they include representative samples for the 52 states. These samples are weighted to compensate for undersampling of the states with large populations and oversampling of the states with small populations, as well as oversampling of schools with high concentrations of students from certain racial/ethnic groups and the lower sampling rates of students who attend very small schools.

NAEP assessments are conducted in a six-week window starting in January of each assessment year. Scores for reading and mathematics cannot be compared because the two assessments are scaled independently. In addition, comparisons cannot be made across grades in a single subject, because the fourth- and eighth-grade assessments contain different questions and thus students in the two grades are not taking the same assessment. See appendix A for more details.

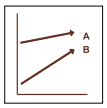
Understanding score gaps and the ways gaps can change

The achievement gap between Hispanic and White students is defined as the difference between the average score for White students and the average score for Hispanic students. Comparisons are made for main

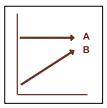
NAEP between the most recent assessment year (2009) and all previous assessment years. Only differences between 2009 and the earliest assessment year, and between 2009 and 2007, are discussed in the text, unless a score for 2009 is different from all previous assessment years. The figures indicate all previous assessment scores that differ from 2009.

Changes in the size of the achievement gap depend on changes in the average scores for Hispanic and White students. Generally, increasing scores and narrowing gaps are seen as desirable, while decreasing scores and widening gaps are seen as undesirable. However, it is possible for the Hispanic-White gap to widen when scores for both Hispanic students and White students increase, if scores for White students increase more than scores for Hispanic students. And it is also possible for the gap to narrow when scores for both Hispanic and White students decline, if scores for White students decline more than scores for Hispanic students. Figure 4 illustrates the various ways that gaps can narrow.

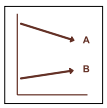
Figure 4. Ways gaps can narrow



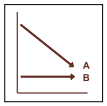
The average scores of *both* groups increase, while the score of the lower performing group increases even more.



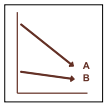
The average score of the *higher* performing group does not change, while the score of the lower performing group increases.



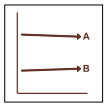
The average score of the *higher* performing group declines, while the score of the lower performing group increases.



The average score of the *higher* performing group declines, while the score of the lower performing group does not change.



The average scores of *both* groups decline, but the score of the higher performing group declines even more.



The average scores of *both* groups do not change significantly, but the combined effect causes a significant narrowing of the gap.

It is important to note that although NAEP data can identify gaps and changes in gaps, these data cannot explain why gaps exist or why they change. NAEP assessments are designed to measure student performance and identify factors associated with it, not to identify or explain the causes of differences in student performance.

Understanding statistical significance

NAEP data are based on samples of students, and the results are subject to sampling and measurement error. Statistical tests are used to determine whether the differences between average scores are statistically significant, that is, whether they exceed the margin of error. It is possible for the size of the achievement gap to increase or decrease even though the average scores of neither Hispanic nor White students changed significantly during the same period.

In several states in 2009, the difference in scores for Hispanic and White students was not statistically significant—that is, the score difference was not greater than zero—meaning that there was no achievement gap. In some cases, an apparently large difference in one state may not be statistically significant, while an apparently smaller difference in another state may be statistically significant. This is because findings of statistically significant differences are a function of both the differences in scores and the standard errors associated with those scores. An apparently large score difference may prove not to be statistically significant if the standard errors involved are large as well. The size of the standard error associated with a NAEP scale score is a function, among other things, of the size of the sample and the degree of variability of performance in the sample, as measured by the standard deviation, i.e. the square root of the variance, which is the average of the squared deviations of performances from the mean or average score. The size of the standard errors may also be influenced by other factors, such as how representative the assessed students

are of the entire population. For all these reasons, a score difference that is found to be significant in one state may not be found to be significant in another.

The term "significant" is not intended to imply a judgment about the absolute magnitude or the educational relevance of the differences. It is intended to identify statistically reliable population differences to help inform discussion among policymakers, educators, researchers, and the public.

Beginning in 2002, the main NAEP national sample was obtained by aggregating the samples from each state, rather than by using an independently selected national sample. As a result, the national samples in mathematics and reading were larger in 2003, 2005, 2007, and 2009 than in previous assessment years. In addition, the percentage of Hispanic students both nationally and in many states has been increasing since the first assessments in 1990 and 1992, tending to increase the size of the sample for Hispanic students in recent years. Thus, smaller score differences between years or between student groups were found to be statistically significant than would have been detected in previous assessments. All differences discussed in the text are significant at the .05 level with appropriate adjustments for part-to-whole and multiple comparisons. See appendix A for more details.

Statistical comparisons of NAEP scores from different assessment years are "pairwise" comparisons, with appropriate multiple comparison adjustments. In figures 13, 15, 25, and 27, comparisons of the size of the Hispanic-White achievement gap for each state to the national gap are made using pairwise comparisons with part-to-whole adjustments, where each state is compared to the nation one at a time.

Cautions in interpreting the data

All results given here are in terms of average scores, which reflect a wide range of student performance. Many Hispanic students score above the average for White students and many White students score below the average for Hispanic students. For detailed information on variations in performance, including standard deviations, consult the NAEP Data Explorer online at http://nces.ed.gov/nationsreportcard/naepdata/.

The analysis of NAEP data contained in this report should not be seen to imply causal relations. Simple cross-tabulations of a variable with measures of educational achievement, like the ones presented here, cannot be considered as evidence that differences in the variable cause differences in educational achievement. As noted earlier, NAEP surveys are not designed to identify causal relationships. There are many possible reasons why the performance of one group of students will differ from that of another. Inferences related to student group performance should take into consideration the many socioeconomic and educational factors that may also be associated with performance.

All statistical tests are performed using unrounded scale scores. The Hispanic-White achievement gap is calculated by subtracting the average scale score for Hispanic students from the average scale score for White students. Because all results are presented as rounded numbers, occasionally the lower scale score plus the gap will not equal the higher scale score shown in this report's graphics.

How this report is organized

The remainder of this report presents first mathematics and then reading results. The mathematics section is color-coded with green page margins while the reading section is color-coded with blue margins. In each section, national results appear first. Information on scores and score gaps over time is presented at the national level for fourth- and eighth-grade Hispanic and White public school students. Similar comparisons are included for White and non-ELL Hispanic students and for non-ELL and ELL Hispanic students. National data also include information on scores and score gaps

over time for Hispanic and White students by gender and by family income as measured by eligibility for the National School Lunch Program (NSLP).

State-level data include scores and score gaps over time for fourth- and eighth-grade Hispanic and White public school students for each state, limited by non-participation of some states in the early NAEP assessments and by the fact that NAEP did not always obtain samples of Hispanic or White students large enough to allow the reporting of reliable results. Because Hispanic populations have changed significantly over time, percentages of White and Hispanic students are given for each state for the first assessment in which the state participated and for the most recent assessment in 2009. In addition, the size of the gap in 2009 for each state is compared against the Hispanic-White gap nationally and the scores of Hispanic and White students in each state are compared against the national averages for Hispanic and White students.

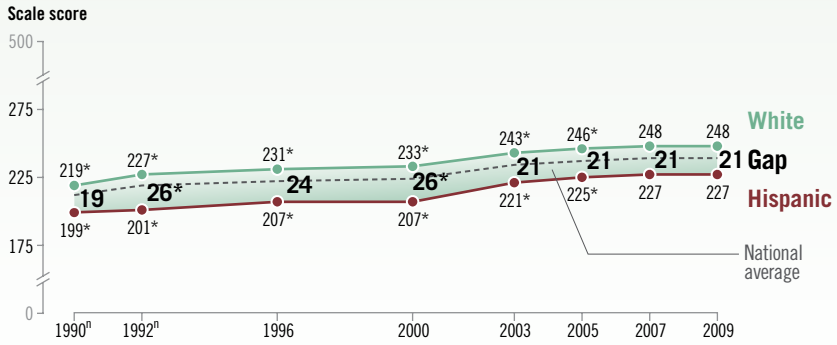
National Results for Hispanic and White Fourth- and Eighth-Graders

Mathematics scores and achievement gaps in the nation, 1990–2009

Average fourth-grade mathematics scores for the nation were higher in 2009 than in 1990 for both Hispanic and White public school students (figure 5). The 21-point gap in 2009 was not significantly different from the 19-point gap in 1990. From 2007 to 2009, scores remained unchanged for both Hispanic and White students and the gap remained at 21 points.

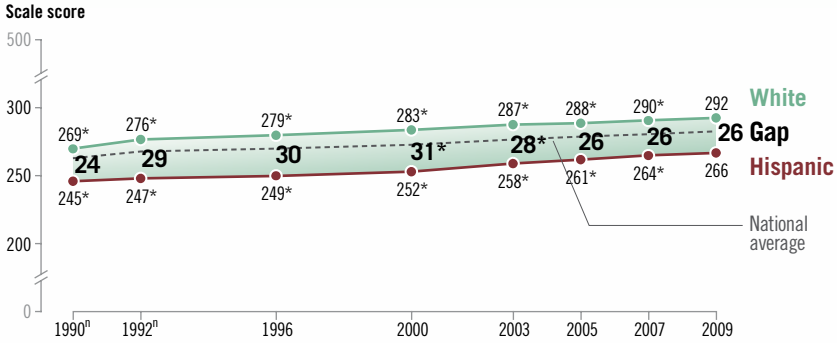
Average mathematics scores were higher in 2009 than in 1990 for both Hispanic and White eighth-graders (figure 6). The 26-point gap in 2009 was not significantly different from the 24-point gap in 1990. The gap also did not change from 2007 to 2009. Scores for both groups rose by 2 points, leaving the gap at 26 points.

Figure 5. Mathematics achievement score gaps between Hispanic and White public school students at grade 4: Various years, 1990–2009



n Accommodations were not permitted for this assessment.
* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2009 Mathematics Assessments.

Figure 6. Mathematics achievement score gaps between Hispanic and White public school students at grade 8: Various years, 1990–2009



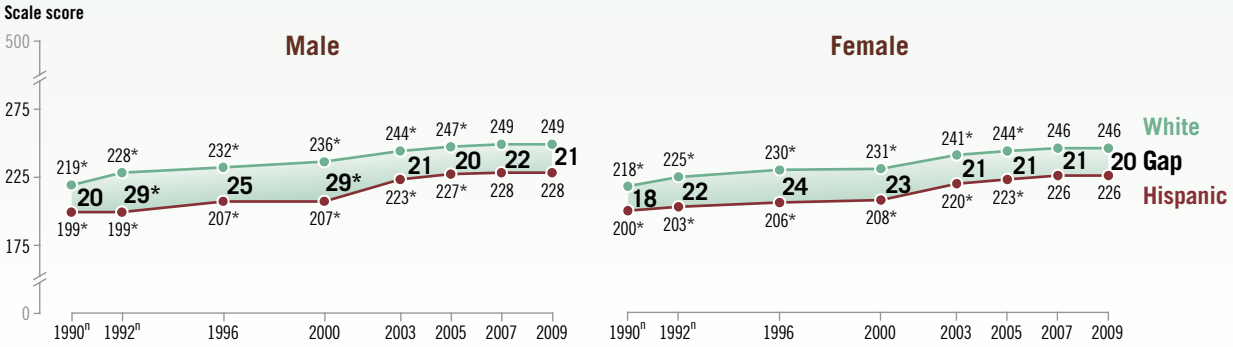
n Accommodations were not permitted for this assessment.
* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2009 Mathematics Assessments.

Mathematics scores and achievement gaps by gender, 1990–2009

Average mathematics scores were higher in 2009 than in 1990 for the nation's Hispanic and White students at both fourth and eighth grades, regardless of gender (figures 7 and 8). However, the Hispanic-White mathematics gap did not change significantly for either male or female students at either grade when comparing 2009 to 1990.

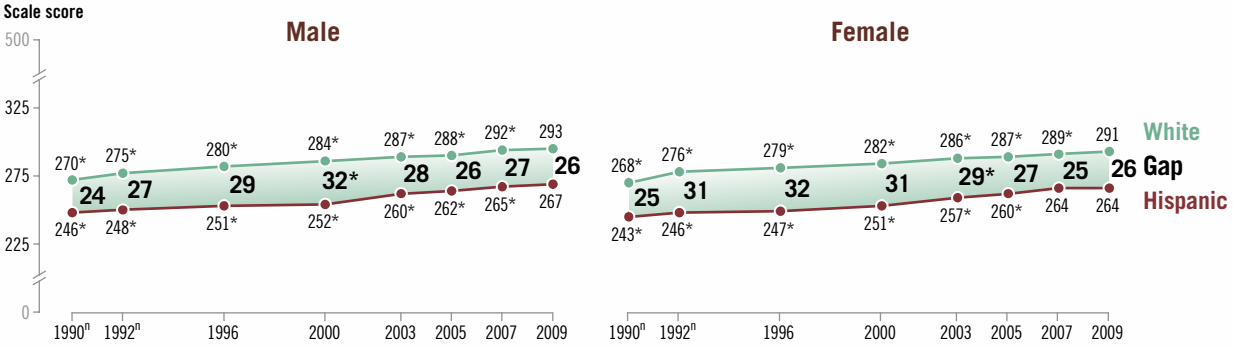
In addition to the 1990-2009 gain, eighth-grade mathematics scores were higher in 2009 than in 2007 for Hispanic and White male students and for White female students. Neither gender demonstrated a significant change in the Hispanic-White mathematics gap from 2007 to 2009, at either the fourth or eighth grade.

Figure 7. Mathematics achievement score gaps between Hispanic and White public school students at grade 4, by gender: Various years, 1990–2009



n Accommodations were not permitted for this assessment.
* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2009 Mathematics Assessments.

Figure 8. Mathematics achievement score gaps between Hispanic and White public school students at grade 8, by gender: Various years, 1990–2009



n Accommodations were not permitted for this assessment.
* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2009 Mathematics Assessments.

Mathematics scores and gaps by family income, 2003–2009

The National Assessment of Educational Progress (NAEP) uses student eligibility for free or reduced-price school lunch as an indicator of family income. At grade 4, mathematics scores were higher in 2009 than in 2003 for all Hispanic and White public school students, regardless of school-lunch eligibility (figure 9). When comparing 2009 to 2003, the gaps between the scores of Hispanic and White students in 2009 were not significantly different from 2003, regardless of eligibility. The gaps in 2009 were also not significantly different from 2007, regardless of eligibility. Additionally, scores in 2009 for both White and Hispanic students were not significantly different from 2007, regardless of eligibility.

At grade 8, scores in 2009 were higher than in 2003 for Hispanic and White students regardless of eligibility, and higher than in 2007 for not eligible White students (figure 10). For eligible students only, the gap narrowed from 2003 to 2009, declining by 4 points. From 2007 to 2009, there were no significant changes in the gaps.

At grade 4 in 2009, the 11-point achievement gap for eligible students was smaller than the 16-point gap for not eligible students, and both gaps were smaller than the 21-point gap for all grade 4 students (figure 5). The achievement gap is affected by the comparative proportions of Hispanic and White students who are from low-income families. The achievement gap is larger when all students are considered because most Hispanic students (about 77 percent in 2009) come from low-income families—that is, are eligible for free or reduced price lunches—while most White students (70 percent in 2009) come from families with higher incomes and are not eligible (table 1). On average, students from higher income families have higher scores than those from low-income families and the size of the Hispanic-White gap reflects the greater percentage of White students coming from higher-income families.

The same pattern is seen at grade 8. The 13-point gap for eligible students was smaller than the 23-point gap for not eligible students, and both were smaller than the 26-point gap for all grade 8 students. At grade 8, about 72 percent of Hispanic students came from low-income families in 2009, while 74 percent of White students came from higher income families.

Table 1. Percentage of public school students assessed in NAEP mathematics eligible for the National School Lunch Program, by race/ethnicity and grade: Various years, 2003–2009

	Hispanic	White
Grade 4		
2009	77	29
2007	75	27*
2005	77	27*
2003	74*	26*
Grade 8		
2009	72	25
2007	69*	23*
2005	69*	23*
2003	67*	20*

* Significantly different ($p<.05$) from 2009.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2003–2009 Mathematics Assessments.

Eligibility for free or reduced-price lunch

NAEP collects data on students' eligibility for the National School Lunch Program (NSLP)—sometimes referred to as the free or reduced-price school lunch program—as an indicator of family economic status. Eligibility for free or reduced-price lunch is based on students' family income in relation to the federally established poverty levels.

Not eligible: Students who are not eligible for the program because their family's income is above 185 percent of the poverty level.

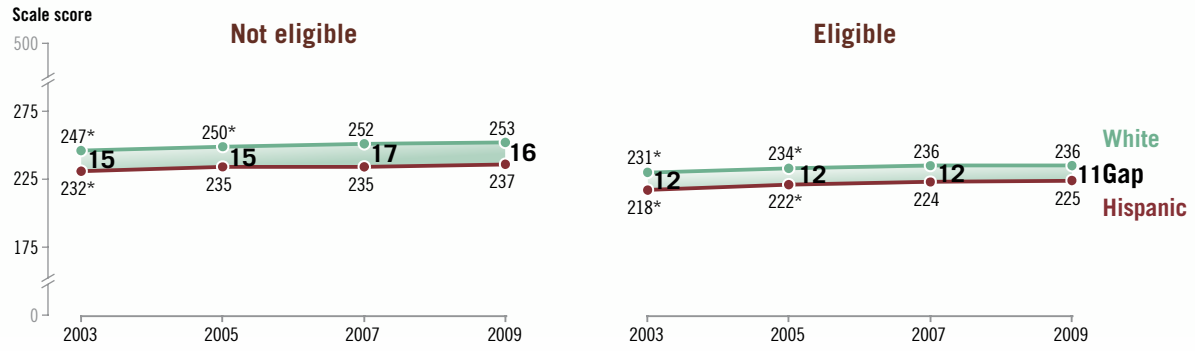
Eligible: Students who are eligible for either reduced-price lunch because their family's income is between 130 percent and 185 percent of the poverty level, or for free lunch, because their family's income is below 130 percent of the poverty level.

As a result of improvements in the quality of the data on students' eligibility for NSLP, the percentage of students for whom information was not available has decreased in comparison to the percentages reported prior to the 2003 assessment. Therefore, trend comparisons are only made back to 2003 in this report.

It is also possible to compare the performance of eligible and not eligible students by race/ethnicity and then compare the size of the gaps. For example, in 2009 at grade 4, White not eligible students had an average score of 253 (figure 9, left side of graph), while White eligible students had a score of 236 (figure 9, right side of graph), resulting in a gap of 17 points. Hispanic not eligible students had an average score of 237, while Hispanic eligible students had a score of 225, resulting in a gap of 12 points, smaller than the 17-point gap between White eligible and White not eligible students.

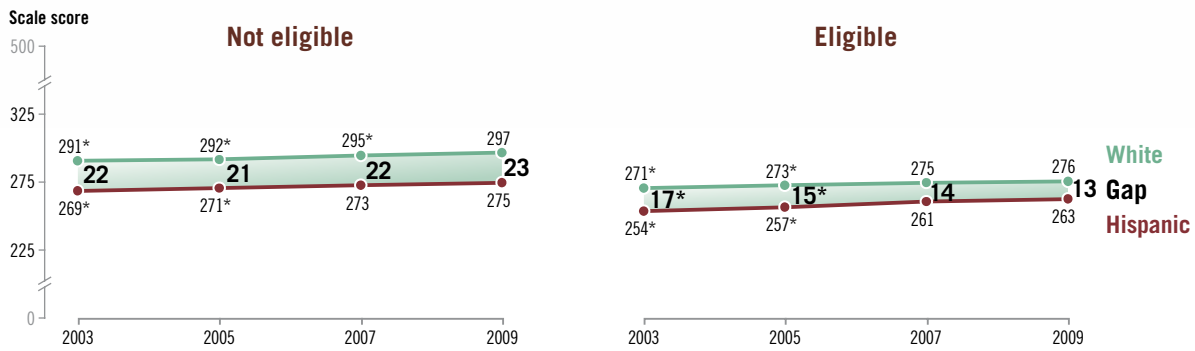
At grade 8, White not eligible students had an average score of 297 (figure 10, left side of graph), while White eligible students had a score of 276 (figure 10 right side of graph), resulting in a gap of 21 points. Hispanic not eligible students had an average score of 275, while Hispanic eligible students had a score of 263, resulting in a gap of 12 points, smaller than the 21-point gap for White eligible-not eligible students.

Figure 9. Mathematics achievement score gaps between Hispanic and White public school students at grade 4, by eligibility for the National School Lunch Program: Various years, 2003–2009



* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2003–2009 Mathematics Assessments.

Figure 10. Mathematics achievement score gaps between Hispanic and White public school students at grade 8, by eligibility for the National School Lunch Program: Various years, 2003–2009



* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2003–2009 Mathematics Assessments.

Trends in mathematics scores and achievement gaps by ELL status, 1996–2009

At grade 4, the gap between White students (both ELL and non-ELL White students) and non-ELL Hispanic students was smaller in 2009, at 14 points, than in the first year, 1996, when it was 20 points (figure 11). From 2007 to 2009, there was no significant change in the scores of either group or in the gap. (For percentages of ELL students in fourth and eighth grade, see table 2.)

Table 2. Percentage of public school English language learner students assessed in NAEP mathematics, by race/ethnicity and grade: Various years, 1996–2009

	Hispanic	White
Grade 4		
2009	37	1
2007	40	1
2005	39	1
2003	40	1
2000	35	#
1996	31	#
Grade 8		
2009	21	#
2007	25	1
2005	25	1
2003	25	1
2000	19	#
1996	20	#

Rounds to zero.
NOTE: Data shown are the percentages of Hispanic students who were ELLs and the percentages of White students who were ELLs.
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.

Within the Hispanic student population, the 19-point gap between ELL Hispanic and non-ELL Hispanic fourth-graders in 2009 was not significantly different from either comparison year, 1996 or 2007 (figure 11).

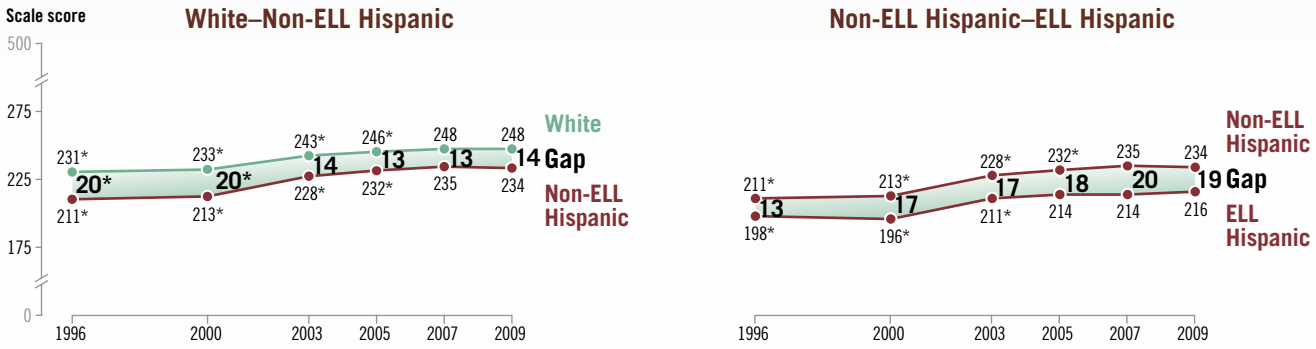
At grade 4 in 2009, the 21-point gap between all Hispanic and White students (figure 5) was larger than both the 14-point gap between White and non-ELL Hispanic students and the 19-point gap between non-ELL Hispanic and ELL Hispanic students (figure 11).

At grade 8, the gap between White students and non-ELL Hispanic students was smaller in 2009, at 19 points, than in 1996 when it was 24 points (figure 12). From 2007 to 2009, there was no significant change in the gap.

Within the Hispanic eighth-grade student population, the 34-point gap between ELL and non-ELL Hispanic students in 2009 was not significantly different from either comparison year.

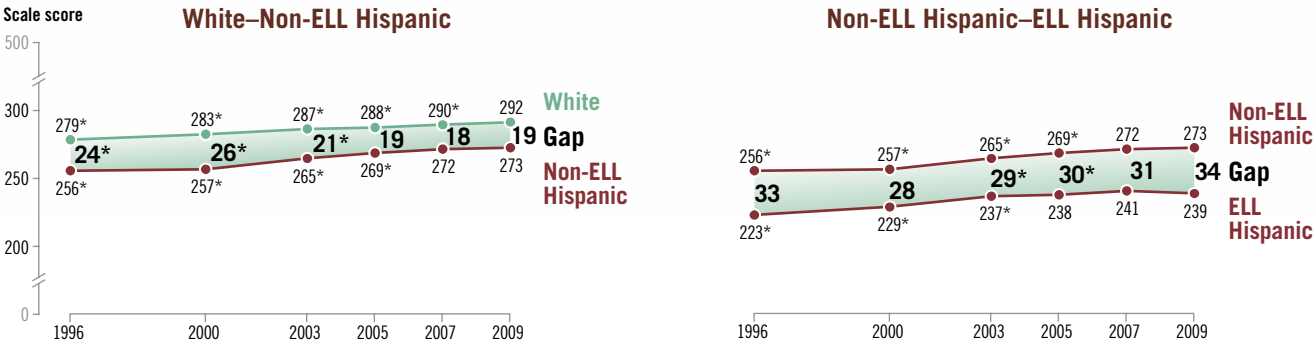
At grade 8 in 2009, the 34-point gap between ELL and non-ELL Hispanic students was larger than either the 26-point gap for all White and Hispanic students (figure 6) or the 19-point gap for White and non-ELL Hispanic students. This 19-point gap was the smallest of the three gaps.

Figure 11. Mathematics achievement score gaps between Hispanic and White public school students at grade 4, by English language learner status: Various years, 1996–2009



* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores. White includes ELL and non-ELL White students.
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.

Figure 12. Mathematics achievement score gaps between Hispanic and White public school students at grade 8, by English language learner status: Various years, 1996–2009



* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores. White includes ELL and non-ELL White students.
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.

State Results for Hispanic and White Fourth- and Eighth-Graders

State and national mathematics achievement gaps at grade 4, 2009

The NAEP state mathematics assessments were administered to public school eighth-graders only in 1990, and to public school fourth- and eighth-graders in 1992, 1996, 2000, 2003, 2005, 2007, and 2009. Before 2003, states were not required to participate in NAEP to qualify for Title I education funds. Typically, 40 or more states participated in each prior assessment. Since 2003, all 50 states, the District of Columbia, and the DoDEA participated.

State results are presented in two ways. Comparisons of fourth-grade mathematics gaps in 2009 between each state and the nation are presented in figure 13.

Comparisons of the mathematics gaps within a state over time are presented in a series of small graphs in figure 14. At the top left of each two-page spread, the mathematics scores and gaps for the nation are presented for reference. Each state figure, as well as the national figure, also contains a dashed gray line representing the national average for public school students. The data for the national averages are located in the appendix in table B-2.

Eleven states had a smaller Hispanic-White gap than the nation's 21-point gap in 2009 (Arkansas, DoDEA, Florida, Georgia, Kentucky, Louisiana, Missouri, Montana, New York, Oklahoma, and Wyoming) and six had a gap that was larger (California, Connecticut, District of Columbia, Massachusetts, Rhode Island, and Utah). In 30 states, the gap was not significantly different from the nation's gap (figure 13). Asterisks indicate a significant difference from the national average score or the national average gap.

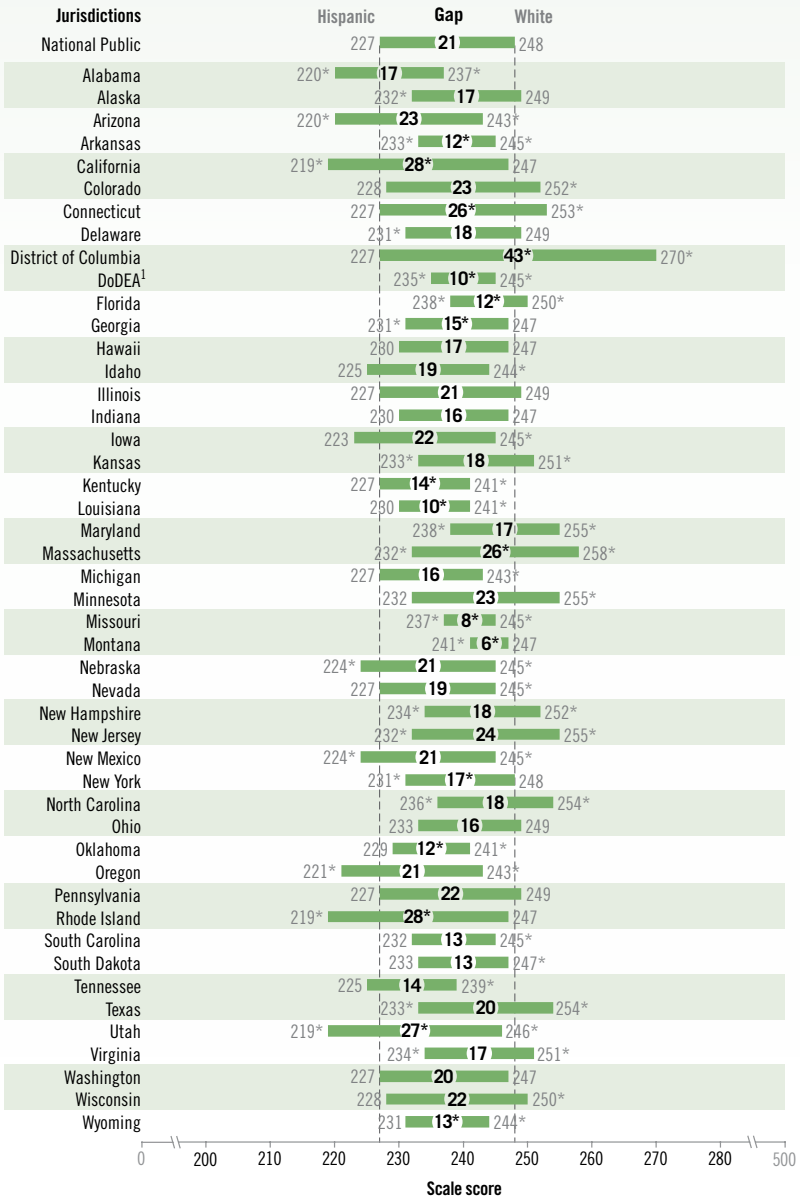
The fourth-grade mathematics gap in 2009 was statistically significant in 46 of the 47 states for which data could be reported. In Missouri, the 8-point difference between the average scores for Hispanic and White students was not statistically significant, so in that state there was no measureable gap.

For 7 of the 11 states with gaps smaller than the national average (Arkansas, DoDEA, Florida, Georgia, Missouri, Montana, and New York), Hispanic students had an average score that was higher than the national average for

Hispanic students. In Florida, the average score for White students was higher than the national average for White students as well. In Kentucky, Louisiana, Oklahoma, and Wyoming, the average score for Hispanic students was not measurably different from the national average for Hispanic students, while the average score for White students was below the national average for these students.

Among the six states where the Hispanic-White gap was larger than the national average, in Massachusetts scores for both Hispanic and White students were higher than the national averages for these groups, while in Utah scores for both groups were lower. In California and Rhode Island, scores for Hispanic students were below the national average, while scores for White students were not measurably different from the national average. In Connecticut and the District of Columbia, scores for Hispanic students were not measurably different from the national average, while scores for White students were above it.

Figure 13. The Hispanic-White achievement score gap in mathematics for public school students at grade 4, by state: 2009



* Significantly different ($p<.05$) from the nation (public) when comparing one state to the nation at a time.
[1] Department of Defense Education Activity (overseas and domestic schools).
NOTE: Reporting standards not met for Maine, Mississippi, North Dakota, Vermont and West Virginia because their Hispanic student population size was insufficient for comparison. They are not included in the figure. Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

Trends in state mathematics achievement gaps at grade 4

The Hispanic-White mathematics gap among the nation's public school fourth-graders was narrower in 2009 than in 1992, as Hispanic students' scores showed a greater gain than White students' scores (figure 14, national results).

From 2007 to 2009, scores of Hispanic and White fourth-graders in the nation did not change significantly. Additionally, there was no significant change in the gap.

In all 21 states for which 1992 data were available, both Hispanic students and White students achieved higher average scores in mathematics in 2009 than in 1992. Six of these state—Connecticut, District of Columbia, Massachusetts, New Jersey, New York, and Rhode Island—also narrowed the achievement gap as Hispanic students' scores increased more than White students' scores.

In five states—Delaware, DoDEA, Michigan, Missouri, and Oregon—the achievement gap was narrower in 2009 than in the first year for which reportable results were available for both groups of students: Delaware (1996); DoDEA (1996); Michigan (1996); Missouri (2003); Oregon (1996).

From 2007 to 2009, scores for both White and Hispanic students rose in the District of Columbia. However, the Hispanic-White mathematics gap at grade 4 did not decrease significantly in the District of Columbia or any state when comparing 2009 to 2007.

In both Rhode Island and Texas, the Hispanic-White mathematics gap widened between 2007 and 2009. In Rhode Island, scores for White students increased while scores for Hispanic students did not change significantly.

Changing of the Gap

Narrowing

In the following 11 states, the gap was narrower in **2009 than in the first assessment year** for which reliable results for both groups were available as Hispanic students' average scores increased more than those for White students.

- **Connecticut**
- **District of Columbia**
- **Delaware**
- **DoDEA**
- **Massachusetts**
- **Michigan**
- **Missouri**
- **New Jersey**
- **New York**
- **Oregon**
- **Rhode Island**

Widening

In **Rhode Island**, the gap widened between **2007 and 2009** as scores for White students increased, while scores for Hispanic students did not change significantly.

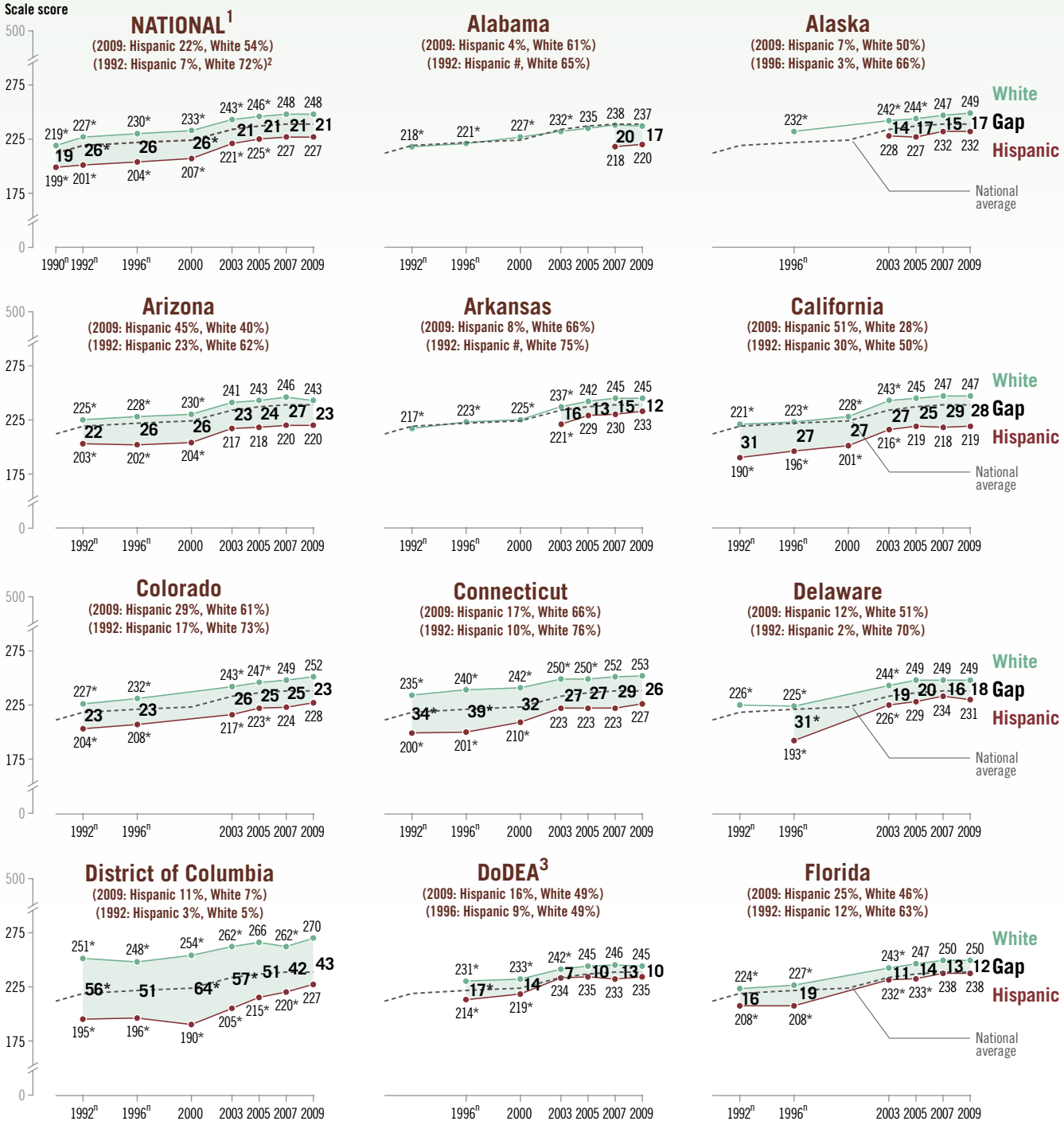
In **Texas**, the gap widened between **2007 and 2009** as scores for Hispanic students decreased, while scores for White students did not change significantly.

In Texas, scores for Hispanic students decreased, while scores for White students did not change significantly.

Figure 14 displays population percentages for Hispanic and White fourth-graders in each state for 2009 and the first year of the state's participation in the assessment.

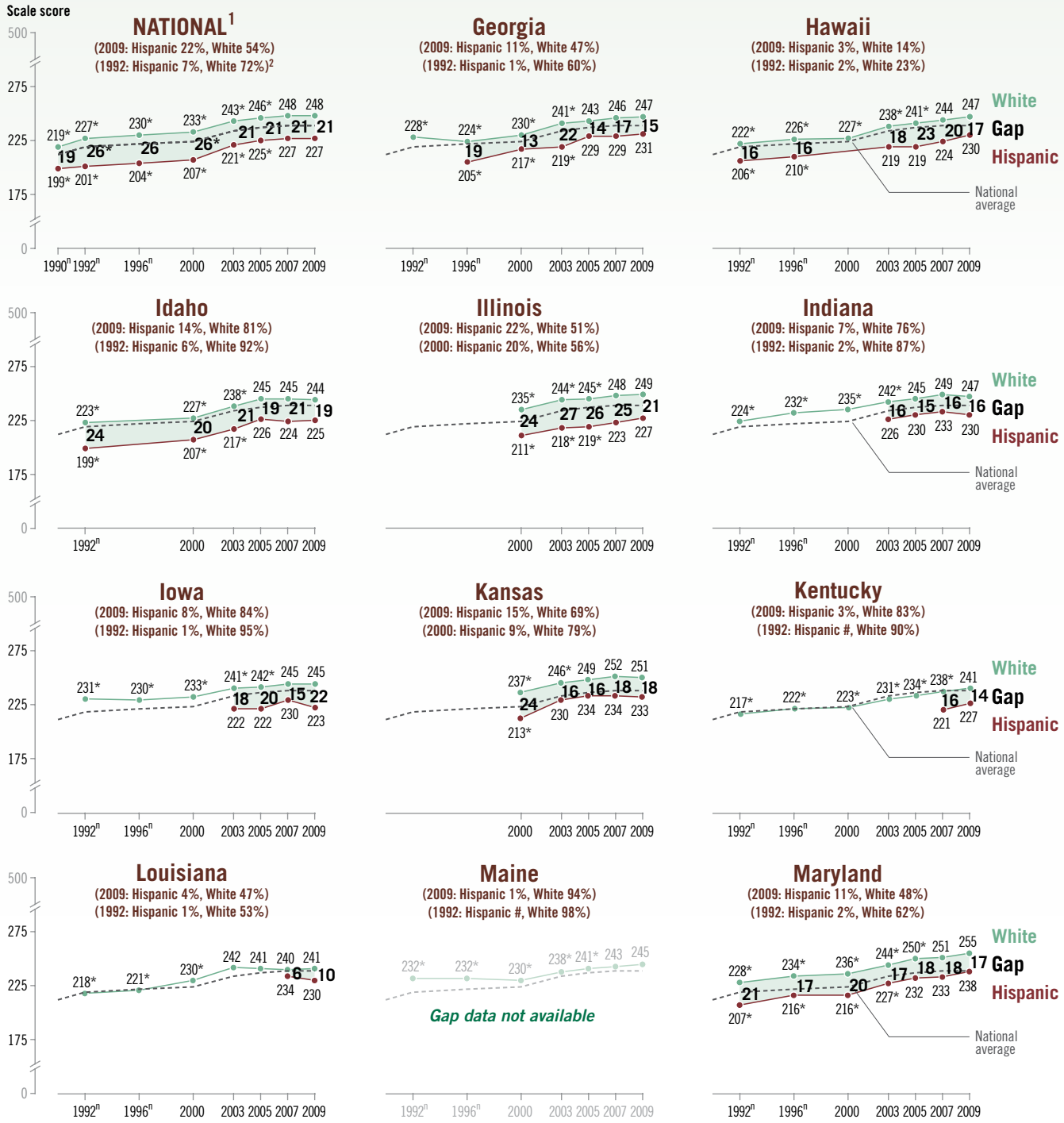
Hispanic-White mathematics gap data are not available for Maine, Mississippi, North Dakota, Vermont, or West Virginia.

Figure 14. Mathematics achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1990–2009



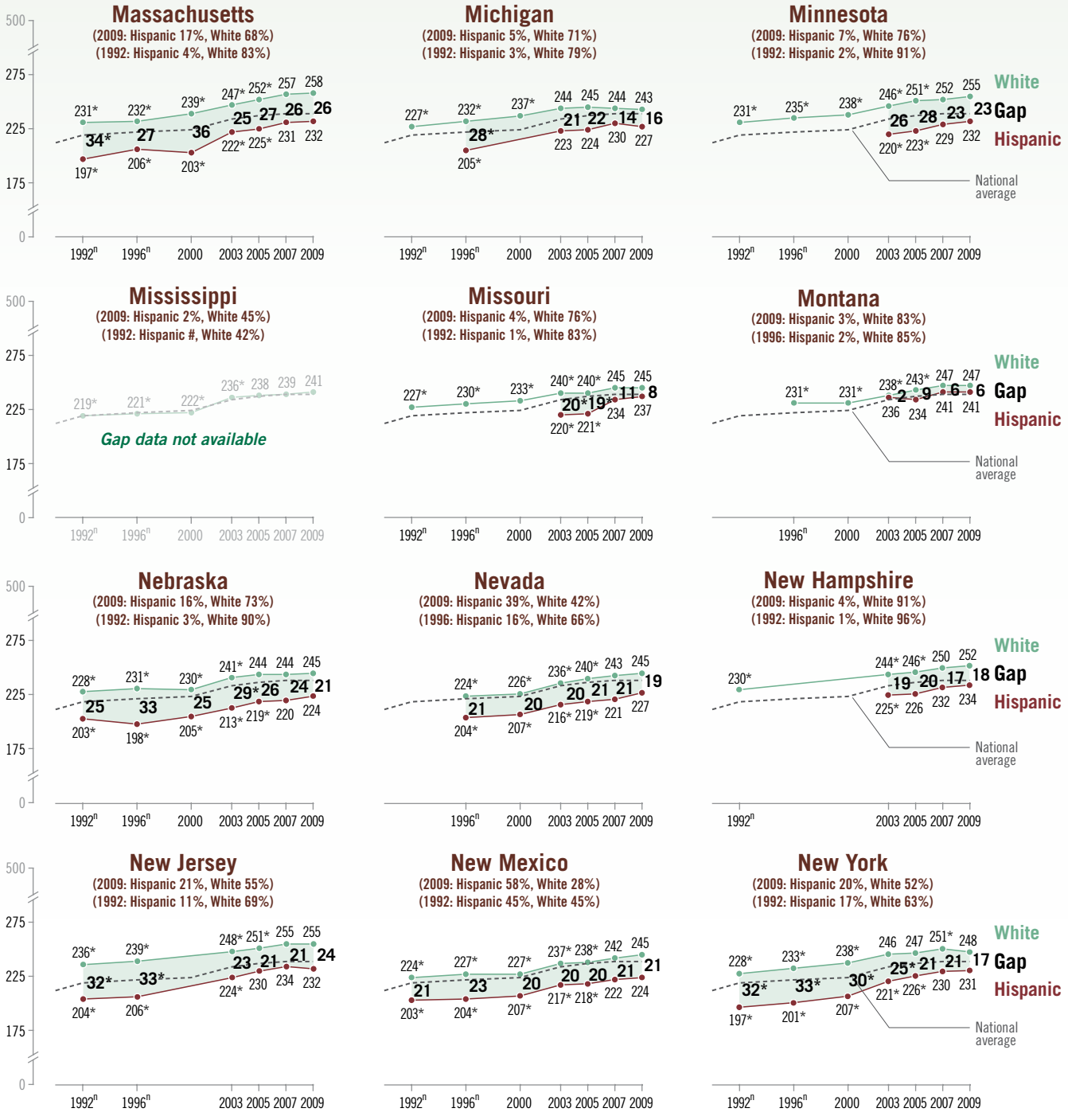
See notes at end of figure.

Figure 14. Mathematics achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1990–2009—Continued



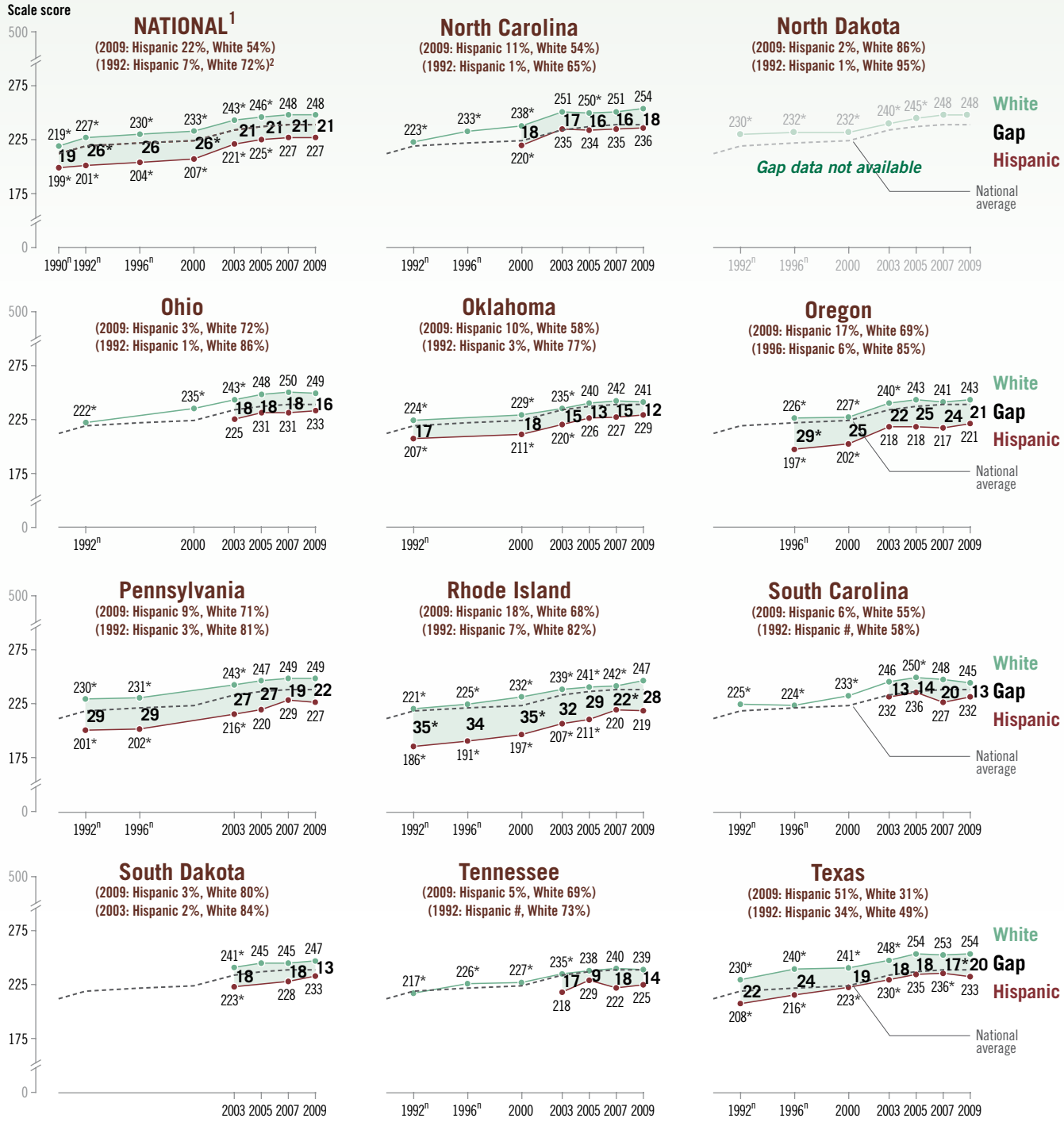
See notes at end of figure.

Figure 14. Mathematics achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1990–2009—Continued



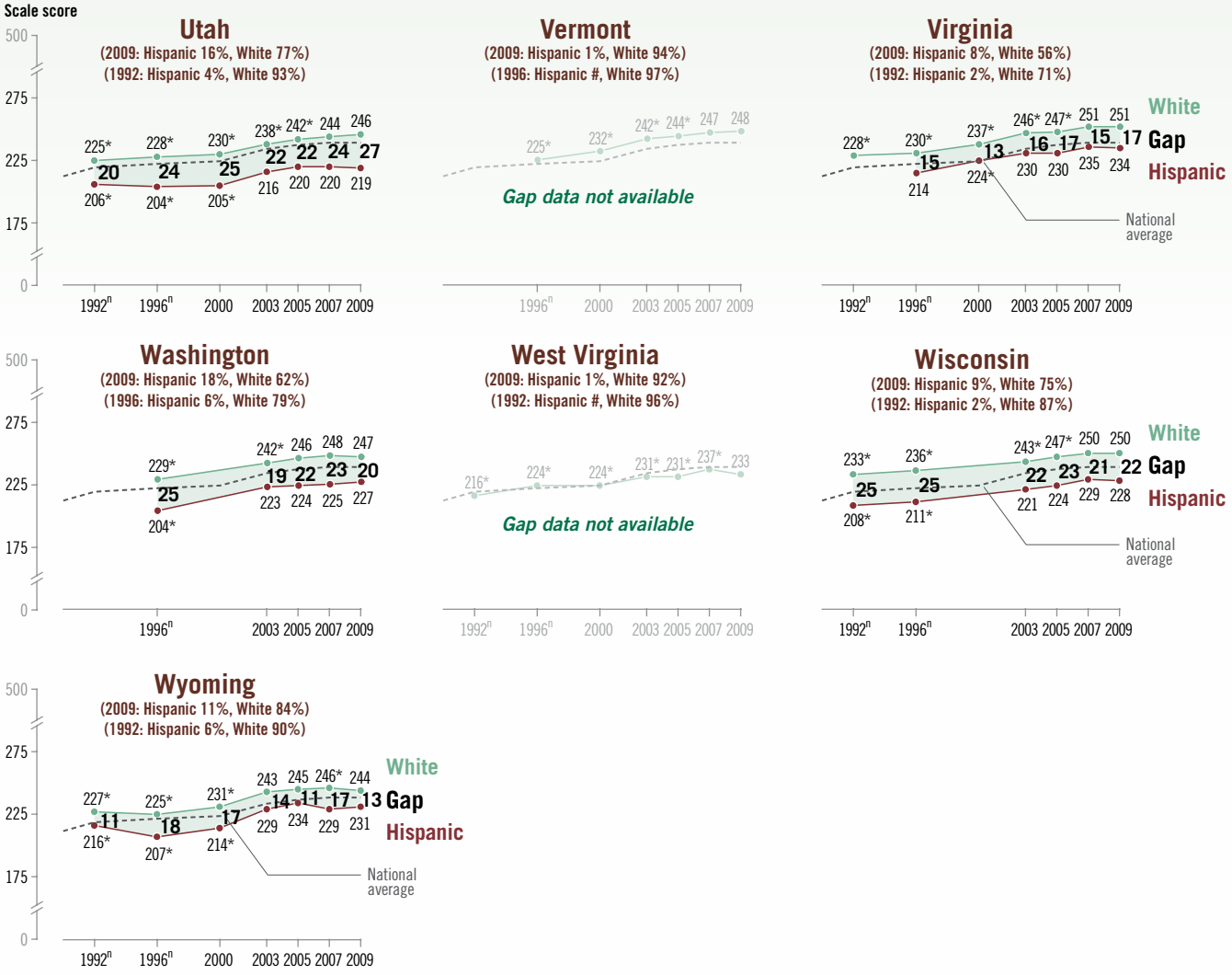
See notes at end of figure.

Figure 14. Mathematics achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1990–2009—Continued



See notes at end of figure.

Figure 14. Mathematics achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1990–2009—Continued



n Accommodations were not permitted for this assessment.
Rounds to zero.
* Significantly different (p<.05) from 2009.
[1] National results for assessments prior to 2002 are based on the national sample, not on aggregated state samples.
[2] Hispanic and White percentages are based on students tested in the first assessment year for the state and in 2009.
[3] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.
NOTE: Score gaps are calculated based on differences between unrounded average scores. Where data are not present, the jurisdiction did not participate or did not meet the minimum participation guidelines for reporting. Comparative performance results may be affected by changes in exclusion rates for students with disabilities and English language learners in the NAEP samples.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2009 Mathematics Assessments.

State and national mathematics achievement gaps at grade 8, 2009

Fifteen states had a smaller gap than the nation's 26-point Hispanic-White gap in 2009 (Alaska, Arkansas, Delaware, DoDEA, Florida, Georgia, Hawaii, Indiana, Kentucky, Michigan, Missouri, Oklahoma, Tennessee, Virginia, and Wyoming) and six had a gap that was larger (California, Colorado, Connecticut, New York, Rhode Island, and Washington). In 24 states, the gap was not significantly different from the nation's gap (figure 15). Asterisks indicate a significant difference from the national average score or the national average gap.

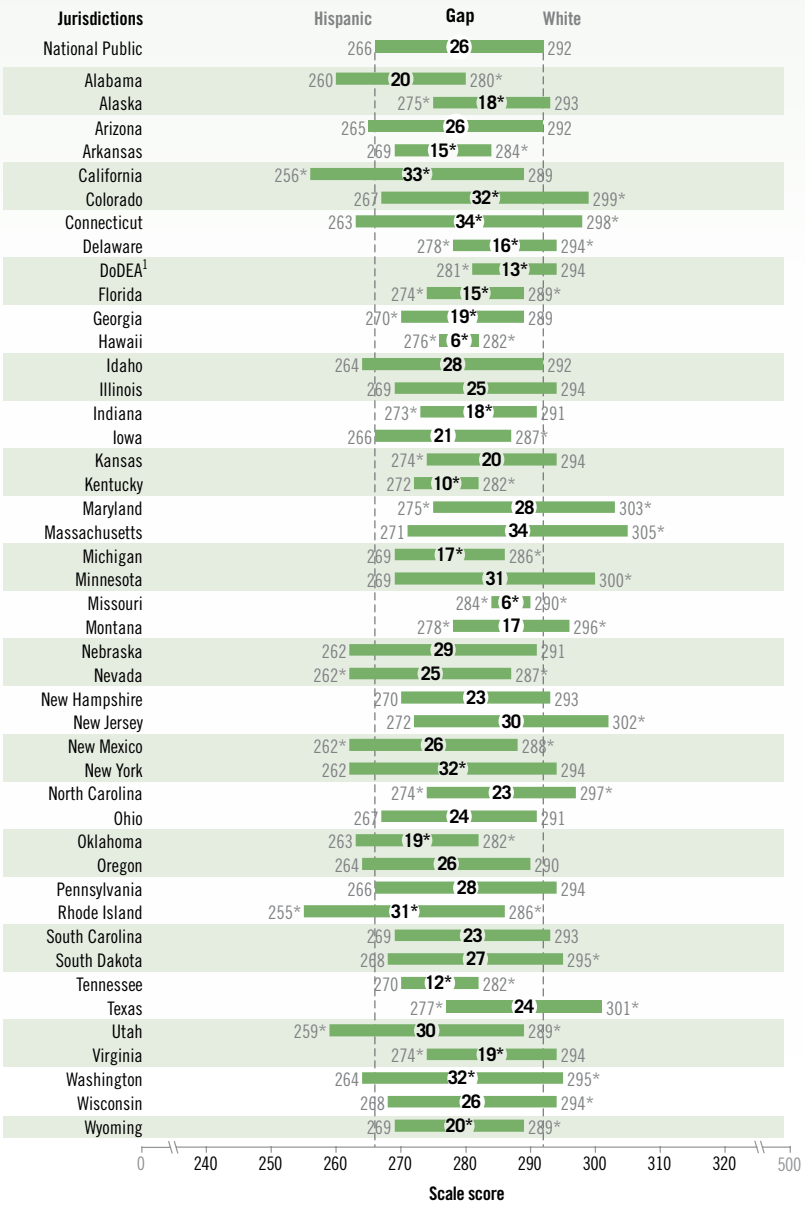
The eighth-grade mathematics gap in 2009 was statistically significant in 43 of the 45 states for which data could be reported. In Hawaii and Missouri, the 6-point difference between the average scores for Hispanic and White students was not statistically significant, and thus there was no measurable Hispanic-White gap for grade 8 mathematics in those states in 2009. Among the remaining states, the Hispanic-White gap ranged from 10 points in Kentucky to 34 points in Connecticut and Massachusetts.

Among the 15 states with a gap smaller than the national gap of 26 points, in one state, Delaware, scores for both Hispanic and White students were higher than the national averages for those students. In eight of these states—Alaska, DoDEA, Florida, Georgia, Hawaii, Indiana Missouri, and Virginia—the average score for Hispanic students was above the national average for those students.

Among the six states where the gap was larger than the national gap, scores for Hispanic students were not

measurably different from the national average, while scores for White students were higher in three states—Colorado, Connecticut, and Washington. In New York, scores for Hispanic students were not measurably different from the national average for Hispanic students and scores for White students were not measurably different from the national average for White students. In California, scores for Hispanic students were below the national average for Hispanic students and scores for White students were not measurably different from the national average for White students. In Rhode Island, scores for both groups of students were below the national average.

Figure 15. The Hispanic-White achievement score gap in mathematics for public school students at grade 8, by state: 2009



* Significantly different ($p<.05$) from the nation (public) when comparing one state to the nation at a time.
[1] Department of Defense Education Activity (overseas and domestic schools).
NOTE: Reporting standards not met for District of Columbia, Louisiana, Maine, Mississippi, North Dakota, Vermont and West Virginia because their Hispanic or White student population size was insufficient for comparison. They are not included in the figure. Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

Trends in state mathematics achievement gaps at grade 8

The national Hispanic-White achievement gap was not significantly narrower when comparing 2009 to 1990 despite higher average scores for both Hispanic and White students in 2009 (figure 16, national results). Average scores were also higher for both Hispanic and White students in 2009 than in 2007, although again the gap did not narrow.

In 14 of the 15 states for which 1990 data were available, mathematics scores of both Hispanic and White eighth-graders were higher in 2009 than in 1990. In Connecticut, Delaware, Hawaii, Missouri, and Rhode Island, the Hispanic-White gap was narrower in 2009 than in the first assessment year for which reportable results for both groups were available: Connecticut (1990); Delaware (2003); Hawaii (1996); Missouri (2007); Rhode Island (1990).

Maryland's gap was wider in 2009 than in 1990, as White students' scores increased more than those of their Hispanic peers. In Utah, the gap was wider in 2009 than in 1992, the state's first assessment year, as scores for White students increased while scores for Hispanic students did not change significantly.

Between 2007 and 2009, gaps narrowed in Arkansas and Delaware as scores for Hispanic eighth-graders increased while scores of White students did not change significantly.

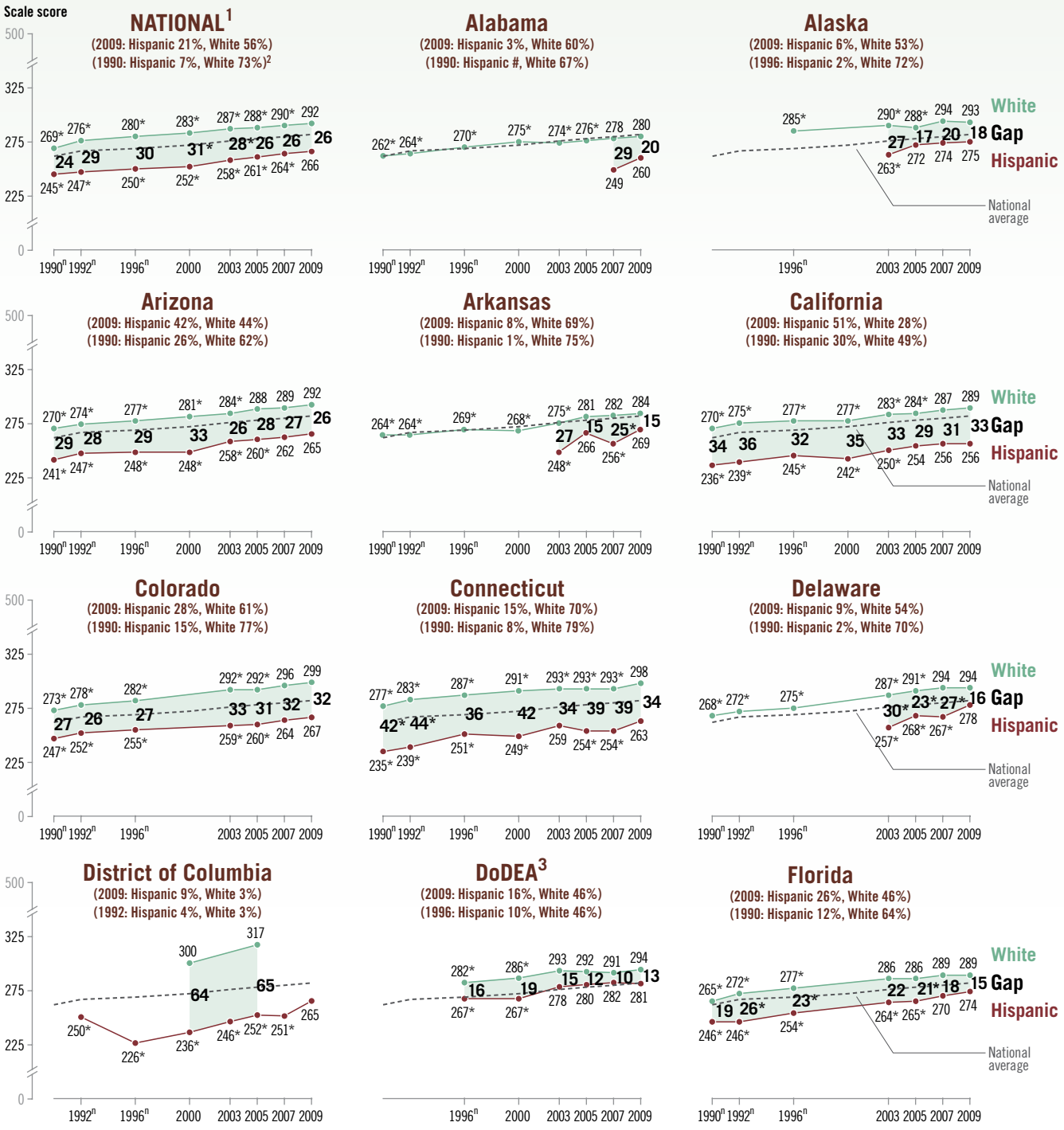
Changing of the Gap	
Narrowing	In **Connecticut, Delaware, Hawaii, Missouri,** and **Rhode Island**, the gap was narrower in **2009 than in the first assessment year** for which reliable results for both groups were available as scores for Hispanic students increased more than scores for White students. In **Arkansas** and **Delaware** the gap narrowed between **2007 and 2009** as Hispanic students' average scores increased while those for White students did not.
Widening	In **Maryland** and **Utah** the gap was wider in **2009 than in the first assessment year** for each state as White students' scores increased more than those of their Hispanic peers.

In Connecticut and Nevada, scores increased for both Hispanic and White eighth-grade students between 2007 and 2009, though the gaps did not narrow significantly.

Figure 16 displays population percentages for Hispanic and White eighth-graders in each state for 2009 and the first year of the state's participation in the assessment.

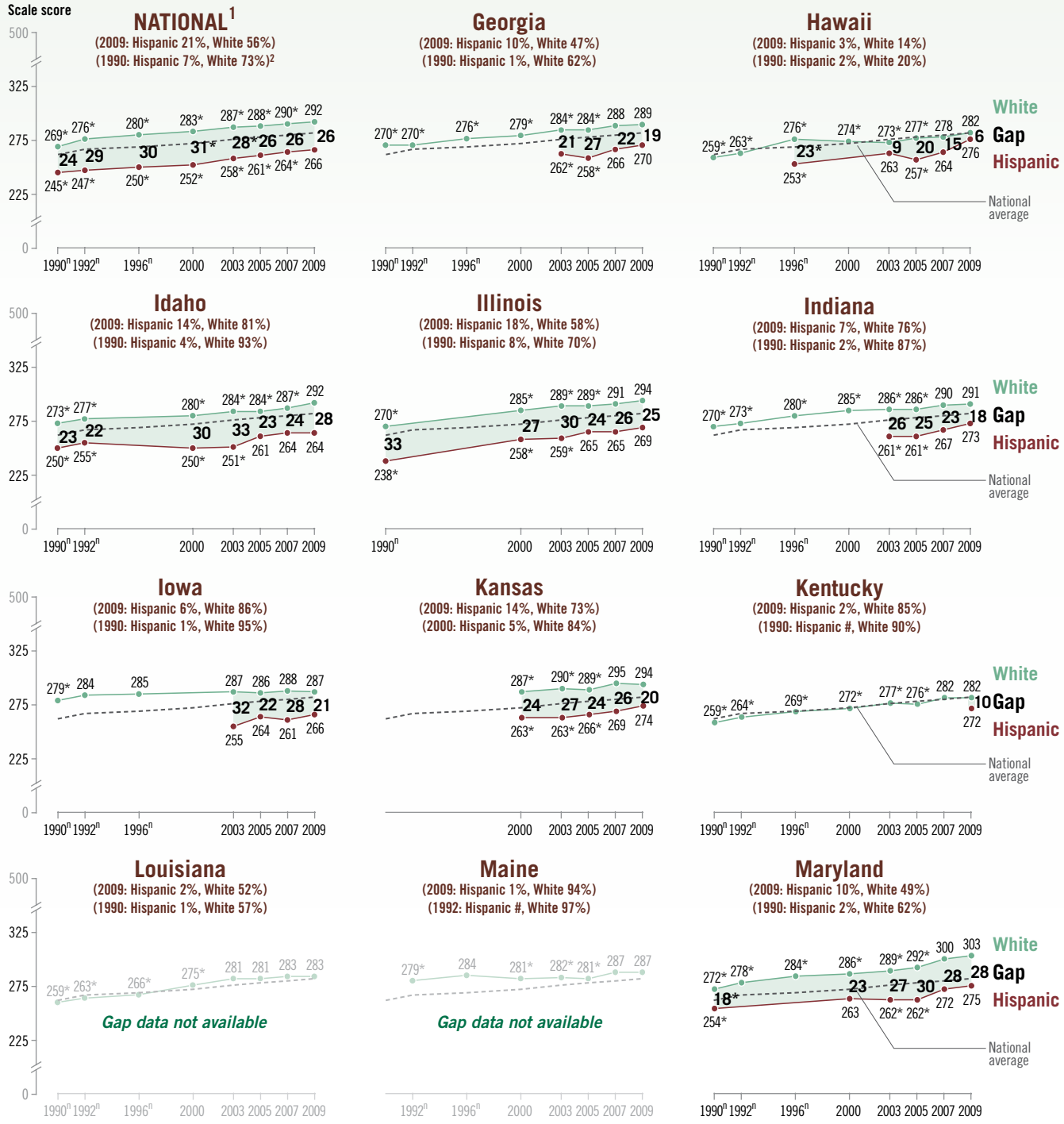
Hispanic-White mathematics gap data are not available for Louisiana, Maine, Mississippi, North Dakota, Vermont, or West Virginia.

Figure 16. Mathematics achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1990–2009



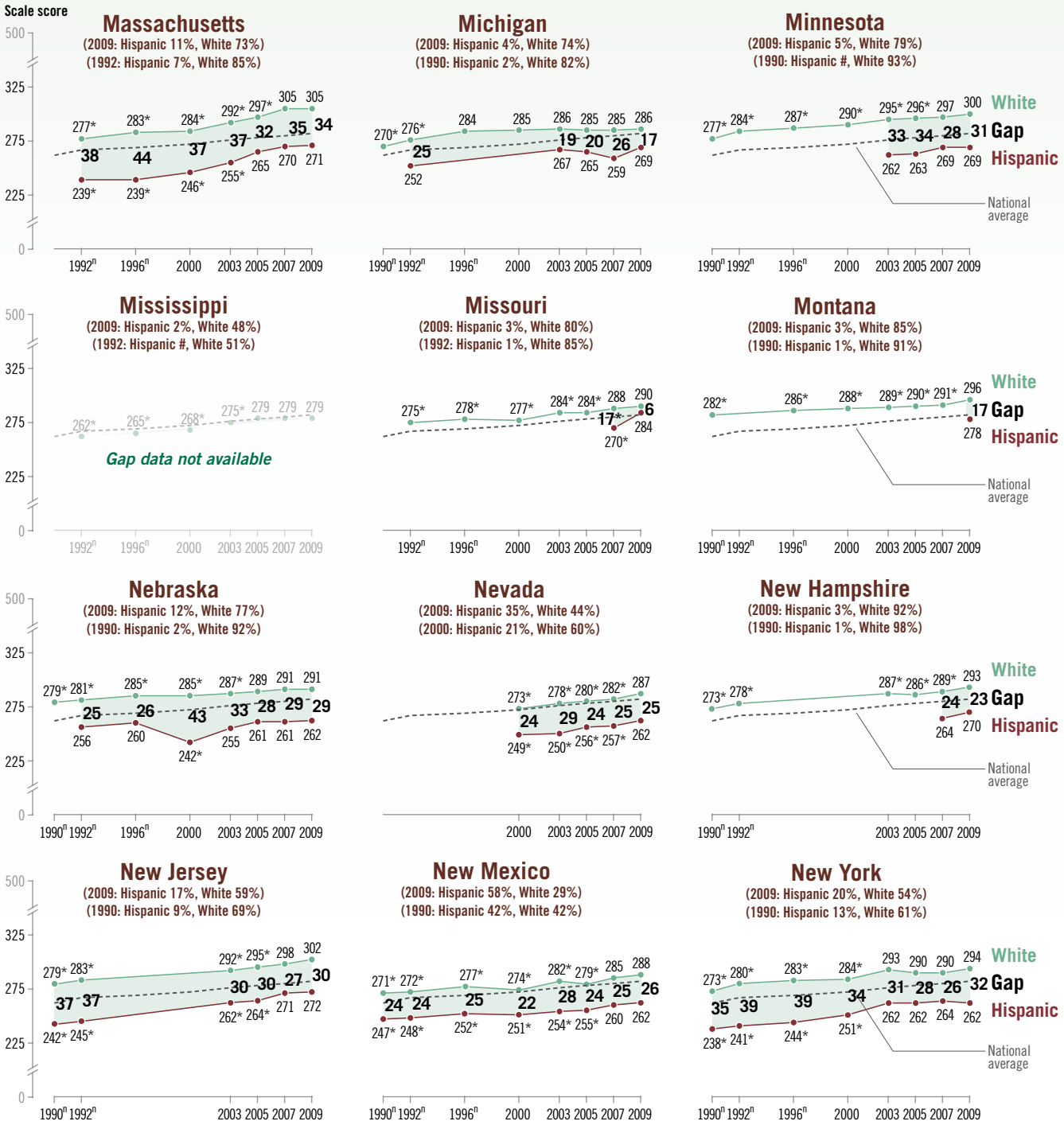
See notes at end of figure.

Figure 16. Mathematics achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1990–2009—Continued



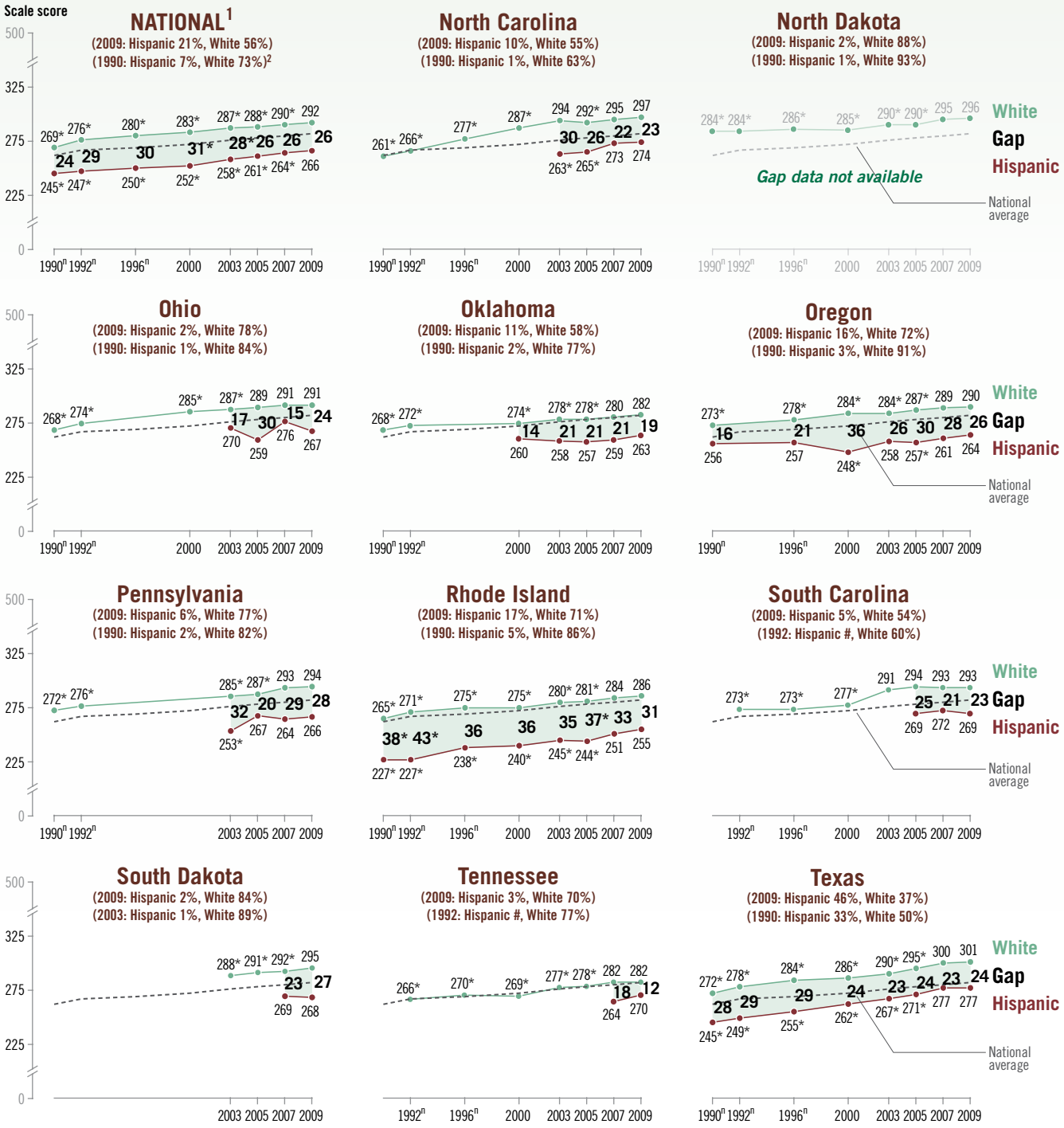
See notes at end of figure.

Figure 16. Mathematics achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1990–2009—Continued



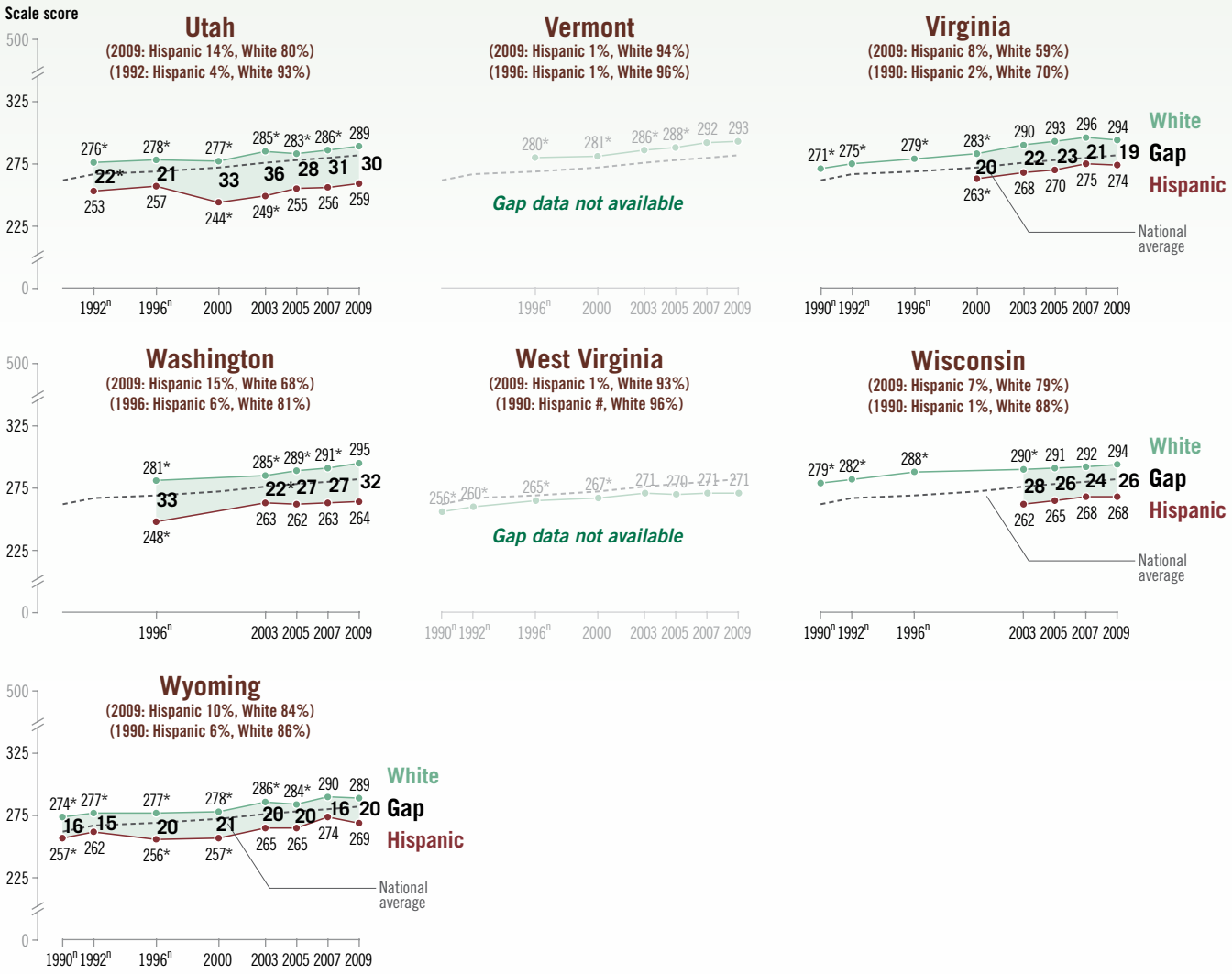
See notes at end of figure.

Figure 16. Mathematics achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1990–2009—Continued



See notes at end of figure.

Figure 16. Mathematics achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1990–2009—Continued



n Accommodations were not permitted for this assessment.
Rounds to zero.
* Significantly different (p<.05) from 2009.
1 National results for assessments prior to 2002 are based on the national sample, not on aggregated state samples.
2 Hispanic and White percentages are based on students tested in the first assessment year for the state and in 2009.
3 Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.
NOTE: Score gaps are calculated based on differences between unrounded average scores. Where data are not present, the jurisdiction did not participate or did not meet the minimum participation guidelines for reporting. Comparative performance results may be affected by changes in exclusion rates for students with disabilities and English language learners in the NAEP samples.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2009 Mathematics Assessments.

Mathematics Summary

National trends in mathematics, 1990–2009

- The mathematics achievement gap between Hispanic and White students in 2009 was 21 points at grade 4 and 26 points at grade 8. There was no significant difference when comparing these gaps to the comparable gaps in 2007 or 1990 (figures 5 and 6).
- Neither males nor females demonstrated a significant change in the Hispanic-White gap when comparing 2009 to 2007 or to 1990 (figures 7 and 8).
- Among eighth-grade students who were eligible for free or reduced-price school lunch through the National School Lunch Program, the Hispanic-White achievement gap was narrower in 2009 than in 2003. The corresponding gap for fourth-grade students did not change significantly over the same period (figure 9 and 10).
- The gap between White and non-ELL Hispanic students at both grades was narrower in 2009 than in 1996, the first year for which data was available (figures 11 and 12).

State achievement gaps in mathematics, compared to the nation, 2009

- At grade 4, eleven states had a smaller Hispanic-White gap than the nation, and six had a gap that was larger (figure 13).
- At grade 8, fifteen states had a smaller Hispanic-White gap than the nation, and six a gap that was larger (figure 15).

State trends in mathematics, 1990–2009

- At grade 4, of the 21 states for which 1992 data was available, six states had a narrower Hispanic-White achievement gap in 2009 than in 1992. Two states had a wider Hispanic-White achievement gap in 2009 than in 2007 (figure 14).
- At grade 8, of the 15 states for which 1990 data was available, two states had a narrower gap in 2009 than in 1990, and one state had a gap that was wider. Additionally, three states had a narrower gap in 2009 than in 2007 (figure 16).

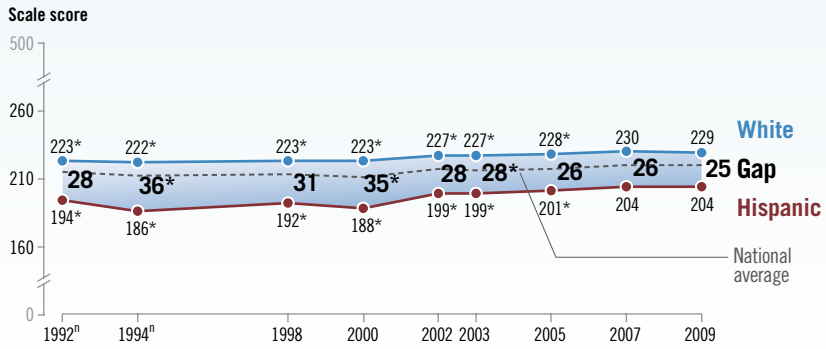
National Results for Hispanic and White Fourth- and Eighth-Graders

Reading scores and achievement gaps in the nation, 1992–2009

Average fourth-grade reading scores for the nation were higher in 2009 than in 1992 for both Hispanic and White public school students (figure 17). The 25-point gap in 2009 was not significantly different from the 28-point gap in 1992. From 2007 to 2009, scores did not change significantly for either group. The 26-point gap in 2007 was not significantly different from the 25-point gap in 2009.

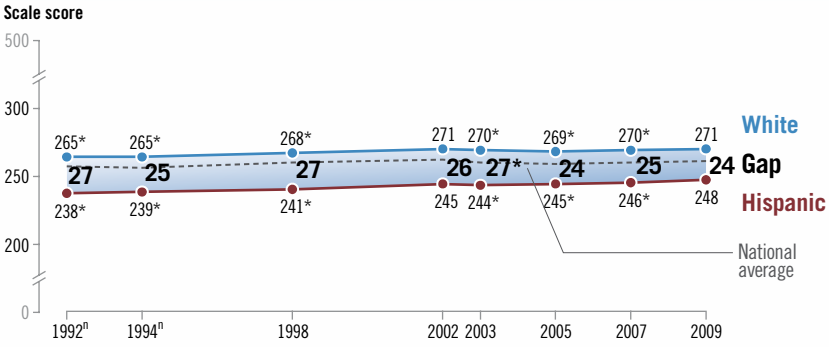
Average reading scores for both Hispanic and White eighth-graders were higher in 2009 than in 1992 and in 2007 (figure 18). The 24-point gap in 2009 was not significantly different from either the 27-point gap in 1992 or the 25-point gap in 2007.

Figure 17. Reading achievement score gaps between Hispanic and White public school students at grade 4: Various years, 1992–2009



n Accommodations were not permitted for this assessment.
* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
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 Reading Assessments.

Figure 18. Reading achievement score gaps between Hispanic and White public school students at grade 8: Various years, 1992–2009



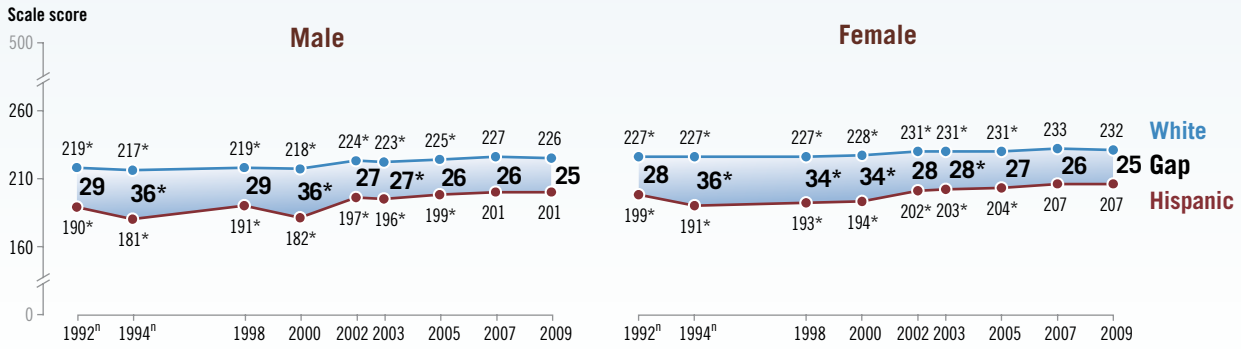
n Accommodations were not permitted for this assessment.
* Significantly different (p<.05) from 2009.
NOTE: Data were not collected at grade 8 in 2000. Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2009 Reading Assessments.

Reading scores and achievement gaps by gender, 1992-2009

Average reading scores were higher in 2009 than in 1992 for the nation's Hispanic and White students at both the fourth and eighth grades, regardless of gender (figures 19 and 20). The Hispanic-White reading gap did not change significantly for either male or female students at either grade when comparing 2009 to 1992.

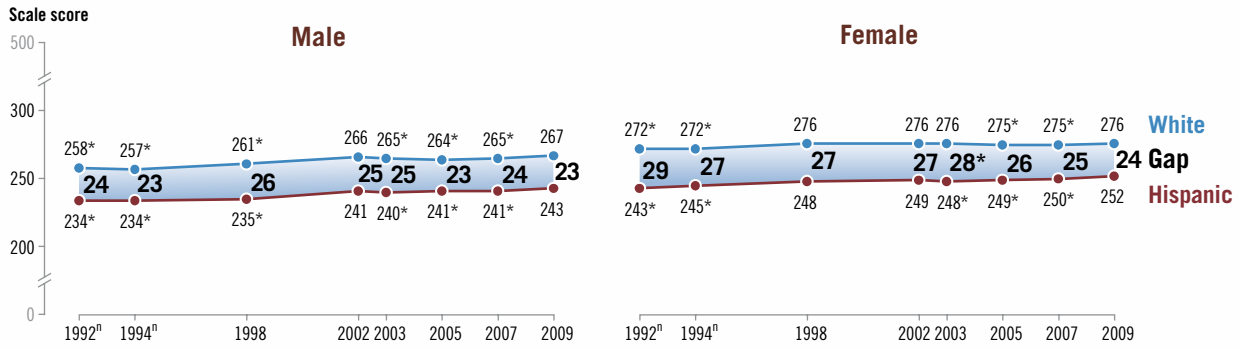
From 2007 to 2009, scores did not change for any of these student groups at grade 4. At grade 8, scores increased for Hispanic and White students, regardless of gender. There were no significant changes in the size of the gaps at either grade.

Figure 19. Reading achievement score gaps between Hispanic and White public school students at grade 4, by gender: Various years, 1992–2009



n Accommodations were not permitted for this assessment.
* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
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 Reading Assessments.

Figure 20. Reading achievement score gaps between Hispanic and White public school students at grade 8, by gender: Various years, 1992–2009



n Accommodations were not permitted for this assessment.
* Significantly different (p<.05) from 2009.
NOTE: Data were not collected at grade 8 in 2000. Score gaps are calculated based on differences between unrounded average scores.
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 Reading Assessments.

Reading scores and gaps by family income, 2003–2009

The National Assessment of Educational Progress (NAEP) uses student eligibility for free or reduced-price school lunch as an indicator of family income. Eligible students come from families with an income no more than 185 percent of the federal poverty level. As table 3 indicates, in 2009, 76 percent of fourth-grade and 72 percent of eighth-grade Hispanic public school students were eligible for free or reduced-price school lunch. For White public school students, 29 percent of fourth-graders and 24 percent of eighth-graders were eligible. Trends in school lunch eligibility for the NAEP reading assessment are reported from 2003.

At grade 4, reading scores were higher in 2009 than in 2003 for both not eligible and eligible Hispanic and White public school students (figure 21). Additionally, the Hispanic-White gap did not change significantly for not eligible students, but did narrow for eligible students, falling from 17 points to 15 points. From 2007 to 2009, there were no significant changes in scores or gaps for White or Hispanic students at grade 4, regardless of eligibility.

At grade 8, scores in 2009 were higher than in 2003 for White students not eligible for free or reduced-price school lunch and for eligible Hispanic students (figure 22). The not eligible gap did not change significantly, but the eligible gap narrowed from 18 points to 14 points since eligible Hispanic students' scores increased, while eligible White students' scores did not.

From 2007 to 2009, scores increased for not eligible White eighth-graders; the gap did not change significantly. Scores for eligible Hispanic students also increased, while scores for eligible White students did not, and the gap narrowed from 16 points to 14 points (figure 22).

In 2009, the reading performance gap for Hispanic eligible and not eligible students was smaller than the gap for White eligible and not eligible students, at both grades. At grade 4, White not eligible students had an average score of 235 (figure 21 left side of graph), while White eligible students had a score of 215 (figure 21 right side of graph), resulting

Table 3. Percentage of public school students assessed in NAEP reading eligible for the National School Lunch Program, by race/ethnicity and grade: Various years, 2003–2009

	Hispanic	White
Grade 4		
2009	76	29
2007	74	26*
2005	76	26*
2003	74	25*
Grade 8		
2009	72	24
2007	70	24
2005	68*	23*
2003	67*	20*

* Significantly different (p<.05) from 2009.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2003–2009 Reading Assessments.

Eligibility for free or reduced-price lunch

NAEP collects data on students' eligibility for the National School Lunch Program (NSLP)—sometimes referred to as the free or reduced-price school lunch program—as an indicator of family economic status. Eligibility for free or reduced-price lunches is based on students' family income in relation to the federally established poverty level.

Not eligible: Students who are not eligible for the program because their family's income is above 185 percent of the poverty level.

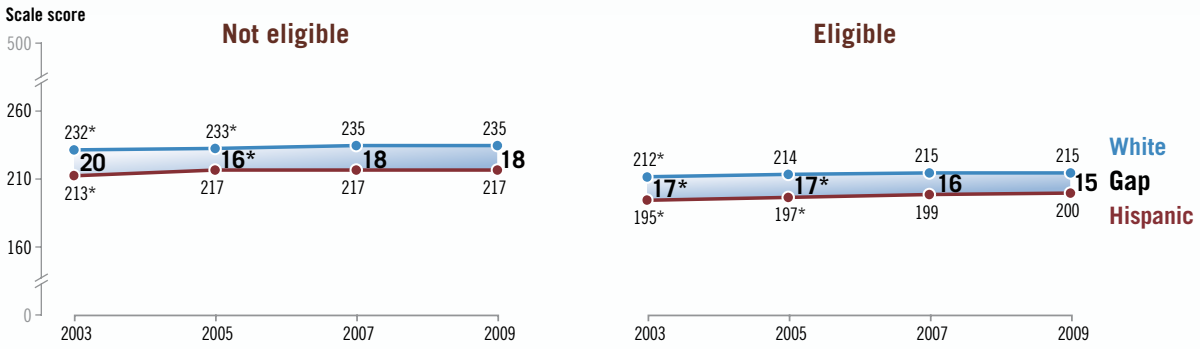
Eligible: Students who are eligible for either reduced-price lunch because their family's income is between 130 percent and 185 percent of the poverty level, or for free lunch, because their family's income is below 130 percent of the poverty level.

As a result of improvements in the quality of the data on students' eligibility for NSLP, the percentage of students for whom information was not available has decreased in comparison to the percentages reported prior to the 2003 assessment. Therefore, trend comparisons are only made back to 2003 in this report.

in a gap of 20 points. Hispanic not eligible students had an average score of 217, while Hispanic eligible students had a score of 200, resulting in a gap of 16 points (using unrounded numbers), smaller than the gap between White students.

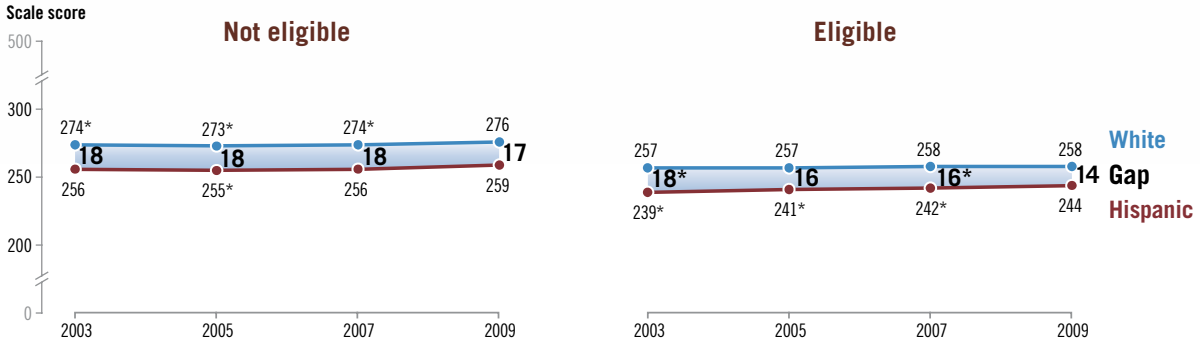
At grade 8, White not eligible students had an average score of 276 (figure 21 left side of graph), while White eligible students had a score of 258 (figure 22 right side of graph), resulting in a gap of 18 points. Hispanic not eligible students had an average score of 259, while Hispanic eligible students had a score of 244, resulting in a gap of 15 points, which was also smaller than the gap for White students.

Figure 21. Reading achievement score gaps between Hispanic and White public school students at grade 4, by eligibility for free or reduced-price school lunch: Various years, 2003–2009



* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2003–2009 Reading Assessments.

Figure 22. Reading achievement score gaps between Hispanic and White public school students at grade 8, by eligibility for free or reduced-price school lunch: Various years, 2003–2009



* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 2003–2009 Reading Assessments.

Trends in reading scores and achievement gaps by ELL status at grades 4 and 8, 1998-2009

The 15-point gap between grade 4 White students (both ELL and non-ELL White students) and non-ELL Hispanic students in 2009 was narrower than the 24-point gap in 1998, the first year for which data are available (figure 23). Scores rose for both groups, but the increase for non-ELL Hispanic students was larger. From 2007 to 2009, there was no significant change in the scores of either group or in the gap. (For percentages of ELL students in fourth and eighth grade, see table 4.)

Table 4. Percentage of public school English language learner students assessed in NAEP reading, by race/ethnicity and grade: Various years, 1998–2009

	Hispanic	White
Grade 4		
2009	35	1
2007	37	1
2005	37	1
2003	37	1
2002	34	1
2000	33	#
1998	22	1
Grade 8		
2009	20	#
2007	24	1
2005	24	1
2003	24	1
2002	22	1
1998	15	#

Rounds to zero.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1998–2009 Reading Assessments.

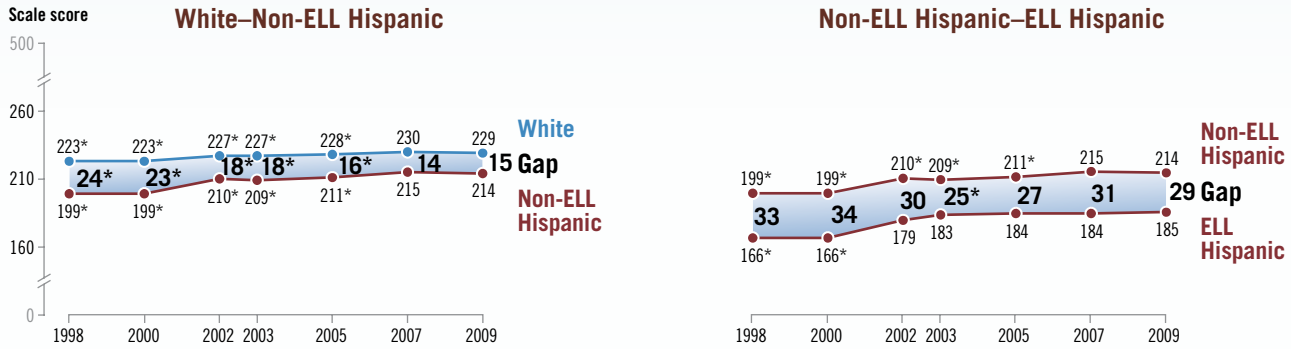
Within the Hispanic student population, the 29-point gap between ELL and non-ELL Hispanic students in 2009 was not significantly different from either 1998 or 2007. Scores for both groups were higher in 2009 than in 1998 but not significantly different from 2007.

At grade 4 in 2009, the 29-point gap between non-ELL Hispanic students and ELL Hispanic students was larger than both the 15-point gap between White and non-ELL Hispanic students (figure 23) and the 25-point gap between all Hispanic and White students (figure 17).

At grade 8, average reading scores for White students and non-ELL Hispanic students were higher in 2009 than in 1998, the first year for which data are available (figure 24). They were also higher in 2009 than in 2007. The 15-point gap in 2009 was narrower than the 22-point gap in 1998, but was not measurably different from the 16-point gap in 2007.

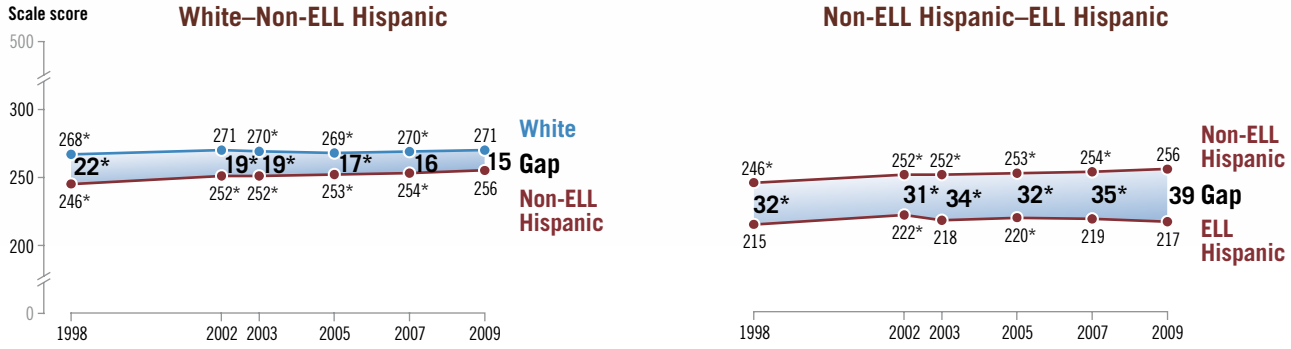
Within the Hispanic eighth-grade student population, the 39-point gap between ELL and non-ELL Hispanic students in 2009 was wider than the gap in either 1998 or 2007. The average score for non-ELL Hispanic students in 2009 was higher than in either comparison year, while the 2009 score for ELL Hispanic students was not significantly different from their scores in either 1998 or 2007 (figure 24).

Figure 23. Reading achievement score gaps between Hispanic and White public school students at grade 4, by English language learner status: Various years, 1998–2009



* Significantly different (p<.05) from 2009.
NOTE: Score gaps are calculated based on differences between unrounded average scores. White includes ELL and non-ELL White students.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1998–2009 Reading Assessments.

Figure 24. Reading achievement score gaps between Hispanic and White public school students at grade 8, by English language learner status: Various years, 1998–2009



* Significantly different (p<.05) from 2009.
NOTE: Data were not collected at grade 8 in 2000. Score gaps are calculated based on differences between unrounded average scores. White includes ELL and non-ELL White students.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1998–2009 Reading Assessments.

State Results for Hispanic and White Fourth- and Eighth-Graders

State and national reading achievement gaps at grade 4, 2009

The NAEP state reading assessments were administered to public school students in fourth grade only in 1992 and 1994, and in fourth and eighth grade in 1998, 2002, 2003, 2005, 2007, and 2009. Before 2003, states were not required to participate in NAEP in order to qualify for Title I education funds. Typically, 40 or more states participated in each assessment prior to 2003. In 2003, 2005, 2007, and 2009, all 50 states, the District of Columbia, and the DoDEA schools participated.

State results are presented in two ways. Comparisons of fourth-grade reading gaps in 2009 between each state and the nation are presented in figure 25.

Comparisons of the reading gaps within a state over time are presented in a series of small graphs in figure 26. At the top left of each two-page spread, the reading scores and gaps for the nation are presented for reference. Each state figure, as well as the national figure, also contains a dashed gray line representing the national average for public school students. The data for the national averages are located in appendix B in table B-4.

Thirteen states had a smaller Hispanic-White gap than the nation's 25-point gap in 2009 and six had a gap that was larger. In 29 states, the gap was not significantly different from the nation's gap (figure 25). Asterisks indicate a significant difference from the national average score or the national average gap.

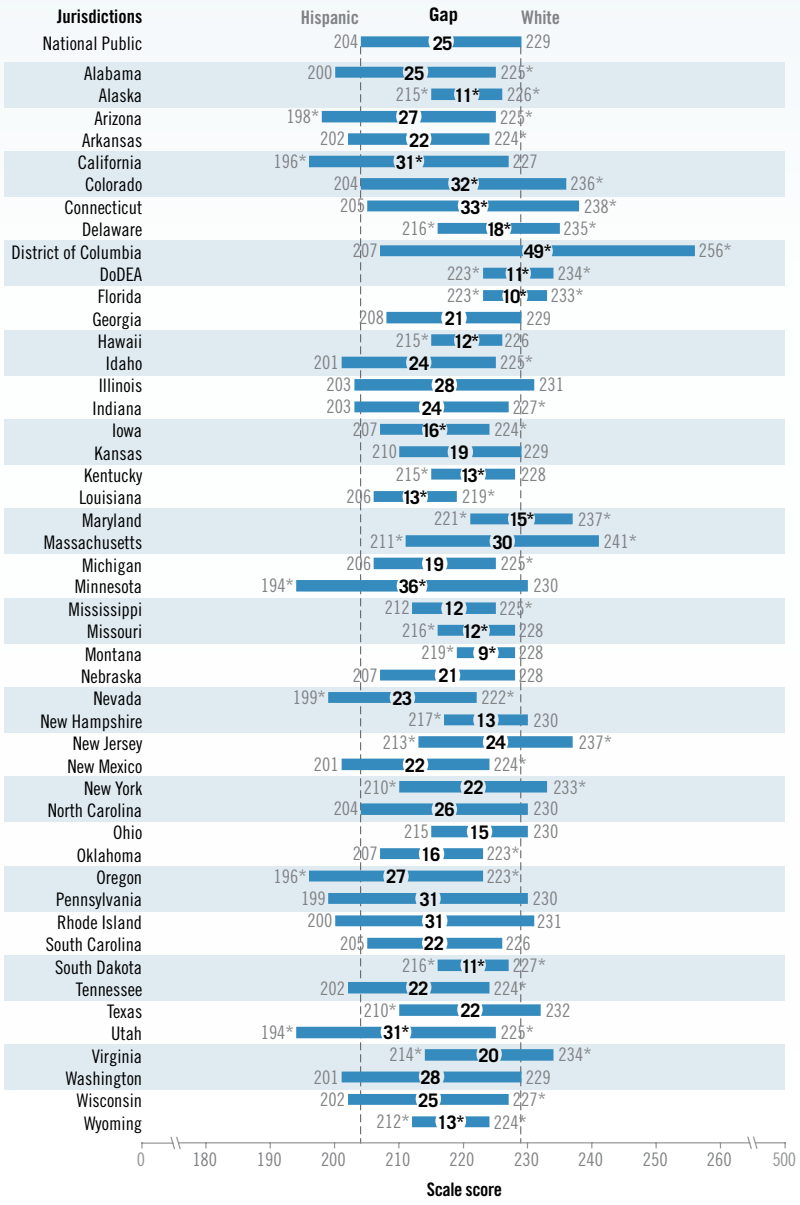
In two states, Mississippi and Ohio, the difference in scores between Hispanic and White students was not statistically significant, and thus there was no measurable gap in those two states. The difference was 12 points in Mississippi and 15 points in Ohio. The fourth-grade reading gap in 2009 was statistically significant in the other 46 states for which data could be reported.

In 4 of the 13 states where the gap was smaller than the national average—Delaware, DoDEA, Florida, and Maryland—scores for both Hispanic and White students were above the national average for those students. In four states—Hawaii, Kentucky, Missouri, and Montana—scores for Hispanic students were higher than they were nationally while scores for White students were comparable. In three states—Alaska, South Dakota, and Wyoming—scores for Hispanic students were higher than the national score while scores for White students were lower.

Among states where the gap was larger than the national average, in Utah scores for both Hispanic and White students were below the national averages for those students. In California and Minnesota, the scores for Hispanic students were below the national average while the scores for White students were not measurably different from it. In Colorado, Connecticut, and the District of Columbia, the score for Hispanic students was not measurably different from the national average while the score for White students was higher than the national average.

In Mississippi the score for Hispanic students was not measurably different from the national average while the score for White students was below it. In Ohio the scores for both Hispanic and White students were not measurably different from the national averages for those students.

Figure 25. The Hispanic-White achievement score gap in reading for public school students at grade 4, by state: 2009



* Significantly different (p<.05) from the nation (public) when comparing one state to the nation at a time.
[1] Department of Defense Education Activity (overseas and domestic schools).
NOTE: States whose Hispanic student population size was insufficient for comparison are omitted. Reporting standards not met for Maine, North Dakota, Vermont, and West Virginia. Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Reading Assessment.

Trends in state reading achievement gaps at grade 4

The Hispanic-White reading gap among the nation's public school fourth-graders did not change significantly, comparing 2009 to 1992, though both Hispanic and White students showed significant score increases (figure 26, national results).

From 2007 to 2009, scores of Hispanic and White fourth-graders in the nation did not change significantly, and there was also no significant change in the gap.

In 11 of the 21 states for which 1992 data were available, both Hispanic and White students achieved higher average scores in reading in 2009 than in 1992. Both New Jersey and New York narrowed the achievement gap when comparing 2009 to 1992, as Hispanic students' scores increased more than White students' scores.

In Colorado, the gap was wider in 2009 than in 1992, as White students' scores increased and Hispanic students' scores showed no significant change. In Indiana, the gap was wider in 2009 than in 2002, the first assessment year for which reportable results for both groups are available, as Hispanic students' scores decreased while White students' scores did not change significantly.

From 2007 to 2009, scores increased for White students only in Rhode Island, and for Hispanic students only in Florida and Maryland. The gap did not change significantly in any of these states. In Kentucky, scores for White students increased from 2007 to 2009. Prior to 2009, Kentucky did not have reportable results for Hispanic students.

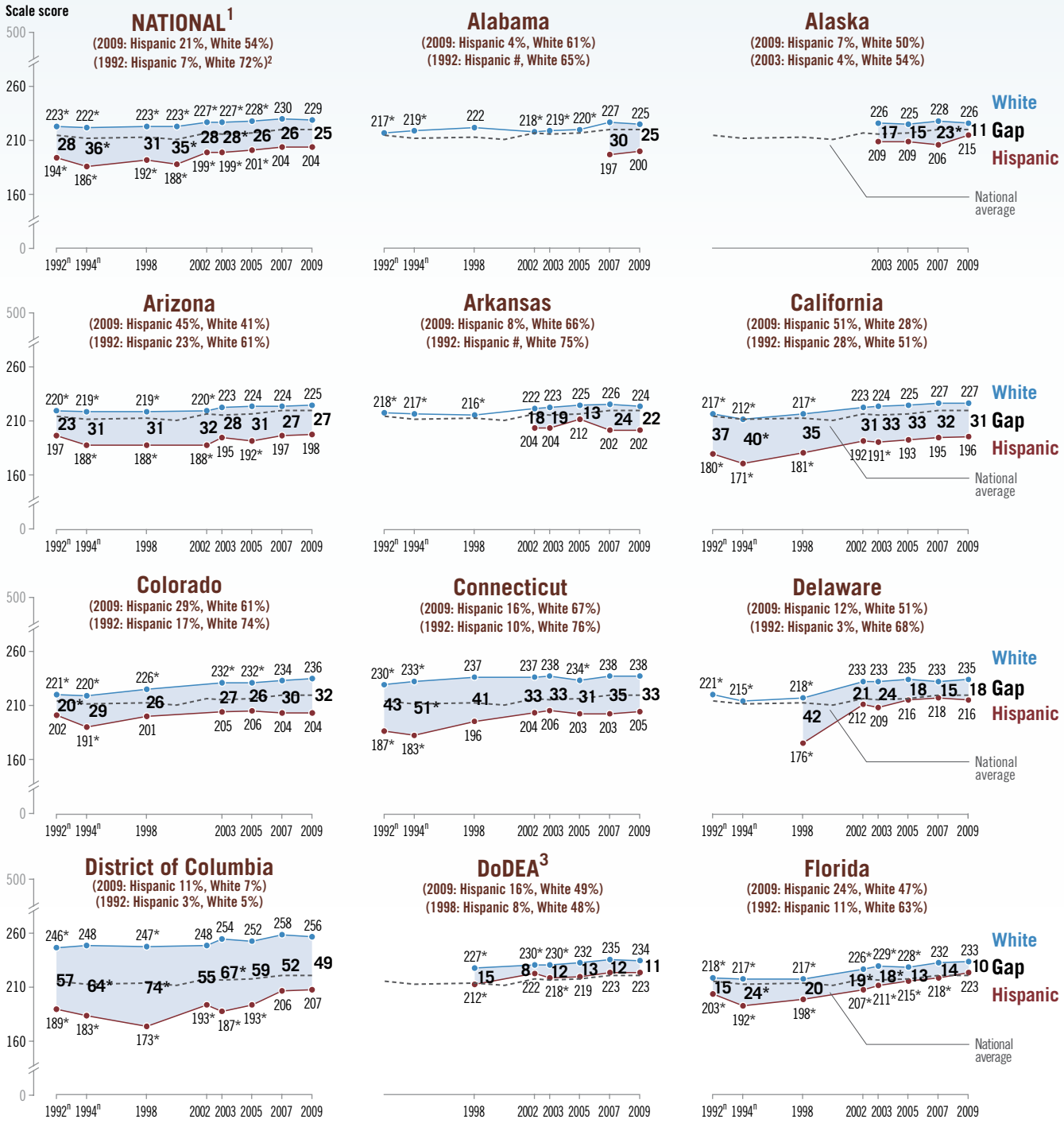
Changing of the Gap	
Narrowing	In **New Jersey** and **New York**, the gap was narrower in **2009 than in the first assessment year** as scores for Hispanic students increased more than the scores for White students. In **Alaska**, the gap was narrower in **2009 than in 2007**, though neither Hispanic nor White students' scores showed significant change.
Widening	In **Colorado**, the gap was wider in **2009 than in the first assessment year** as scores for White students increased while scores for Hispanic students did not change. In **Indiana**, the gap was wider in **2009 than in the first assessment year** for which reliable results for both groups were available as Hispanic students' scores decreased while White students' scores did not change significantly.

In Alaska, the Hispanic-White reading gap narrowed between 2007 and 2009, even though scores for neither group changed significantly.

Figure 26 displays population percentages for Hispanic and White fourth-graders in each state for 2009 and the first year of the state's participation in the assessment.

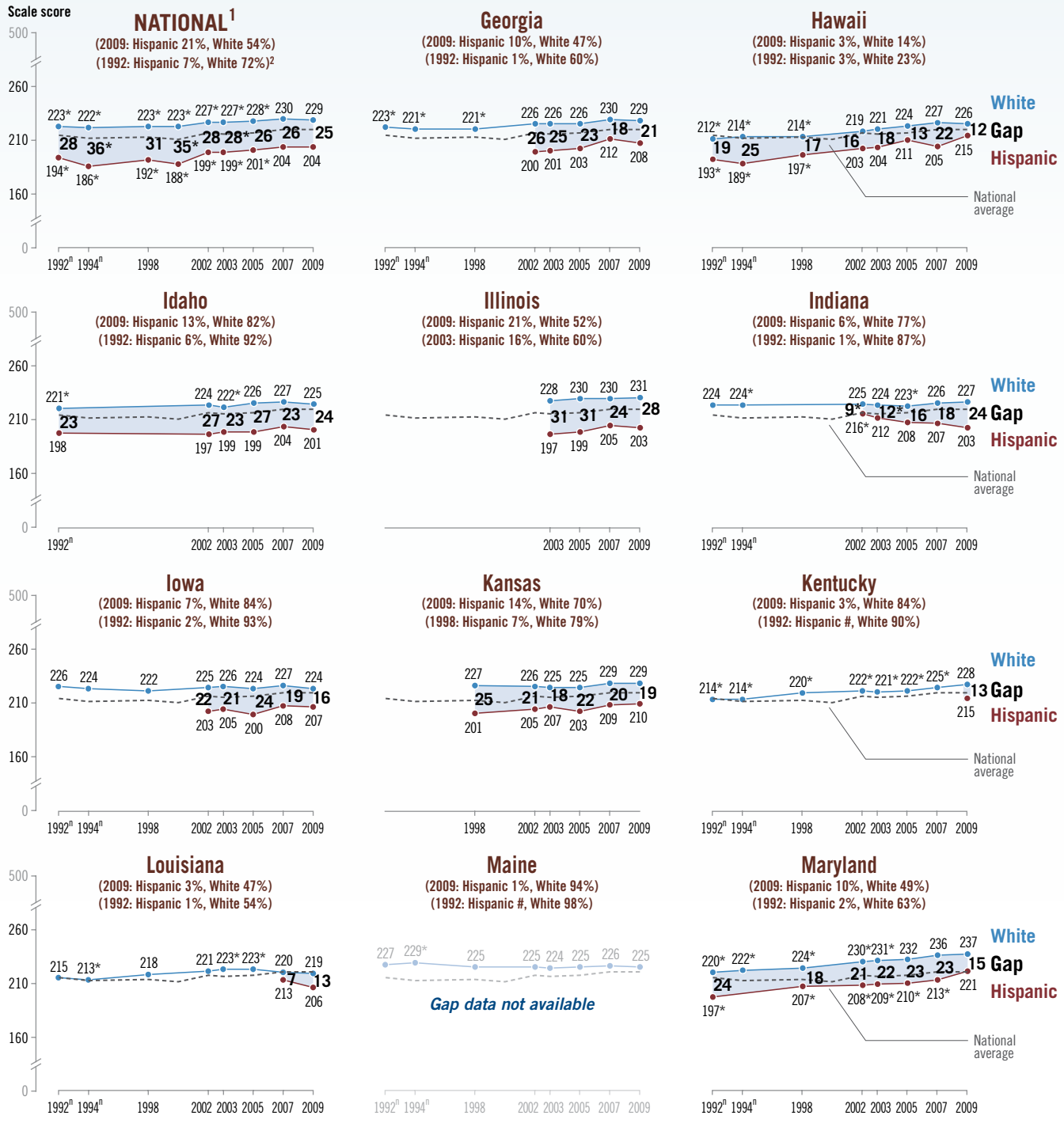
Hispanic-White reading gap data are not available for Maine, North Dakota, Vermont, or West Virginia.

Figure 26. Reading achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1992–2009



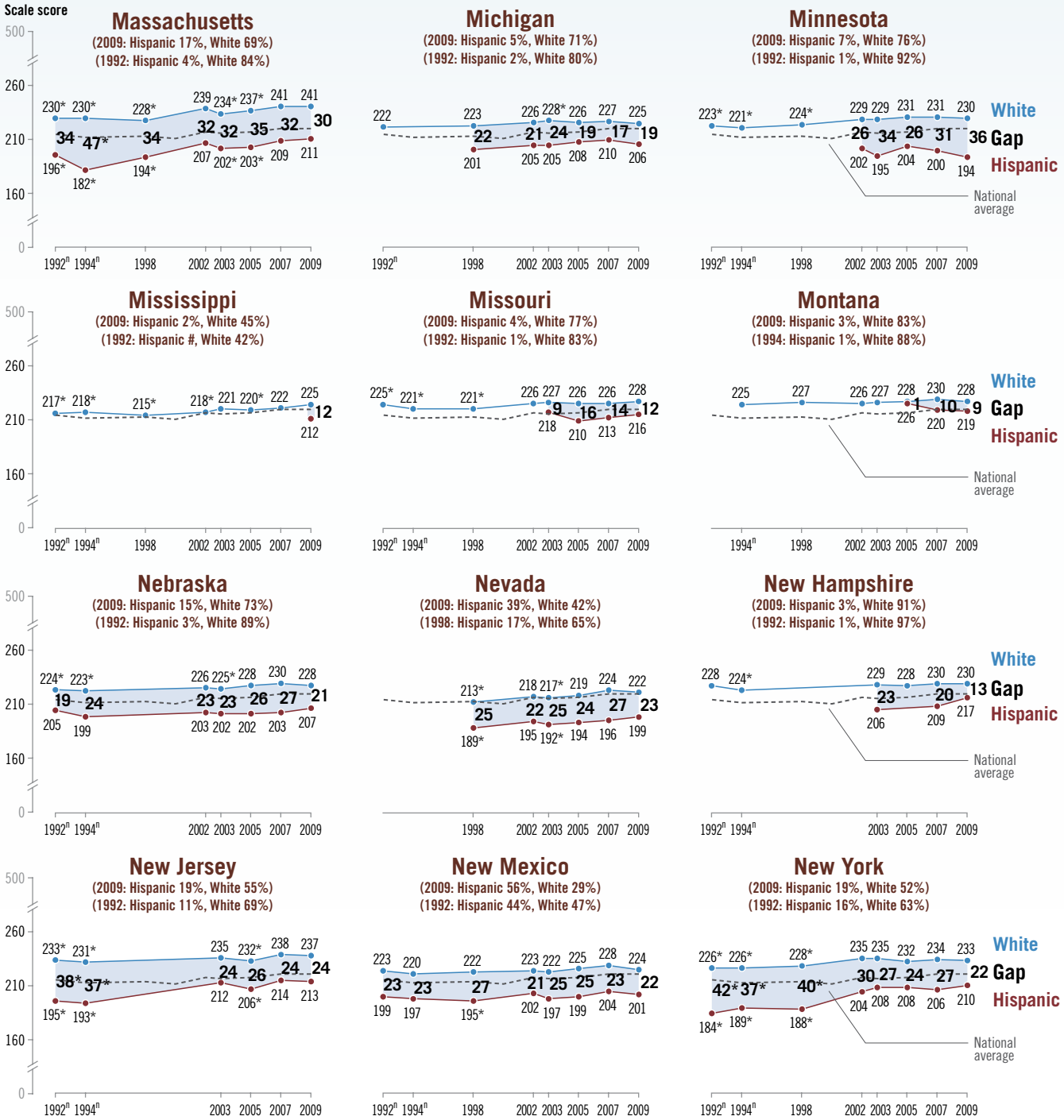
See notes at end of figure.

Figure 26. Reading achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1992–2009—Continued



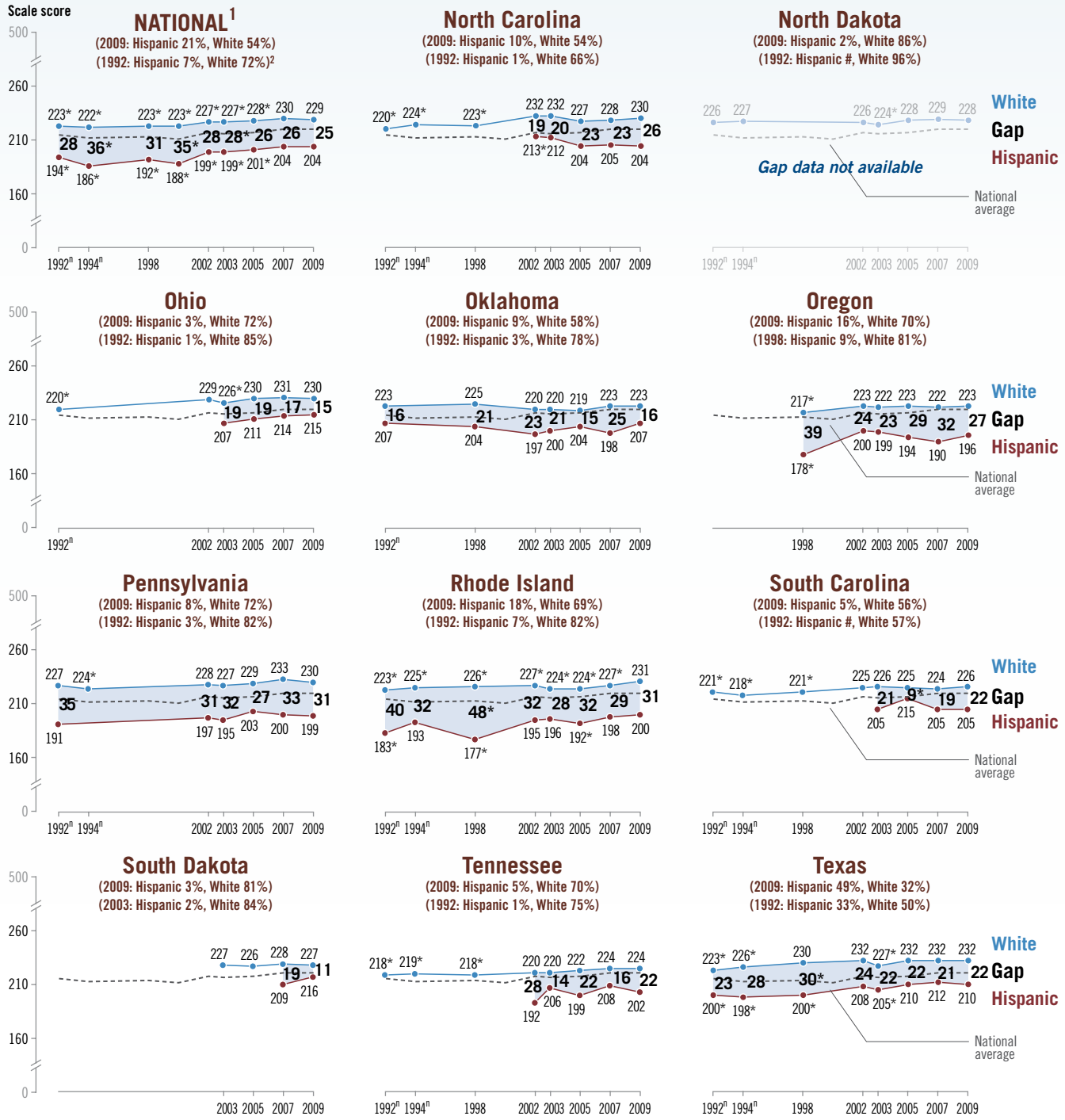
See notes at end of figure.

Figure 26. Reading achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1992–2009—Continued



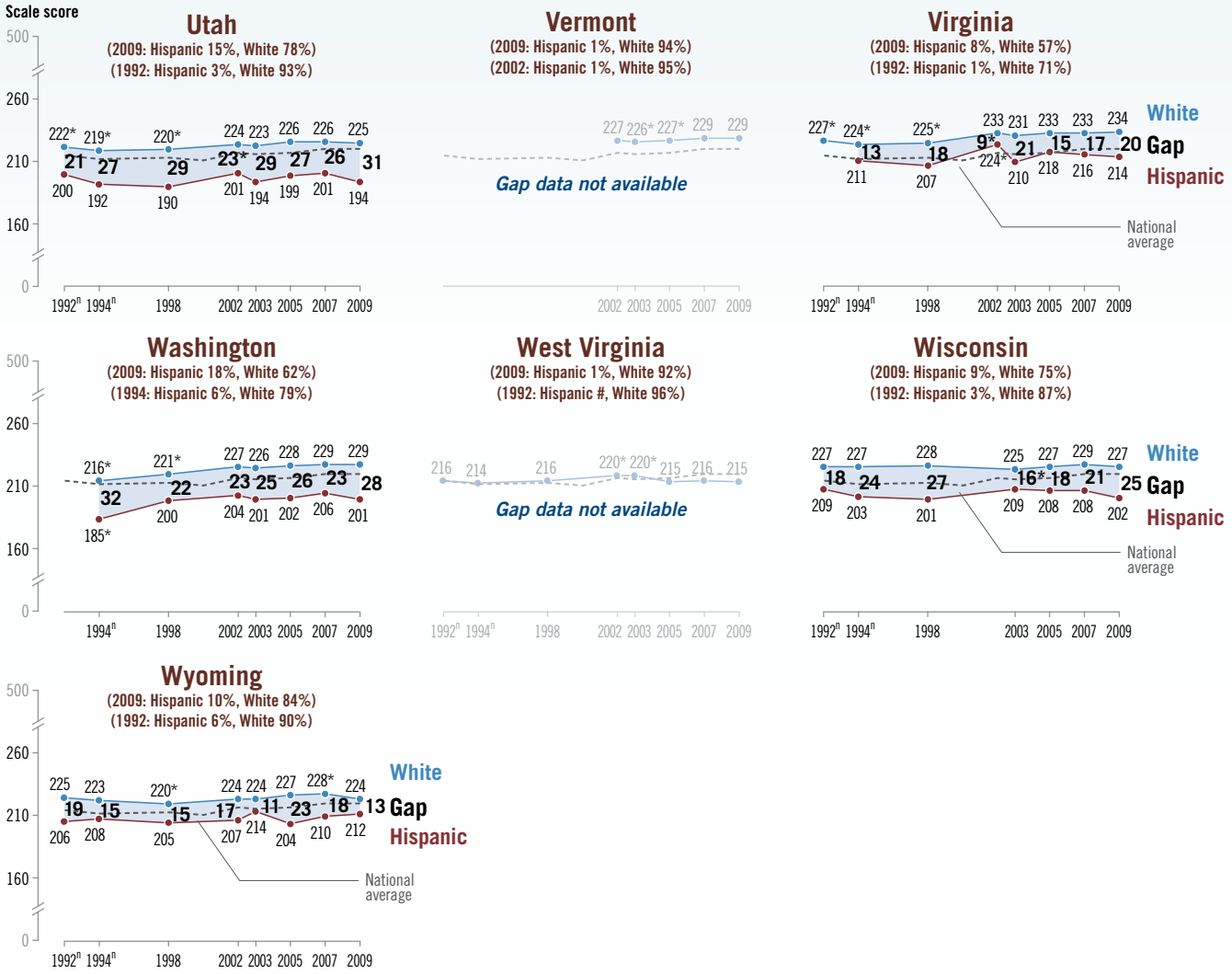
See notes at end of figure.

Figure 26. Reading achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1992–2009—Continued



See notes at end of figure.

Figure 26. Reading achievement score gaps between Hispanic and White public school students at grade 4, by state: Various years, 1992–2009—Continued



n Accommodations were not permitted for this assessment.
Rounds to zero.
* Significantly different (p<.05) from 2009.
1 National results for assessments prior to 2002 are based on the national sample, not on aggregated state samples.
2 Hispanic and White percentages are based on students tested in 2009.
3 Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.
NOTE: Score gaps are calculated based on differences between unrounded average scores. Where data are not present, the jurisdiction did not participate or did not meet the minimum participation guidelines for reporting. State-level data were not collected in 2000. Comparative performance results may be affected by changes in exclusion rates for students with disabilities and English language learners in the NAEP samples.
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 Reading Assessments.

State and national reading achievement gaps at grade 8, 2009

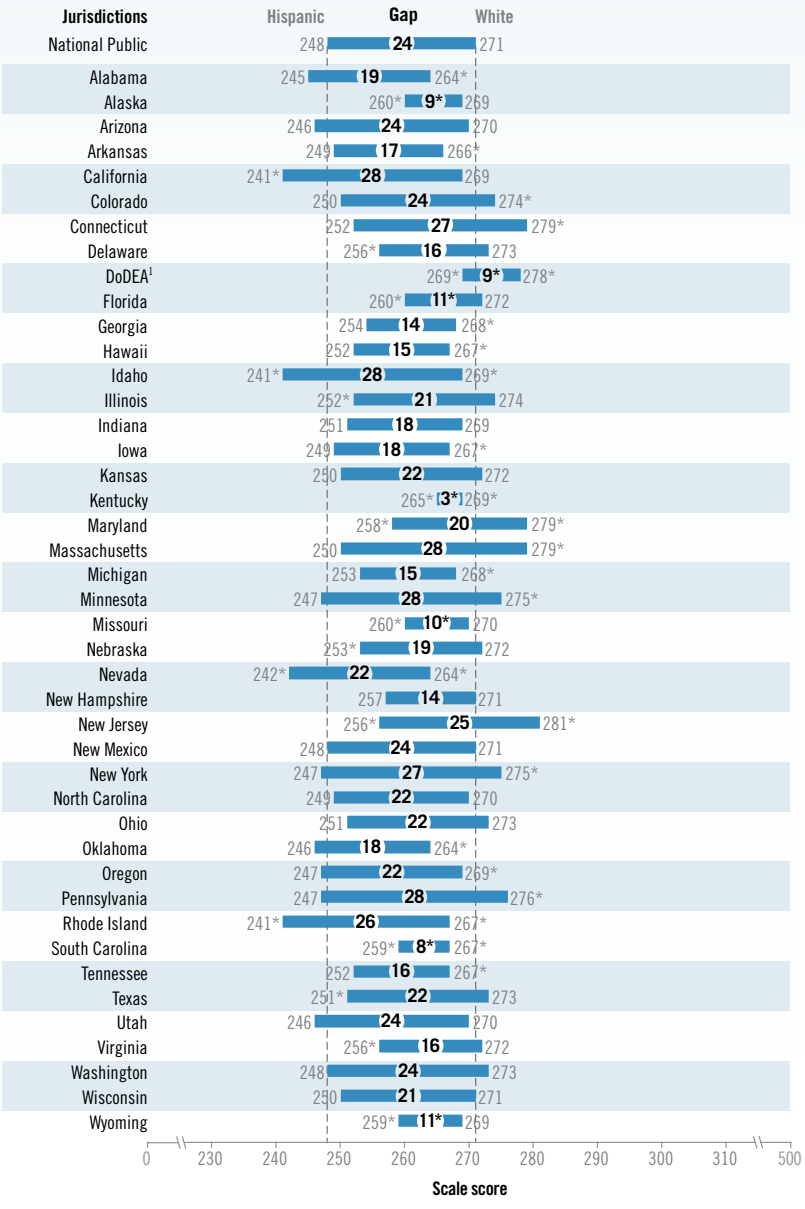
At grade 8, seven states had a smaller gap than the nation's 24-point Hispanic-White gap in 2009 and none had a gap that was larger. In 36 states, the gap was not significantly different from the nation's gap (figure 27). Asterisks indicate a significant difference from the national average score or the national average gap.

The eighth-grade reading gap in 2009 was statistically significant in 42 of the 43 states for which data could be reported. In Kentucky, the apparent 3-point difference between the average scores for Hispanic and White students was not statistically significant, and thus there was no measurable gap.

In all seven of the states where the gap was smaller than the national gap, scores for Hispanic students were higher than the national average for those students. In DoDEA, scores for White students were also higher than the national aver-

age for White students, while in Alaska, Florida, Missouri, and Wyoming, scores for White students were not measurably different from the national average for those students. In Kentucky and South Carolina, scores for White students were lower than they were nationally.

Figure 27. The Hispanic-White achievement score gap in reading for public school students at grade 8, by state: 2009



* Significantly different ($p<.05$) from the nation (public) when comparing one state to the nation at a time.
[1] Department of Defense Education Activity (overseas and domestic schools).
NOTE: States whose Hispanic or White student population size was insufficient for comparison are omitted. Reporting standards not met for District of Columbia, Lousiana, Maine, Mississippi, Montana, North Dakota, South Dakota, Vermont, and West Virginia. Score gaps are calculated based on differences between unrounded average scores.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Reading Assessment.

Trends in state reading achievement gaps at grade 8

The Hispanic-White reading gap among the nation's public school eighth-graders did not change significantly, comparing 2009 to 1998, though both Hispanic and White students showed significant score increases (figure 28, national results).

From 2007 to 2009, scores of both Hispanic and White eighth-graders in the nation increased significantly. However, there was no significant change in the gap during this time period.

State-level data are available starting in 1998 for 22 states. In one state, Wyoming, both Hispanic and White students achieved higher average scores in reading in 2009 than in 1998. From 1998 to 2009, the Hispanic-White reading gap did not change significantly in any state (figure 28).

Scores increased for White students only in New Mexico and Utah, but the gap did not change significantly in either state. Scores increased for White students in Kentucky from 2007 to 2009; prior to 2009, Kentucky did not have reliable results for Hispanic students.

In Alaska, the gap narrowed in 2009 compared to 2003, the state's first assessment year, as Hispanic students' average scores increased while scores for White students showed no significant change.

Changing of the Gap

Narrowing

In **Alaska**, the gap was narrower in **2009 than in the first assessment year** as Hispanic students' average scores increased while scores for White students showed no significant change.

In the following three states, the gap narrowed between **2007 and 2009** as Hispanic students' average scores increased while those of their White peers showed no change.

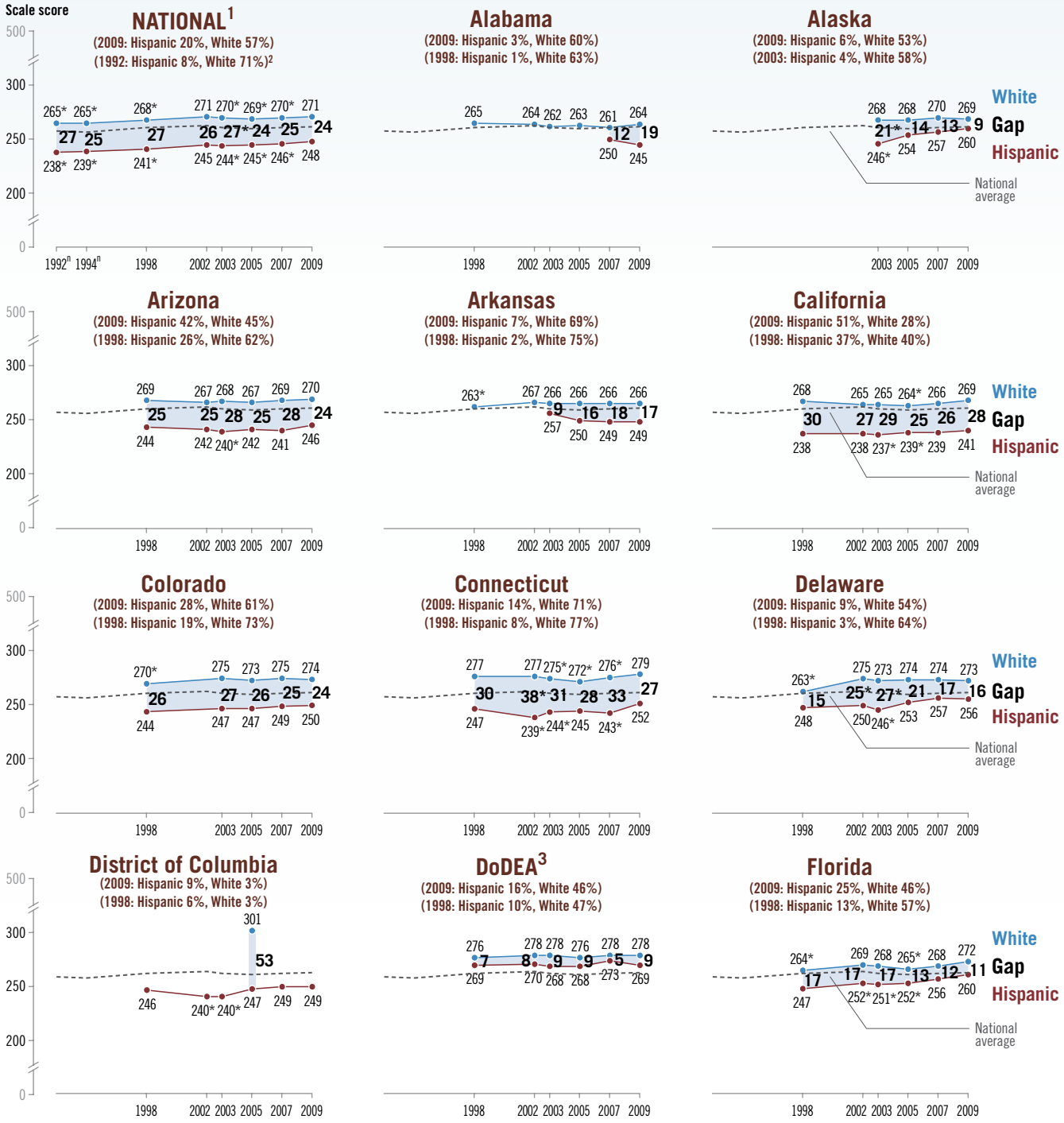
Rhode Island
South Carolina
Wyoming

From 2007 to 2009, scores increased for Hispanic students only in Rhode Island, South Carolina, and Wyoming, and the gap narrowed in these three states during this period.

Figure 28 displays population percentages for Hispanic and White eighth-graders in each state for 2009 and the first year of the state's participation in the assessment.

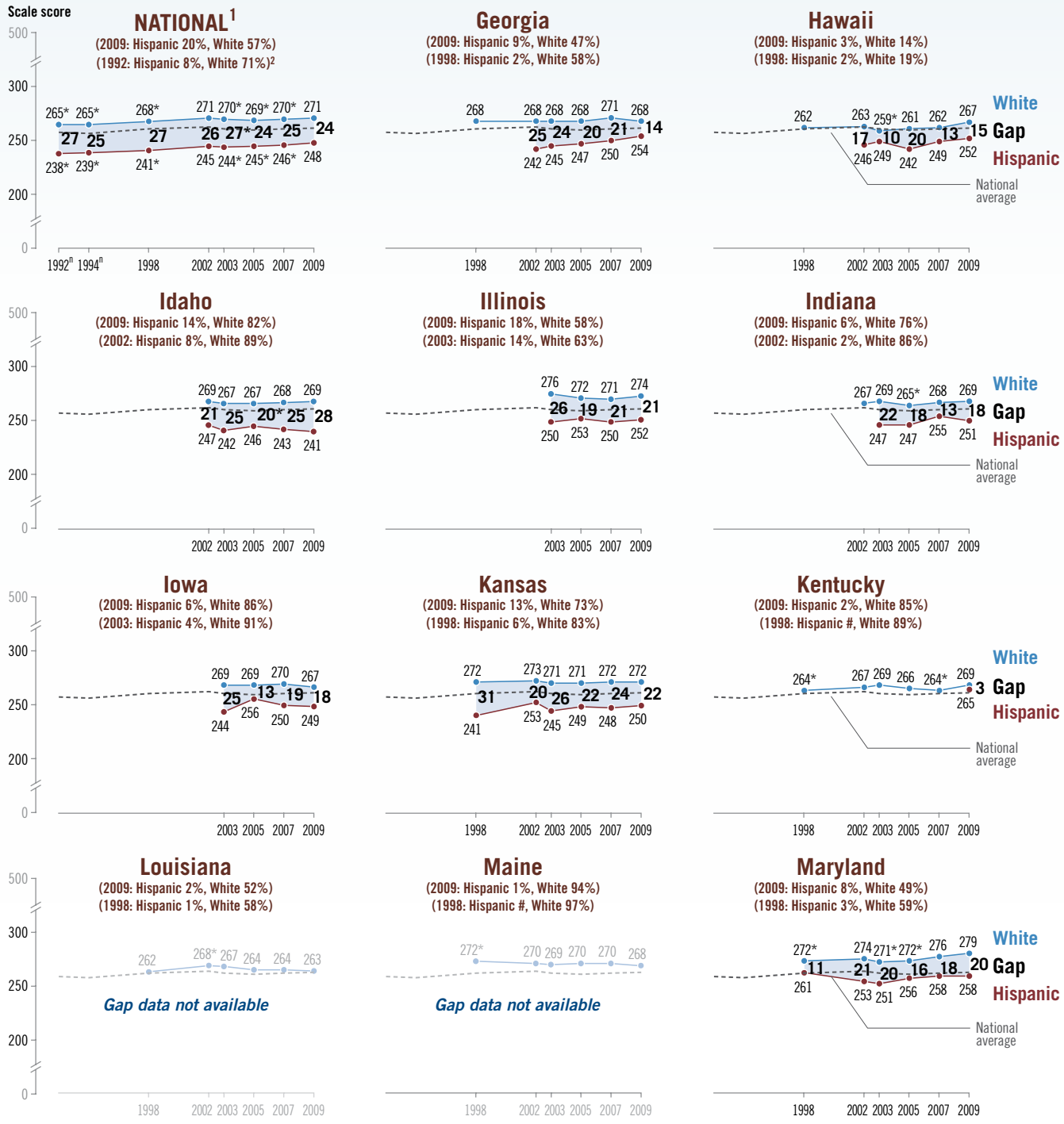
Hispanic-White reading gap data are not available for Louisiana, Maine, Mississippi, Montana, North Dakota, South Dakota, Vermont, or West Virginia.

Figure 28. Reading achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1992–2009



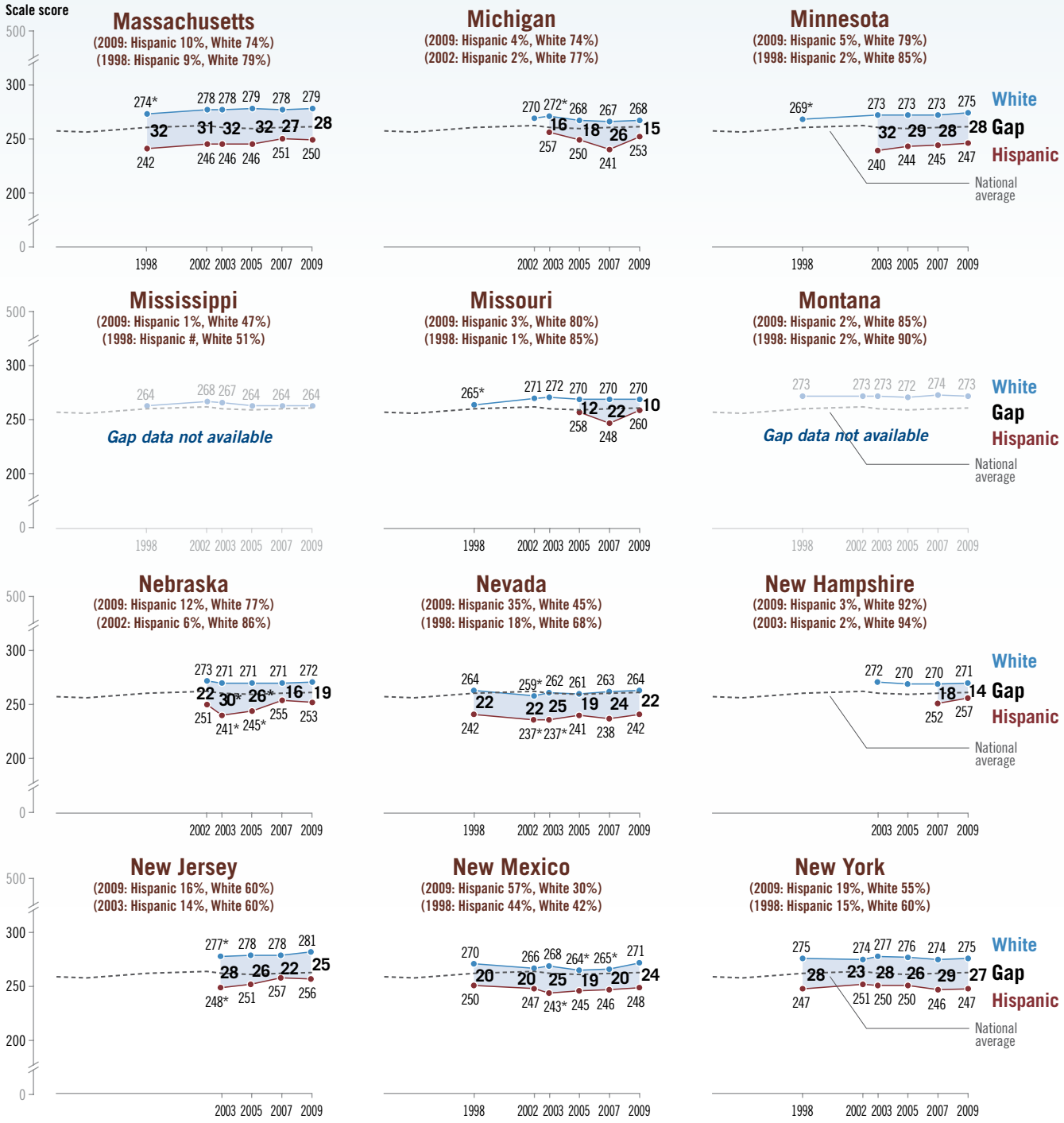
See notes at end of figure.

Figure 28. Reading achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1992–2009—Continued



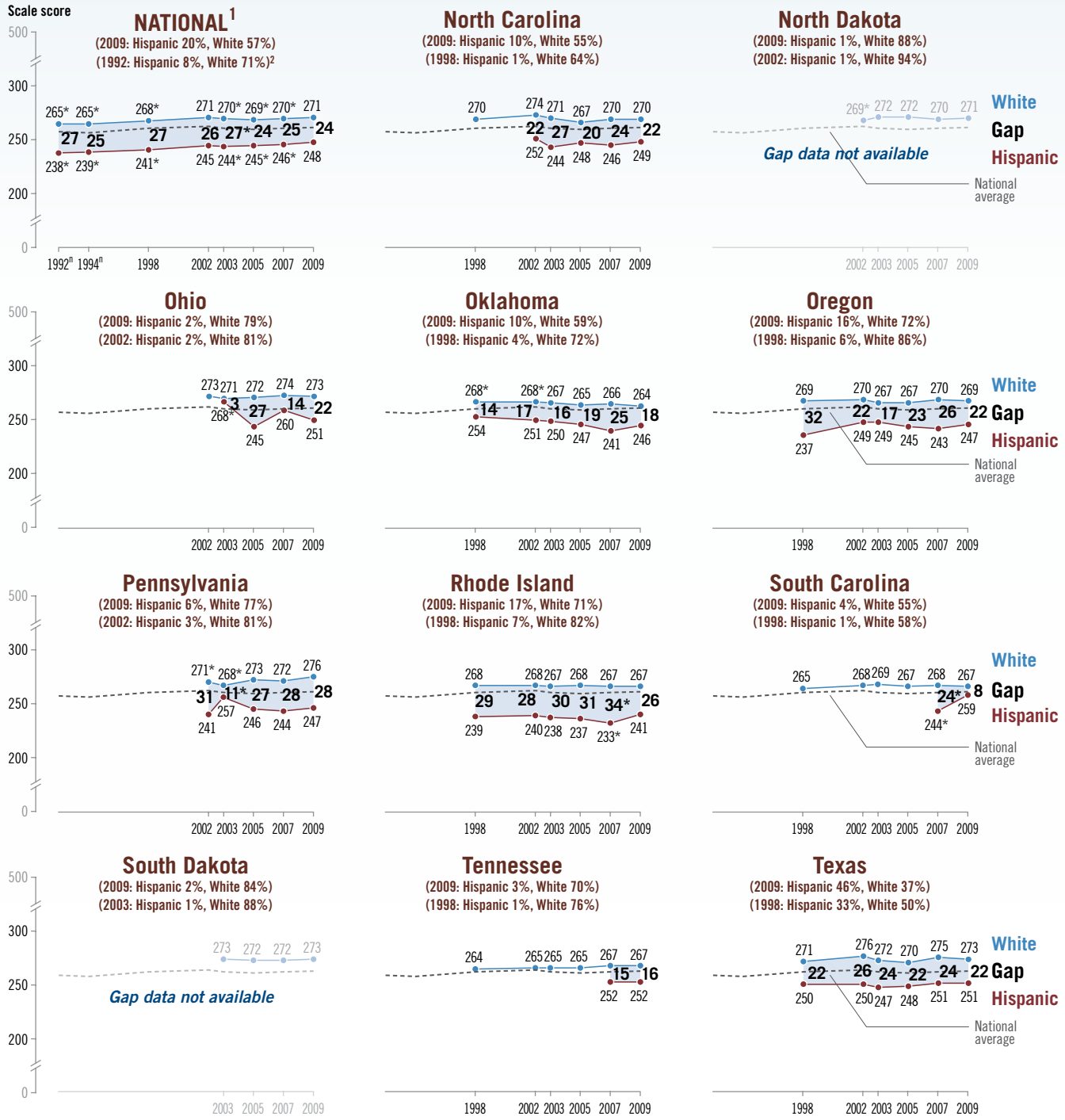
See notes at end of figure.

Figure 28. Reading achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1992–2009—Continued



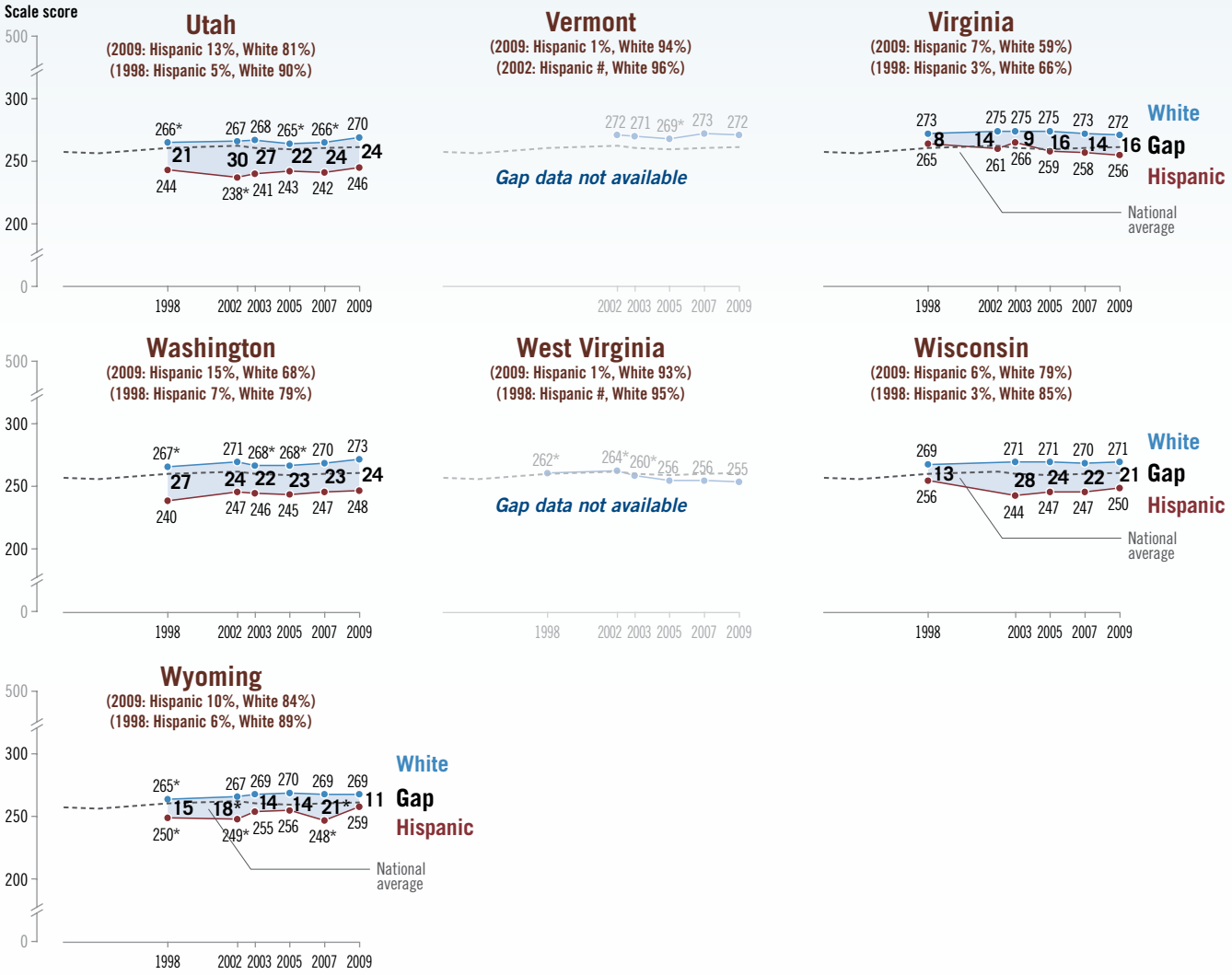
See notes at end of figure.

Figure 28. Reading achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1992–2009—Continued



See notes at end of figure.

Figure 28. Reading achievement score gaps between Hispanic and White public school students at grade 8, by state: Various years, 1992–2009—Continued



[n] Accommodations were not permitted for this assessment.
Rounds to zero.
* Significantly different (p<.05) from 2009.
[1] National results for assessments prior to 2002 are based on the national sample, not on aggregated state samples.
[2] Hispanic and White percentages are based on students tested in 2009.
[3] Department of Defense Education Activity (overseas and domestic schools). Before 2005, DoDEA overseas and domestic schools were separate jurisdictions in NAEP. Pre-2005 data presented here were recalculated for comparability.
NOTE: Score gaps are calculated based on differences between unrounded average scores. Where data are not present, the jurisdiction did not participate or did not meet the minimum participation guidelines for reporting. State-level data were not collected in 1992, 1994, or 2000. Comparative performance results may be affected by changes in exclusion rates for students with disabilities and English language learners in the NAEP samples.
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 Reading Assessments.

Reading Summary

National trends in reading, 1992–2009

- The reading achievement gap between Hispanic and White students in 2009 was 25 points at grade 4 and 24 points at grade 8. There was no significant difference when comparing these gaps to the comparable gaps in 2007 or 1992 (figures 17 and 18).
- Neither males nor females demonstrated a significant change in the Hispanic-White gap when comparing 2009 to 2007 or to 1992 (figures 19 and 20).
- At both the fourth and eighth grades, students who were eligible for free or reduced-price school lunch through the National School Lunch Program had a narrower Hispanic-White achievement gap in 2009 than in 2003 (figures 21 and 22).
- The gap between White and non-ELL Hispanic students at both grades was narrower in 2009 than in 1998, the first year for which data were available. The eighth-grade gap between Non-ELL Hispanic and ELL Hispanic students was wider in 2009 than in 2007 and 1998 (figures 23 and 24).

State achievement gaps in reading, compared to the nation, 2009

- At grade 4, thirteen states had a smaller Hispanic-White gap than the nation, and six had a gap that was larger (figure 25).
- At grade 8, seven states had a smaller Hispanic-White gap than the nation, and no state had a gap that was larger (figure 27).

State trends in reading, 1992–2009

- At grade 4, of the 21 states for which 1992 data were available, two states had a narrower Hispanic-White achievement gap in 2009 than in 1992, and one had a gap that was wider. One state had a narrower Hispanic-White achievement gap in 2009 than in 2007 (figure 26).
- At grade 8, three states had a narrower gap in 2009 than in 2007 (figure 28).

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Appendix A: Technical Notes

This report presents data for public school students from the main National Assessment of Educational Progress (NAEP). Main NAEP assessments are conducted in a range of subjects at grades 4, 8, and 12 across the country, including the District of Columbia and Department of Defense Education Activity (DoDEA), and are used to report at the national, state, and district levels. Main NAEP assessments began in 1990 for mathematics and 1992 for reading at grades 4 and 8. Discussion of main NAEP grade 12 assessments is omitted in this report because these assessments are conducted at the national level only.

Frameworks, development, administration, scoring, and analysis

For overviews of these topics, and for more extensive information about other topics for the 2009 main NAEP reading and mathematics assessments, consult the information available online at http://nces.ed.gov/nationsreportcard/reading/ and http://nces.ed.gov/nationsreportcard/mathematics/.

Sources of the data

This report presents national data from the 1990, 1992, 1996, 2000, 2003, 2005, 2007, and 2009 main NAEP mathematics assessments and the 1992, 1994, 1998, 2002, 2003, 2005, 2007, and 2009 main NAEP reading assessments for White and Hispanic public school students in the fourth and eighth grades. In 2000, the reading assessment was administered at the fourth grade only (see tables B-1 and B-3 in appendix B).

This report presents state data from the 1992, 1996, 2000, 2003, 2005, 2007, and 2009 grade 4 NAEP mathematics assessments and from the 1990, 1992, 1996, 2000, 2003, 2005, 2007, and 2009 grade 8 NAEP mathematics assessments, for public school students only. It presents state data from the 1992, 1994, 1998, 2002, 2003, 2005, 2007, and 2009 grade 4 reading assessments and from the 1998, 2002, 2003, 2005, 2007, and 2009 grade 8 reading assessments.

Nationally in 2009, White students constituted 54 percent of the public school fourth-grade population while Hispanic students constituted 22 percent, using data from the 2009 mathematics assessment. Results for the eighth-grade were similar: 56 percent and 21 percent, respectively. However, percentages vary widely across states. For example, Hispanic students constituted a majority of the fourth-grade population in three states, California (51 percent), Texas (51 percent), and New Mexico (58 percent), according to the 2009 mathematics assessment. In contrast, Hispanic students constituted 1 percent of the fourth-grade public school population in Maine, Vermont, and West Virginia. Eighth-grade data show a similar pattern. In some states, the NAEP sample for the Hispanic or White population was insufficient to permit a reliable estimate.

NAEP sampling procedures for public school students in reading and mathematics

The schools and students participating in NAEP assessments are chosen to be representative of the nation and states. Samples of public schools and students are selected from each state and from the District of Columbia and DoDEA schools. The results from the assessed students are combined to provide accurate estimates of overall national performance and of the performance of individual states.

The National Center for Education Statistics (NCES) has changed the main NAEP sampling methods over the years. From 1990 through 2000, the national public sample was collected separately from the state samples. The 2002 national sample was the sum of all the state samples of the participating states, plus small samples from the few states that did not participate. In 2003, 2005, 2007, and 2009, all states participated and the national sample was the aggregate of the samples from all states and the District of Columbia. (As discussed below, DoDEA schools are not considered public schools, although for comparison purposes DoDEA is treated as a state.) The main NAEP national samples in reading and mathematics since 2002 have been larger than in previous assessment years. Thus, smaller score differences between years or between types of student groups were found to be statistically significant than would have been detected in previous assessments. From 1990 through 2001, NCES oversampled schools with high minority populations (Black and Hispanic) in the national public sample. Beginning in 2002, this practice was discontinued because

the state samples were large enough to ensure adequate coverage for these populations. Prior to 2002, NAEP results were weighted to compensate for the oversampling.

In 2002, 2003, 2005, 2007, and 2009, results were weighted to take into account the fact that states, and schools within states, represent different proportions of the overall national public population. For example, since the number of students assessed in most states is roughly the same (to allow for stable state estimates and administrative efficiencies), the results for students in less populous states are assigned smaller weights than the results for students in more populous states. Sampling weights are also used to account for lower sampling rates for very small schools and are used to adjust for school and student nonresponse. NAEP samples for reading and mathematics assessments administered from 1990 through 2009 are discussed in more detail below.

The NAEP 2009 mathematics and reading assessments were administered to fourth- and eighth-graders in all states. This report includes data for public school students for both the nation and all states. All 50 states, the District of Columbia, and the DoDEA schools met the minimum guidelines for reporting their results in 2009 for both assessments.

In order to obtain a representative sample for reporting national and state public school results in 2009, NCES sampled and assessed approximately 168,800 fourth-graders from 9,510 schools and 161,700 eighth-graders from 7,030 schools for the mathematics assessment and approximately 178,800 fourth-graders from 9,530 schools and 160,900 eighth-graders from 7,030 schools for the reading assessment.

Each student assessed represented a portion of the population. The students selected represented the total population of approximately 3.5 million fourth-grade and 3.5 million eighth-grade public school students. These totals include the public schools in the 50 states and the District of Columbia.

Schools in the DoDEA school system are classified as "nonpublic" by NCES and their results are not included in the determination of NAEP national public average scale scores. These schools are not "private" because they are operated by the federal government and they are not "public" because only children of U.S. military personnel can attend them. For comparison purposes, the system is treated as a state and results are compared with the scores of the 50 states and the District of Columbia.

School and student participation

Table A-1 provides a summary of the 2009 national and state school and student participation rates for the reading grade 8 assessment sample. Rates for reading grades 4 and 8 and mathematics grade 4 in 2009 were similar, as were the rates for the 2002, 2003, 2005, and 2007 assessments. Readers who want more detail should consult the 2009, 2007, 2005, 2003 and 2002 report cards, available online at http://nces.ed.gov/pubsearch/.

Participation rates in table A-1 are presented for public schools and public school students in grade 8 reading. The school participation rate is a weighted percentage of schools participating in the assessment. This rate is based only on the schools that were initially selected for the assessment, before substitution. The numerator of this rate is the estimated number of schools represented by the initially selected schools that participated in the assessment. The denominator is the estimated number of schools represented by the initially selected schools that had eligible students enrolled.

Also presented in table A-1 are weighted student participation rates. The numerator of this rate is the estimated number of students who are represented by the students assessed (in either an initial session or a makeup session). The denominator of this rate is the estimated number of students represented by the eligible sampled students in participating schools.

The term "eligible students" used in the two preceding paragraphs refers to students who can meaningfully participate in NAEP. Students excluded from NAEP assessments on the grounds that they cannot meaningfully participate are not part of the population of interest. Initially selected schools that had no eligible students enrolled are excluded from the denominator of the school participation rate because they contained no students who were part of the population of interest. For similar reasons, the denominator

Table A-1. School and student participation rates, and target student population, grade 8 reading assessment, public school students only, by state or jurisdiction: 2009

Jurisdiction	School participation		Student participation		Target population
	School-weighted percentage	Number of schools participating	Student-weighted percentage	Number of students assessed	
National Public	**100**	**6,510**	**92**	**155,400**	**3,504,000**
Alabama	100	110	93	2,700	53,000
Alaska	88	100	91	2,500	9,000
Arizona	100	130	92	2,800	73,000
Arkansas	100	120	93	2,700	33,000
California	100	230	92	7,200	469,000
Colorado	100	120	93	2,800	54,000
Connecticut	100	110	92	2,800	42,000
Delaware	100	50	92	2,800	9,000
District of Columbia	100	60	89	1,600	4,000
DoDEA[1]	97	60	93	1,600	5,000
Florida	100	160	91	4,200	180,000
Georgia	100	120	93	3,500	109,000
Hawaii	100	70	92	2,900	13,000
Idaho	100	110	94	3,000	20,000
Illinois	100	200	94	4,100	154,000
Indiana	100	110	93	2,700	77,000
Iowa	100	130	94	2,600	33,000
Kansas	99	120	95	2,700	33,000
Kentucky	100	130	94	3,500	47,000
Louisiana	100	120	93	2,600	45,000
Maine	100	140	93	2,700	14,000
Maryland	100	130	92	3,200	58,000
Massachusetts	100	140	92	3,600	72,000
Michigan	100	150	92	3,300	117,000
Minnesota	100	140	92	2,900	60,000
Mississippi	100	120	94	2,800	37,000
Missouri	100	130	94	2,700	64,000
Montana	98	170	91	2,600	11,000
Nebraska	100	120	95	2,600	20,000
Nevada	100	90	92	2,900	32,000
New Hampshire	96	90	90	2,500	15,000
New Jersey	100	110	93	2,700	100,000
New Mexico	100	100	90	2,500	23,000
New York	98	150	90	3,700	198,000
North Carolina	100	150	92	4,500	112,000
North Dakota	100	180	95	2,100	7,000
Ohio	100	190	93	3,400	129,000
Oklahoma	100	150	93	2,700	44,000
Oregon	100	130	92	2,900	42,000
Pennsylvania	100	150	92	3,500	127,000
Rhode Island	100	60	92	2,700	11,000
South Carolina	100	110	93	2,700	50,000
South Dakota	100	220	95	2,800	9,000
Tennessee	100	120	93	2,800	75,000
Texas	100	170	92	5,700	322,000
Utah	100	110	91	2,800	38,000
Vermont	100	120	93	2,900	7,000
Virginia	100	110	93	2,800	91,000
Washington	100	130	91	2,800	75,000
West Virginia	100	120	92	2,900	23,000
Wisconsin	99	170	93	3,400	61,000
Wyoming	100	90	91	1,900	6,000

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

NOTE: The numbers of schools are rounded to the nearest ten, the numbers of students are rounded to the nearest hundred, and the target population is rounded to the nearest thousand. Detail may not sum to totals because of rounding.

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

of the weighted student participation rate consists only of eligible sampled students.

The fourth column gives the number of public school students who were assessed in each of the jurisdictions. The final column of table A-1 gives the target populations for each jurisdiction, that is, the eighth-grade population for that jurisdiction.

The national target student population per grade for all main NAEP assessments 1990–2009 ranged from about 3.25 million to about 3.75 million. In the 1990–1996 assessments, the number of schools sampled per assessment and grade for the national sample ranged from approximately 120 to 230, while the number of students assessed ranged from approximately 5,200 to 9,900. In the 1998–2000 assessments, the number of schools sampled per assessment and grade ranged from approximately 330 to 390, while the number of students assessed ranged from approximately 6,100 to 9,000. (Data are drawn from NAEP mathematics assessments, 1990–2009.)

The state target student populations for all main NAEP assessments 1990–2009 ranged from approximately 5,000 in the District of Columbia and 9,000 in sparsely populated states like Wyoming and Alaska to approximately 450,000 in California, followed by approximately 325,000 in Texas. In the 1990–2000 state assessments, the number of schools sampled per assessment and grade ranged from approximately 30 to 150, while the number of students assessed ranged from approximately 1,000 to 5,900. In the 2002–2009 state assessments, the number of schools sampled per assessment and grade ranged from approximately 40 to 250, while the number of students assessed ranged from approximately 1,700 to 10,700. (Data are drawn from NAEP mathematics assessments, 1990–2009.)

In all NAEP assessment years prior to 2003, NCES preselected substitute schools that could be added to the original sample in case a large number of schools from the sample failed to participate. School and student participation rates were given both before and after substitution. Because the No Child Left Behind Act of 2001 requires states to participate in the main NAEP reading and mathematics assessments at the fourth and eighth grades in order to qualify for full Title I education funding, participation rates are very high and NCES no longer selects substitute schools for these assessments.

NCES and the National Assessment Governing Board, which establishes policy for NAEP, set minimums for the school participation rate before substitution of replacement schools for any sample. Results are not reported for states with a participation rate below the minimum. From 1990 through 2002, the standard for the state assessments required that the weighted school participation rate before substitution of replacement schools be 70 percent or higher. Beginning in 2003, the standard was raised to 85 percent. All data presented in this report are based on samples meeting the standards in effect at the time of the assessment. Since 2003, no state has had a rate below 85 percent.

Since 1990, the national weighted public school participation rate before substitution for the grade 4 and 8 reading and mathematics assessments has ranged from 76 percent to 100 percent. Prior to 2003, a few states did not meet the 70 percent standard. From 1990 through 2002, the weighted public school participation rate before substitution for states whose results are reported here ranged from 70 percent to 100 percent. For more information on all the NAEP assessments referenced in this report, consult the individual reports devoted to them, available from the NCES website at http://nces.ed.gov/pubsearch/getpubcats.asp?sid=031.

Understanding NAEP reporting groups

NAEP results are provided for groups of students defined by shared characteristics—race/ethnicity, eligibility for free or reduced-price school lunch, and gender, for example. Based on participation rate criteria, results are reported for groups only when sufficient numbers of students and adequate school representation are present. The minimum requirement is a total of at least 62 students in a particular group, assessed in at least five different locations. However, the data for all students, regardless of whether their group is reported separately, are included in computing overall student results. Definitions of the student groups discussed in

this report follow. For more information on understanding NAEP reporting, see http://nces.ed.gov/nationsreportcard/mathematics/interpret-results.asp.

Race/ethnicity

In all main NAEP assessments, data about student race/ethnicity are collected from two sources: school records and student self-reports. In this report, the race/ethnicity variable is based on the race reported by the school for all assessment years. In the rare cases when school-recorded information is missing, student-reported data are used to determine race/ethnicity.

Schools sampled for NAEP are asked to provide lists of all students in the target grade(s) along with basic demographic information, including race/ethnicity. Students are categorized into one of five mutually exclusive racial/ethnic categories plus "other." Administration schedules—also referred to as student rosters—are created that include the list of sampled students along with their basic demographic information. These data are checked and updated during data collection. These race/ethnicity data were collected for all sampled students: those that participated and those that were absent or excluded. See http://nces.ed.gov/nationsreportcard/bgquest.asp for more information.

The mutually exclusive racial/ethnic categories are White (non-Hispanic), Black (non-Hispanic), Hispanic, Asian/Pacific Islander, American Indian (including Alaska Native), and Unclassified. Unclassified students are those whose school-reported race was "other" or "unavailable," or was missing, or whose race could not be determined using self-reported data (i.e., "multi-racial" or missing). Hispanic students may be of any race. Only results for White (non-Hispanic) and Hispanic students are contained in this report. Information based on student self-reported race/ethnicity is available on the NAEP Data Explorer (http://nces.ed.gov/nationsreportcard/nde).

National School Lunch Program

NAEP first began collecting data in 1996 on student eligibility for the National School Lunch Program (NSLP) as an indicator of low income. Under the guidelines of NSLP, children from families with incomes below 130 percent of the poverty level are eligible for free meals. Those from families with incomes between 130 and 185 percent of the poverty level are eligible for reduced-price meals. (For the period July 1, 2008 through June 30, 2009, for a family of four, 130 percent of the poverty level was $27,560, and 185 percent was $39,220 [Child Nutrition Program 2008].)

Some schools provide free meals to all students irrespective of individual eligibility, using their own funds to cover the costs of non-eligible students. Under special provisions of the National School Lunch Act intended to reduce the administrative burden of determining student eligibility every year, schools can be reimbursed based on eligibility data for a single base year. Participating schools might have high percentages of eligible students and report all students as eligible for free lunch. For more information on NSLP, visit http://www.fns.usda.gov/cnd/lunch/.

Because of the improved quality of the data on students' eligibility for NSLP, the percentage of students for whom information was not available has decreased compared to the percentages reported prior to the 2003 assessment. Therefore, NSLP trend comparisons are only made back to 2003 in this report.

Gender

NAEP assessments identify students as male or female based on school records.

Inclusion and exclusion

The NAEP program has always endeavored to assess all students selected as a part of its sampling process. In all NAEP schools, accommodations are provided as necessary for students with disabilities (SD) and/or English language learner (ELL) or limited English proficient (LEP) students. (ELL is the term used since the NAEP 2005 reports; LEP was used before 2005.) The accommodations are available to students whose Individualized Education Program (IEP) specifically requires them. Because some ELL students do not have an IEP, decisions about accommodations for these students are typically made by knowledgeable school staff.

The NAEP program has established procedures to include as many SD and ELL students as possible in the assessments. School staff make the decisions about whether to include such a student in a NAEP assessment, and which testing accommodations, if any, they should receive. The NAEP program furnishes tools to assist school personnel in making those decisions.

A sampling procedure is used to select students at each grade being tested. Students are selected on a random basis, without regard to SD or ELL status. Once the students are selected, the schools identify which have SD or ELL status. 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.

Inclusion in NAEP of an SD or ELL student is encouraged if:

(a) that student participated in the regular state academic assessment in the subject being tested, and

(b) that student can participate in NAEP with the accommodations NAEP allows.

Even if the student did not participate in the regular state assessment, or if he/she needs accommodations NAEP does not allow, school staff are asked whether that student could participate in NAEP with the allowable accommodations. For more information on inclusion, exclusion, and accommodations in NAEP, visit http://nces.ed.gov/nationsreportcard/about/inclusion.asp.

History of NAEP Inclusion Policy

Although NAEP has always endeavored to assess as high a proportion of sampled students as is possible, prior to 1996 NAEP did not allow accommodations for SD or ELL students. This resulted in exclusion of some students who could not meaningfully participate in the assessment without accommodations.

The passage of the Individuals with Disabilities Education Act (IDEA), as amended in 1997, led states and districts to identify increasing numbers of students as requiring accommodations in assessments in order to fairly and accurately show their abilities. It was important for NAEP to be as consistent as possible with testing practices in most states and districts while maintaining the ability to compare more recent NAEP results to those from 1990, 1992, and 1994, when accommodations were not allowed. (Accommodations were not allowed in NAEP state assessments until 1996.) Before the 2005 assessment (when the selection process was detailed in a series of questions), guidelines were specified by NAEP. Beginning in 2005, a student identified on the Administration Schedule as having a disability (SD), that is, a student with an IEP or equivalent classification, should be included in the NAEP assessment unless:

- The IEP team or equivalent group had determined that the student could not participate in assessments such as NAEP,
- The student's cognitive functioning was so severely impaired that he or she could not participate, or
- The student's IEP required that the student be tested with an accommodation that NAEP did not permit, and the student could not demonstrate his or her knowledge of the subject without that accommodation.

A student who was identified as LEP or ELL and who was a native speaker of a language other than English should be included in the NAEP assessment unless:

- The student had received reading or mathematics instruction primarily in English for less than 3 school years including the current year, and
- The student could not demonstrate his or her knowledge of the subject in English even with an accommodation permitted by NAEP.

The phrase "less than 3 school years including the current year" meant 0, 1, or 2 school years. Therefore, the guidelines below were used:

- Include without any accommodation all LEP or ELL students who had received instruction in the subject primarily in English for 3 years or more and those who were in their third year;

- Include without any accommodation all other such students who could demonstrate their knowledge of the subject without an accommodation;
- Include and provide accommodations permitted by NAEP to other such students who can demonstrate their knowledge of the subject only with those accommodations; and
- Exclude LEP or ELL students only if they could not demonstrate their knowledge of the subject even with an accommodation permitted by NAEP.

The percentages of students excluded from NAEP may vary from one state to another, as well as across years. National exclusion rates for Hispanic and White SD and/ or ELL students in 2009 may be found in table A-2. The "total" rates include all students, not just those who are Hispanic or White. For information on state exclusion rates, see table A-3. For more information on Main NAEP inclusion and exclusion, go to http://nces.ed.gov/nationsreportcard/about/inclusion.asp

Accommodations

From 1990 through 1994 for the nation—and through 1996 for the states—main NAEP assessments did not allow accommodations for either SD or ELL students. Since then, accommodations have been permitted for those SD and/or ELL students who need accommodations in order to participate, unless the accommodation would change the nature of what is being tested.

To accomplish this goal, students who receive accommodations in their state's assessments are offered the same accommodations on NAEP. For example, passages and questions in the NAEP reading test are not permitted to be read aloud to the student, because that accommodation would make it a test of listening instead of a test of reading. Similarly, reading passages and questions cannot be presented in a language other than English. It should be noted that students assessed with accommodations typically received some combination of accommodations. For example, students assessed in small groups (as compared with standard NAEP sessions of about 30 students) usually received extended time. In one-on-one administrations, students often received assistance in recording answers (e.g., use of a scribe or computer) and extra time.

The most common accommodations for the NAEP 2009 reading and mathematics assessments were small-group administration, extended time, breaks, and read-aloud (mathematics only). See http://nces.ed.gov/nationsreportcard/tdw/instruments/accomm.asp for more details on NAEP accommodations. For state accommodation rates for SD and ELL students in 2009 see the Technical Notes sections of *The Nation's Report Card: Mathematics 2009* at http://nationsreportcard.gov/math_2009/ and *The Nation's Report Card: Reading 2009* at http://nationsreportcard.gov/reading_2009/.

Drawing inferences from the results

The reported statistics for NAEP are estimates and therefore subject to a measure of uncertainty. There are two sources of such uncertainty. First, NAEP uses a sample of students rather than testing all students. Second, all assessments have some amount of uncertainty related to the fact that they cannot ask all questions that might be asked in a content area. The magnitude of this uncertainty is reflected in the standard error of each of the estimates. When the percentages or average scale scores of certain groups are compared, the estimated standard error should be taken

Table A-2. National mathematics and reading exclusion rates as percentages of the total sample, public schools only, by grade and race/ethnicity: 2009

	Math	Reading
Grade 4		
Total	2	5
White	2	3
Hispanic	3	8
Grade 8		
Total	3	4
White	3	3
Hispanic	3	5

NOTE: "Total" exclusion percentages are for all public school students, not just Hispanic and White.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics and Reading Assessments.

Table A-3. Mathematics and reading exclusion rates as percentages of the total sample, public schools only, by grade, race/ethnicity, and jurisdiction: 2009

	Mathematics				Reading			
	Grade 4		Grade 8		Grade 4		Grade 8	
Jurisdiction	Hispanic	White	Hispanic	White	Hispanic	White	Hispanic	White
National Public	**3**	**2**	**3**	**3**	**8**	**3**	**5**	**3**
Alabama	2	1	6	1	5	1	9	1
Alaska	3	1	4	3	3	2	2	1
Arizona	1	1	2	2	5	3	3	2
Arkansas	2	1	2	1	1	1	3	1
California	3	1	2	1	3	3	2	1
Colorado	1	2	3	1	4	3	4	3
Connecticut	5	2	4	2	12	3	11	2
Delaware	3	3	5	2	8	7	11	3
District of Columbia	9	1	13	4	15	6	19	6
DoDEA[1]	4	2	5	1	8	5	6	3
Florida	3	2	3	2	10	2	8	2
Georgia	1	1	3	2	12	4	9	3
Hawaii	3	1	2	2	4	1	4	3
Idaho	2	1	1	1	6	3	5	2
Illinois	5	2	4	3	8	2	6	3
Indiana	1	2	5	4	10	4	11	4
Iowa	2	2	6	2	9	4	8	4
Kansas	6	2	4	2	12	4	12	3
Kentucky	5	3	7	4	20	7	16	7
Louisiana	1	1	‡	1	5	2	‡	2
Maine	‡	2	‡	2	‡	4	‡	3
Maryland	8	3	11	4	23	8	27	5
Massachusetts	9	4	6	5	11	3	15	4
Michigan	4	3	3	3	6	3	4	4
Minnesota	4	2	4	2	6	2	6	3
Mississippi	‡	1	‡	1	5	1	‡	1
Missouri	5	3	8	3	8	3	7	3
Montana	0	1	9	3	4	3	‡	3
Nebraska	3	2	5	3	9	4	11	5
Nevada	3	2	3	2	6	3	5	2
New Hampshire	2	2	6	3	11	3	2	4
New Jersey	6	2	3	2	18	7	15	5
New Mexico	2	3	3	2	10	4	7	3
New York	1	1	2	2	8	3	10	5
North Carolina	2	2	3	1	6	1	6	1
North Dakota	‡	4	‡	5	‡	7	‡	7
Ohio	10	2	16	4	17	5	11	6
Oklahoma	3	3	4	7	11	6	9	4
Oregon	4	2	4	2	7	3	4	2
Pennsylvania	5	2	7	2	9	2	6	2
Rhode Island	3	1	5	2	7	3	7	2
South Carolina	4	1	4	3	16	4	22	4
South Dakota	3	2	1	2	11	5	‡	3
Tennessee	3	3	10	4	14	8	15	6
Texas	3	2	4	5	13	5	5	4
Utah	4	2	3	3	14	5	9	3
Vermont	‡	2	‡	2	‡	3	‡	3
Virginia	2	2	6	3	9	3	13	3
Washington	2	1	2	2	5	3	3	3
West Virginia	‡	2	‡	2	‡	2	‡	2
Wisconsin	5	1	4	2	7	3	11	3
Wyoming	2	1	5	1	6	2	5	3

‡ Reporting standards not met.

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

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

into account. Therefore, the comparisons are based on statistical tests that consider the estimated standard errors of the statistics being compared and the magnitude of the difference between the averages or percentages. Estimates based on smaller groups are likely to have relatively large standard errors. As a consequence, a numerical difference that seems large may not be statistically significant.

Furthermore, differences of the same magnitude may or may not be statistically significant, depending upon the size of the standard errors of the statistics. For example, a 3-point change in the gap between Hispanic and White fourth-graders nationwide may be significant, while a 3- point change in the gap between Hispanic and White fourth-graders in Kansas may not be. The differences described in this report have been determined to be statistically significant at the .05 level with appropriate adjustments for part-to-whole and multiple comparisons.

In the tables and figures of this report, the symbol (*) is used to indicate that a score or percentage is significantly different from another. In addition, any difference between scores or percentages that is identified as higher, lower, larger, smaller, narrower, or wider in this report, including within-group differences not marked in tables and figures, meets the requirements for statistical significance.

Standard errors for the NAEP scores and percentages presented in this report for both assessments are available on the NAEP website (http://nces.ed.gov/nationsreportcard/naepdata).

Weighting and variance estimation

NAEP uses a complex sample design to select the students who were assessed. The properties of a sample selected through such a design could be very different from those of a simple random sample, in which every student in the target population has an equal chance of selection and in which the observations from different sampled students can be considered to be statistically independent of one another. Therefore, the properties of the sample for the data collection design were taken into account during the analysis of the assessment data.

One way that the properties of the sample design were addressed was by using sampling weights to account for the fact that the probabilities of selection were not identical for all students. All population and subpopulation characteristics based on the assessment data were estimated using sampling weights. These weights included adjustments for school and student nonresponse.

Not only must appropriate estimates of population characteristics be derived, but appropriate measures of the degree of uncertainty must be obtained for those statistics. Two components of uncertainty are accounted for in the variability of statistics based on student ability: (1) the uncertainty due to sampling only a relatively small number of students, and (2) the uncertainty due to sampling only a relatively small number of cognitive questions

Because NAEP uses complex sampling procedures, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate. NAEP uses a jackknife replication procedure to estimate standard errors. The jackknife standard error provides a reasonable measure of uncertainty for any student information that can be observed without error. However, because each student typically responds to only a few questions within a content area, the scale score for any single student would be imprecise. In this case, NAEP's marginal estimation methodology can be used to describe the performance of groups and subgroups of students. The estimate of the variance of the students' posterior scale score distributions (which reflect the imprecision due to lack of measurement accuracy) is computed. This component of variability is then included in the standard errors of NAEP scale scores.[1]

Analyzing group differences in averages and percentages

NAEP uses statistical tests to determine whether, based on the data from the groups in the sample, there is strong enough evidence to conclude that the averages or per-

[1] For further detail, see Johnson, E.G., and Rust, K.F. (1992). Population Inferences and Variance Estimation for NAEP Data. *Journal of Educational Statistics, (17)*2, 175–190.

centages are actually different for those groups in the population. If the evidence is strong (i.e., the difference is statistically significant), the report describes the group averages or percentages as being different (e.g., one group performed higher or lower than another group), regardless of whether the sample averages or percentages appear to be approximately the same. The reader is cautioned to rely on the results of the statistical tests rather than on the apparent magnitude of the difference between sample averages or percentages when determining whether the sample differences are likely to represent actual differences among the groups in the population.

To determine whether a real difference exists between the average scale scores (or percentages of a certain attribute) for two groups in the population, one needs to obtain an estimate of the degree of uncertainty associated with the difference between the averages (or percentages) of these groups for the sample. This estimate of the degree of uncertainty, called the "standard error of the difference" between the groups, is obtained by taking the square of each group's standard error, summing the squared standard errors, and taking the square root of that sum.

$$SE_{A-B} = \sqrt{(SE_A^2 + SE_B^2)}$$

The standard error of the difference can be used, just like the standard error for an individual group average or percentage, to help determine whether differences among groups in the population are real. The difference between the averages or percentages of the two groups plus or minus 1.96 standard errors of the difference represents an approximately 95 percent confidence interval for a two-tailed test. If the resulting interval includes zero, there is insufficient evidence to claim a real difference between the groups in the population. If the interval does not contain zero, the difference between the groups is statistically significant at the .05 level.

The following example of comparing groups addresses the problem of determining whether the average mathematics scale score of group A is higher than that of group B. The sample estimates of the average scale scores and estimated standard errors are as follows:

Group	Average scale score	Standard error
A	218	0.9
B	216	1.1

The difference between the estimates of the average scale scores of groups A and B is 2 points (218 – 216). The standard error of this difference is

$$\sqrt{(0.9^2 + 1.1^2)} = 1.4$$

Thus, an approximately 95 percent confidence interval for this difference is plus or minus 1.96 standard errors of the difference:

$$2 \pm 1.96 \times 1.4$$
$$2 \pm 2.7$$
$$(-0.7, 4.7)$$

The value zero is within the confidence interval; therefore, there is insufficient evidence to conclude that group A's performance is statistically different from group B.

The procedure above is appropriate to use when it is reasonable to assume that the groups being compared have been independently sampled for the assessment.

Such an assumption is clearly warranted when comparing results for one state with another. This is the approach used for NAEP reports when comparisons involving independent groups are made. The assumption of independence is violated to some degree when comparing group results for the nation or a particular state (e.g., comparing national 2009 results for male and female students), since these samples of students have been drawn from the same schools.

When the groups being compared do not share students (as is the case, for example, of comparing Hispanic and White students), the impact of this violation of the independence assumption on the outcome of the statistical tests is assumed to be small, and NAEP, by convention, has, for computational convenience, routinely applied the procedures described above to those cases as well.

When making comparisons of results for groups that share a considerable proportion of students in common, it is not appropriate to ignore such dependencies. In such cases,

NAEP has used procedures appropriate to comparing dependent groups. When the dependence in group results is due to the overlap in samples (e.g., when a subgroup is being compared to a total group), a simple modification of the usual standard error of the difference formula can be used. The formula for such cases is

$$SE_{Total-Subgroup} = \sqrt{(SE^2_{Total} + SE^2_{Subgroup} - 2pSE^2_{Subgroup})}$$

where p is the proportion of the total group contained in the subgroup. This formula was used for this report when a state was compared to the aggregate for the nation.

Conducting multiple tests

The procedures used to determine whether group differences in the NAEP samples represent actual differences among the groups in the population and the certainty ascribed to intervals (e.g., a 95 percent confidence interval) are based on statistical theory that assumes that only one confidence interval or test of statistical significance is being performed. However, there are times when many different groups are being compared (i.e., multiple sets of confidence intervals are being analyzed).

For multiple comparisons, statistical theory indicates that the certainty associated with the entire set of comparisons is less than that attributable to each individual comparison from the set. To hold the significance level for the set of comparisons at a particular level (e.g., .05), the standard methods must be adjusted by multiple comparison procedures (Miller 1981). In NAEP, the Benjamini-Hochberg False Discovery Rate (FDR) procedure is used to control the expected proportion of falsely rejected hypotheses relative to the number of comparisons that are conducted. A detailed explanation of this procedure can be found at http://nces.ed.gov/nationsreportcard/tdw/analysis/2000_2001/infer_multiplecompare_fdr.asp. Unlike other multiple comparison procedures that control the family-wise error rate (i.e., the probability of making even one false rejection in the set of comparisons), the FDR procedure controls the expected proportion of falsely rejected hypotheses. Furthermore, the FDR procedure used in NAEP is considered appropriately less conservative than family-wise procedures for large families of comparisons (Williams, Jones, and Tukey 1994). Therefore, the FDR procedure is more suitable for multiple comparisons in NAEP than are other procedures.

NAEP employs a number of rules to determine the number of comparisons conducted, which in most cases is simply the number of possible statistical tests. However, there are two exceptions where the FDR is not applied: when comparing multiple years and when comparing multiple jurisdictions to the nation, neither the number of years nor the number of jurisdictions counts toward the number of comparisons.

Cautions in interpretation

It is possible to examine NAEP performance results for groups of students defined by various background factors measured by NAEP. However, a relationship that exists between achievement and another variable does not reveal its underlying cause, which may be influenced by a number of other variables. The results are most useful when they are considered in combination with other knowledge about the student population and the educational system, such as trends in instruction, changes in the school-age population, and societal demands and expectations, among others.

Appendix B: Supplemental Tables

Table B-1. Administration of NAEP national and state mathematics assessments, by grade: Various years, 1990–2009

	1990		1992		1996		2000		2003		2005		2007		2009	
	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State
4th grade	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8th grade	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, Various years, 1990–2009 Mathematics Assessments.

Table B-2. Average national mathematics scale scores for all public school students at grades 4 and 8, by gender and eligibility for the National School Lunch Program: Various years, 1990–2009

	1990[n]	1992[n]	1996	2000	2003	2005	2007	2009
All Students								
Grade 4	212*	219*	222*	224*	234*	237*	239	239
Grade 8	262*	267*	269*	272*	276*	278*	280*	282
Student Gender								
Grade 4								
Male	212*	220*	222*	225*	235*	238*	240	240
Female	211*	218*	222*	223*	233*	236*	238	238
Grade 8								
Male	262*	266*	270*	273*	277*	278*	281*	283
Female	261*	267*	268*	271*	275*	277*	279*	281
Student Eligibility for National School Lunch Program								
Grade 4								
Not Eligible	—	—	232*	235*	244*	248*	249*	250
Eligible	—	—	207*	208*	222*	225*	227	228
Grade 8								
Not Eligible	—	—	277*	283*	287*	288*	291*	293
Eligible	—	—	250*	253*	258*	261*	265*	266

[n] Accommodations were not permitted for this assessment.
— Not available. Data were not collected prior to 1996.
* Significantly different ($p<.05$) from 2009.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), Various years, 1990–2009 Mathematics Assessments.

Table B-3. Administration of NAEP national and state reading assessments, by grade: Various years, 1992–2009

	1992		1994		1998		2000		2002		2003		2005		2007		2009	
	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State
4th grade	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8th grade	✓		✓		✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, Various years, 1992–2009 Reading Assessments.

Table B-4. Average national mathematics scale scores for all public school students at grades 4 and 8, by gender and eligibility for the National School Lunch Program: Various years, 1990–2009

	1992[n]	1994[n]	1998	2000	2002	2003	2005	2007	2009
All Students									
Grade 4	215*	212*	213*	211*	217*	216*	217*	220	220
Grade 8	258*	257*	261	—	263	261*	260*	261*	262
Student Gender									
Grade 4									
Male	211*	207*	210*	206*	214*	213*	214*	216	216
Female	219*	218*	215*	217*	220*	220*	220*	223	223
Grade 8									
Male	251*	250*	253*	—	258	256*	255*	256*	258
Female	264	265*	268	—	267	267	266*	266*	267
Student Eligibility for National School Lunch Program									
Grade 4									
Not Eligible	—	—	226*	226*	229*	229*	230*	232	232
Eligible	—	—	195*	192*	202*	201*	203*	205*	206
Grade 8									
Not Eligible	—	—	268*	—	271*	271*	270*	271*	273
Eligible	—	—	245*	—	249	246*	247*	247*	249

[n] Accommodations were not permitted for this assessment.
— Not available. Data were not collected prior to 1996 or at grade 8 in 2000.
* Significantly different (p<.05) from 2009.
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 Reading Assessments.

Table B-5. Percentages of public school students in NAEP mathematics and reading classified as English language learners, by subject, grade, race/ethnicity, and jurisdiction: 2009

	Mathematics				Reading			
	Grade 4		Grade 8		Grade 4		Grade 8	
	Hispanic	White	Hispanic	White	Hispanic	White	Hispanic	White
National Public	37	2	21	#	35	1	20	#
Alabama	46	#	41	#	44	#	35	#
Alaska	18	2	19	1	14	1	19	1
Arizona	29	1	12	#	29	#	12	#
Arkansas	59	#	45	#	62	#	42	#
California	49	4	32	1	49	4	32	1
Colorado	32	#	21	1	33	1	19	#
Connecticut	23	1	16	1	18	1	10	#
Delaware	23	#	13	#	24	#	11	#
District of Columbia	48	5	21	‡	43	3	28	‡
DoDEA[1]	13	2	10	2	9	2	—	—
Florida	24	1	13	#	17	1	10	#
Georgia	30	#	14	#	25	#	14	#
Hawaii	12	#	6	#	13	1	6	1
Idaho	28	1	21	#	29	#	23	#
Illinois	26	1	10	1	26	1	11	#
Indiana	45	#	31	1	47	#	29	#
Iowa	41	#	20	#	41	1	24	#
Kansas	53	#	35	#	49	#	33	#
Kentucky	33	#	23	#	34	#	10	#
Louisiana	42	#	‡	#	47	#	‡	#
Maine	‡	#	‡	#	‡	#	‡	#
Maryland	32	#	16	#	23	1	5	#
Massachusetts	25	1	10	#	25	1	10	#
Michigan	19	2	25	1	24	2	22	1
Minnesota	42	1	24	#	44	#	32	#
Mississippi	‡	#	‡	#	28	#	‡	#
Missouri	25	#	10	#	25	#	6	#
Montana	2	1	3	#	4	1	‡	#
Nebraska	34	1	18	#	31	1	15	#
Nevada	47	1	19	#	45	1	17	#
New Hampshire	29	1	17	#	25	1	6	#
New Jersey	11	#	8	#	5	#	3	#
New Mexico	23	1	14	#	17	1	12	#
New York	27	1	17	1	24	1	11	#
North Carolina	43	#	40	#	43	#	39	#
North Dakota	‡	#	‡	#	‡	#	‡	1
Ohio	29	#	18	#	35	#	13	#
Oklahoma	35	#	25	#	33	#	21	#
Oregon	51	1	30	1	51	1	27	1
Pennsylvania	19	#	16	#	19	#	15	#
Rhode Island	23	1	10	#	21	#	8	#
South Carolina	66	1	49	#	61	1	49	#
South Dakota	18	1	7	#	11	1	‡	1
Tennessee	36	#	14	#	39	#	15	#
Texas	37	1	12	#	31	1	13	#
Utah	41	#	26	#	37	#	22	#
Vermont	‡	1	‡	1	‡	1	‡	#
Virginia	49	1	21	#	50	1	27	#
Washington	37	2	14	1	35	1	14	#
West Virginia	‡	#	‡	#	‡	#	‡	#
Wisconsin	46	1	30	#	44	#	23	#
Wyoming	14	#	11	#	17	#	7	#

— Not available.
Rounds to zero.
‡ Reporting standards not met.
[1] Department of Defense Education Activity (overseas and domestic schools).
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics and Reading Assessments.

Table B-6. Percentages of public school students in NAEP mathematics and reading classified as eligible for a free or reduced-price school lunch, by subject, grade, race/ethnicity, and jurisdiction: 2009

	Mathematics				Reading			
	Grade 4		Grade 8		Grade 4		Grade 8	
	Hispanic	White	Hispanic	White	Hispanic	White	Hispanic	White
National Public	77	29	72	25	74	29	72	24
Alabama	84	39	70	33	85	39	85	33
Alaska	59	28	45	21	48	28	50	21
Arizona	75	28	71	22	75	29	71	21
Arkansas	91	46	84	41	85	46	85	40
California	75	23	73	22	74	24	73	20
Colorado	70	21	68	18	72	20	68	16
Connecticut	73	13	70	11	72	12	67	12
Delaware	74	25	69	22	74	24	72	20
District of Columbia	75	7	80	‡	79	5	81	‡
DoDEA[1]	#	#	#	#	#	#	—	—
Florida	72	35	68	27	70	36	65	27
Georgia	90	33	79	29	82	33	75	28
Hawaii	45	31	43	28	41	32	47	25
Idaho	76	37	73	29	75	36	74	29
Illinois	79	22	71	17	78	23	71	17
Indiana	78	37	75	28	79	36	75	28
Iowa	81	30	73	27	78	30	76	27
Kansas	85	37	84	31	84	36	83	31
Kentucky	81	47	8	43	77	46	82	44
Louisiana	74	49	‡	42	77	50	‡	43
Maine	‡	39	‡	33	#	38	‡	33
Maryland	67	18	60	14	65	19	57	12
Massachusetts	83	18	73	16	80	16	77	17
Michigan	73	33	53	29	70	34	69	28
Minnesota	62	21	64	17	69	21	68	16
Mississippi	‡	48	‡	43	86	46	‡	43
Missouri	68	36	52	30	75	35	66	30
Montana	50	34	48	28	62	34	‡	29
Nebraska	80	30	78	27	77	31	80	25
Nevada	58	23	53	19	59	24	51	20
New Hampshire	61	20	56	19	58	20	57	18
New Jersey	72	10	63	10	70	11	61	10
New Mexico	81	40	77	33	79	38	77	32
New York	83	26	75	22	83	25	75	20
North Carolina	82	28	78	24	83	28	75	25
North Dakota	‡	27	‡	23	‡	27	‡	22
Ohio	73	29	58	26	63	29	65	26
Oklahoma	77	45	78	37	78	42	78	38
Oregon	85	35	81	31	85	36	79	31
Pennsylvania	79	25	81	23	78	25	78	23
Rhode Island	84	24	80	22	83	24	80	22
South Carolina	76	36	68	32	84	36	77	29
South Dakota	67	27	63	24	68	26	‡	23
Tennessee	72	40	70	32	80	40	68	32
Texas	81	23	75	21	78	26	75	22
Utah	75	25	68	18	78	24	71	18
Vermont	‡	34	‡	28	‡	34	‡	28
Virginia	64	19	61	19	58	19	56	18
Washington	83	33	77	27	52	32	76	26
West Virginia	‡	56	‡	51	‡	56	‡	50
Wisconsin	73	27	67	21	78	27	69	20
Wyoming	64	29	55	24	59	30	54	24

— Not available.
Rounds to zero.
‡ Reporting standards not met.
[1] Department of Defense Education Activity (overseas and domestic schools).
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics and Reading Assessments.

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