General Achievement Trends — Massachusetts

K-12 enrollment — 968,661

The raw data used to develop these state profiles, including data for additional grade levels and years before 2002, can be found on the CEP Web site at www.cep-dc.org. Click on the link on the left for No Child Left Behind. In the Document Library, look for the most recent report on student achievement since 2002. Below the name of the report, click on the link for View State Profiles and Worksheets. Scroll down the page, and click on the Worksheet links for any state.

Overall Achievement — Key Findings

Massachusetts Overall Achievement — Key Findings

General results

The tables in this profile present state test results in reading and math at three achievement levels (basic, proficient, and advanced) and at one grade each at the elementary, middle, and high school levels. These data are more complete than the percentage of students scoring proficient that is the main indicator used to determine adequate yearly progress under the No Child Left Behind Act.

In general, Massachusetts students made gains at all three achievement levels. The exceptions were in reading, where there were slight decreases at the **basic** and **proficient** levels in the elementary grade analyzed. At the **advanced** level, there were moderate-to-large gains across the board in math, especially at the high school level.

Specific results

- Between 2002 and 2008, the percentage of students performing at the **basic** level and above in reading decreased slightly at the elementary grade analyzed but increased at a moderate-to-large pace at the high school level. (In middle school reading, the percentage basic stayed the same over the three years with comparable data, 2006 through 2008). In math, the percentage of students at basic and above increased at a moderate-to-large rate at all three grade levels analyzed.

- Between 2002 and 2008, the percentage of students scoring at the **proficient** level and above in reading went down slightly at the elementary school grade analyzed but rose at a moderate-to-large rate at the high school grade analyzed. In middle school reading, comparable data were available for only three years, 2006 through 2008; during this period, the percentage proficient increased slightly. In math, the percentage proficient grew at a moderate-to-large rate at all three grade levels analyzed between 2002 and 2008.

- The percentage of students reaching the **advanced** level in reading increased slightly at the elementary and high school grades analyzed between 2002 and 2008. In middle school reading, there was no change in the percentage advanced between 2006 and 2008. In math, the percentage of advanced students rose at a moderate-to-large rate at all three grade levels analyzed. At the high school level, a notable 42% of students had reached the advanced level in 2008, up from 20% in 2002.

Data Limitations

Years of comparable percentage proficient data	1999 through 2008: Grades 4, 8, and 10 math; grade 10 English language arts (ELA) 2001 through 2008: Grade 6 math; grades 3, 4, and 7 ELA 2006 through 2008: Grades 3, 5, and 7 math; grades 5, 6, and 8 ELA
Years of data needed to compute effect sizes	Cannot compute effect sizes; no mean scale scores or standard deviations available
Disaggregated data for all subgroups and comparison groups	Massachusetts revised its definitions of racial/ethnic subgroups and advised that data can be considered comparable for racial/ethnic subgroup comparisons from 2005 through 2008. Not available for low-income students until 2005, for students who are *not* low-income until 2006, or for English language learners (ELLs) until 2007. Students with disabilities and ELLs are compared with all students in the state because data are not available until 2007 for the comparison group of students who are *not* disabled or for any year for students who are *not* ELLs.
Numbers of test-takers by subgroup	Available for 2007 through 2008

Test Characteristics

The characteristics highlighted below are for the state reading and mathematics tests used for accountability under the No Child Left Behind Act (NCLB).

Test(s) used for NCLB accountability	Massachusetts Comprehensive Assessment System (MCAS) MCAS Alternate Assessment (MCAS-Alt)

Grades tested for NCLB accountability	3–8, 10 in ELA and math, as of 2007
State labels for achievement levels	MA uses four achievement levels: Warning/Failing, Needs Improvement, Proficient, and Advanced/Above Proficient. For our analyses we treated Needs Improvement as Basic, Proficient as Proficient, and Advanced/Above Proficient as Advanced.
High school NCLB test also used as an exit exam?	Yes
First year test used	1998: Grades 4, 8, 10 in math; grade 10 in ELA 2001: Grades 3, 4, 7 in reading/ELA; grade 6 in math 2006: Grades 3, 5, 7 in math; grades 5, 7, 8 in ELA
Time of test administration	Spring (opportunities for retests in fall, spring, and summer for students who did not pass the grade 10 test)
Major changes in testing system (2002–present)	2002: New scaling system adopted 2005–06: Reading/ELA and math tested in all of the grades 3–8 and 10. Prior to 2005-06, reading/ELA was tested in grades 3, 4, 7, and 10, and math was tested in grades 4, 6, 8, and 10. 2006: Absent students without documented medical reasons counted as non-participants in testing; prior to 2006, counted as failing/warning 2006: Test results reported on state Web site for both current and former limited-English-proficient (LEP) students; previously, only results for current LEP students were reported 2006: Reporting of the “regular education” subgroup discontinued
Comments	In CEP’s 2008 achievement report, trends in reading/ELA were shown for grade 7. This was because reading/ELA tests were not administered in grade 8, the default grade for CEP’s analyses, until 2006, which meant that only two years of grade 8 data were available. In this year’s tables and figures, trends in reading/ELA are shown for grade 8, the default grade, because three years of data are available, a long enough period to constitute a trend.

Overall Achievement — Percentages Proficient

Figure MA-1. Percentage of Students Scoring at the Proficient Level and Above in Reading

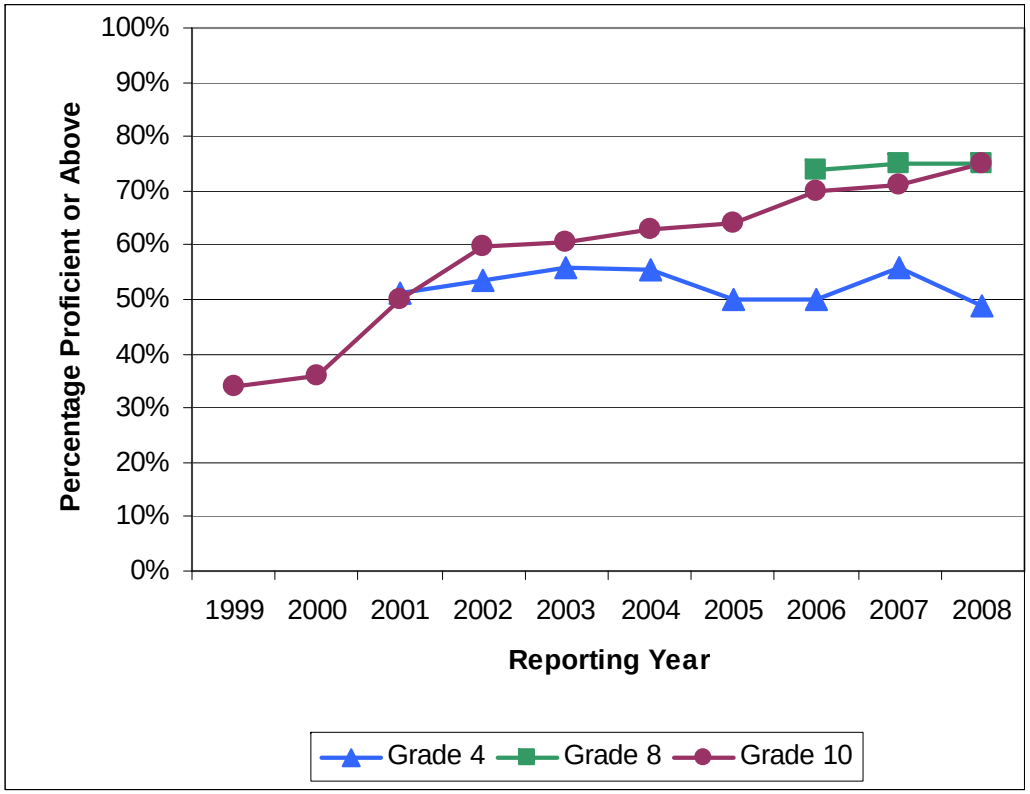

Table MA-1. Percentage of Students Scoring at the Proficient Level and Above in Reading

Grade Level	Reporting Year										Pre-NCLB Average Yearly Percentage Point Gain 1999-2002[1]	Post-NCLB Average Yearly Percentage Point Gain 2002-2008[1]
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008		
Grade 3			62%	67%	63%	63%	62%	58%	59%	56%	NA	-1.8
Grade 4			**51%**	**54%**	**56%**	**56%**	**50%**	**50%**	**56%**	**49%**	**NA**	**-0.8**
Grade 5								59%	63%	61%	NA	1.0
Grade 6								64%	67%	67%	NA	1.5
Grade 7			55%	64%	65%	68%	66%	65%	69%	69%	NA	0.9
Grade 8								**74%**	**75%**	**75%**	**NA**	**0.5**
Grade 10	**34%**	**36%**	**50%**	**60%**	**61%**	**63%**	**64%**	**70%**	**71%**	**75%**	**8.5**	**2.6**

Table reads: The percentage of 3rd graders who scored at the proficient level and above on the state reading test increased from 62% in 2001, to 67% in 2002, then dropped to 56% in 2008. The average yearly loss in the percentage proficient in grade 3 reading was 1.8 percentage points per year after NCLB was enacted.

[1]Averages are subject to rounding error.

Figure MA-2. Percentage of Students Scoring at the Proficient Level and Above in Mathematics

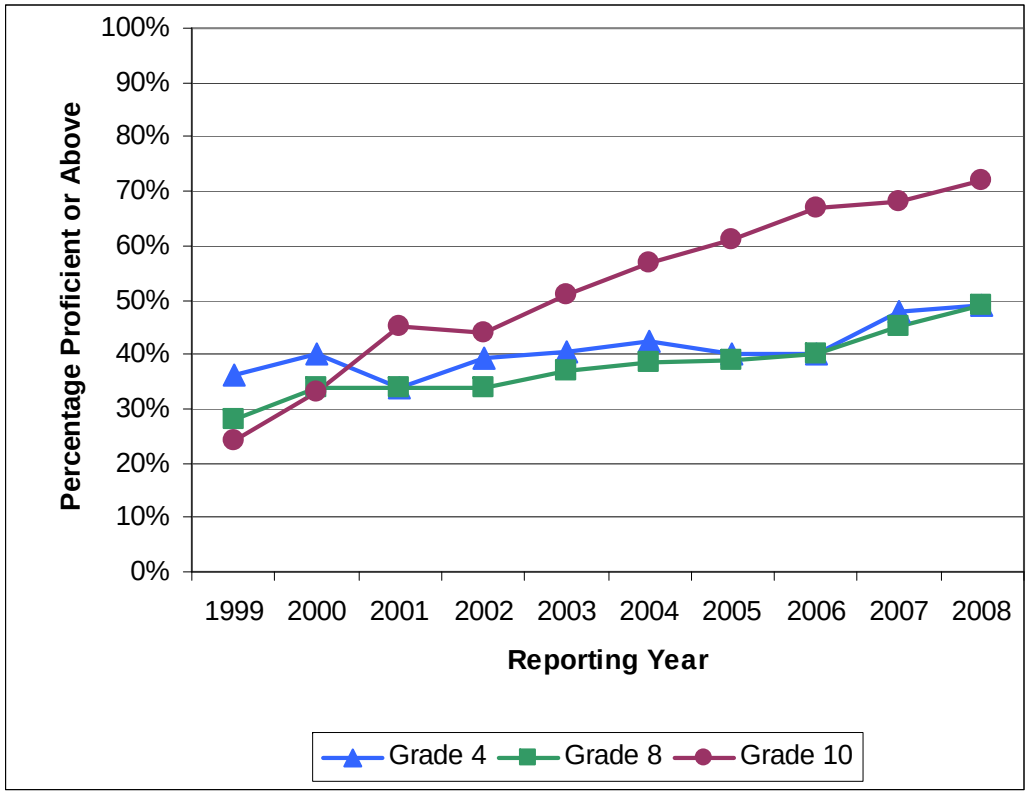

Table MA-2. Percentage of Students Scoring at the Proficient Level and Above in Mathematics

Grade Level	Reporting Year										Pre-NCLB Average Yearly Percentage Point Gain 1999-2002[1]	Post-NCLB Average Yearly Percentage Point Gain 2002-2008[1]
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008		
Grade 3								52%	60%	61%	NA	4.5
Grade 4	**36%**	**40%**	**34%**	**39%**	**40%**	**42%**	**40%**	**40%**	**48%**	**49%**	**1.1**	**1.6**
Grade 5								43%	51%	52%	NA	4.5
Grade 6			36%	42%	42%	43%	46%	46%	52%	56%	NA	2.4
Grade 7								40%	46%	47%	NA	3.5
Grade 8	**28%**	**34%**	**34%**	**34%**	**37%**	**39%**	**39%**	**40%**	**45%**	**49%**	**1.9**	**2.5**
Grade 10	**24%**	**33%**	**45%**	**44%**	**51%**	**57%**	**61%**	**67%**	**68%**	**72%**	**6.6**	**4.7**

Table reads: The percentage of 3rd graders who scored at the proficient level and above on the state math test increased from 52% in 2006 to 61% in 2008. The average yearly gain in the percentage proficient in grade 3 math was 4.5 percentage points per year after NCLB was enacted.

[1]Averages are subject to rounding error.

Overall Achievement — Percentages Advanced, Proficient, and Basic

How to read figures 3 and 4 and tables 3 and 4

The stacked bars in figures 3 and 4 show the percentages of students scoring at the basic, proficient, and advanced levels on the state tests used for NCLB accountability. The following information may be helpful in interpreting the figures:

- The percentage proficient and above—the benchmark used to determine adequate yearly progress under NCLB—is the sum of the middle and top segments of the bars (percentage proficient plus percentage advanced).

- The percentage basic and above is the sum of all three segments of the bars (percentage basic plus percentage proficient plus percentage advanced).

- The sums that result from adding the segments of the bars in these ways correspond with the percentages proficient and above, and basic and above, shown in tables 3 and 4. In a few instances, however, the sums in the figures may differ from those in the tables by a percentage point due to rounding.

- The bars do not total 100% because students who score *below* the basic level are not displayed.

- By looking at the percentages in each segment of the bars, one can see how achievement trends at the three levels interact. Ideally, one would want to see increases at all three levels, as more students move from below basic to basic achievement, from basic to proficient, and from proficient to advanced. But other scenarios may also be illuminating. For example, gains may occur in the percentage basic even if the percentage proficient and above has stayed the same, suggesting that progress has been made in moving students from the below basic to the basic level. Or, if the percentage proficient has grown while the percentages basic and advanced have shrunk, this suggests that educators may have focused a great deal of attention on moving students from the basic to proficient levels.

- Some states use different labels for their achievement levels instead of basic, proficient, and advanced. The specific state labels are listed in the Test Characteristics section at the beginning of this profile.

Figure MA-3. Percentages of Students Scoring at the Advanced, Proficient, and Basic Levels in Reading

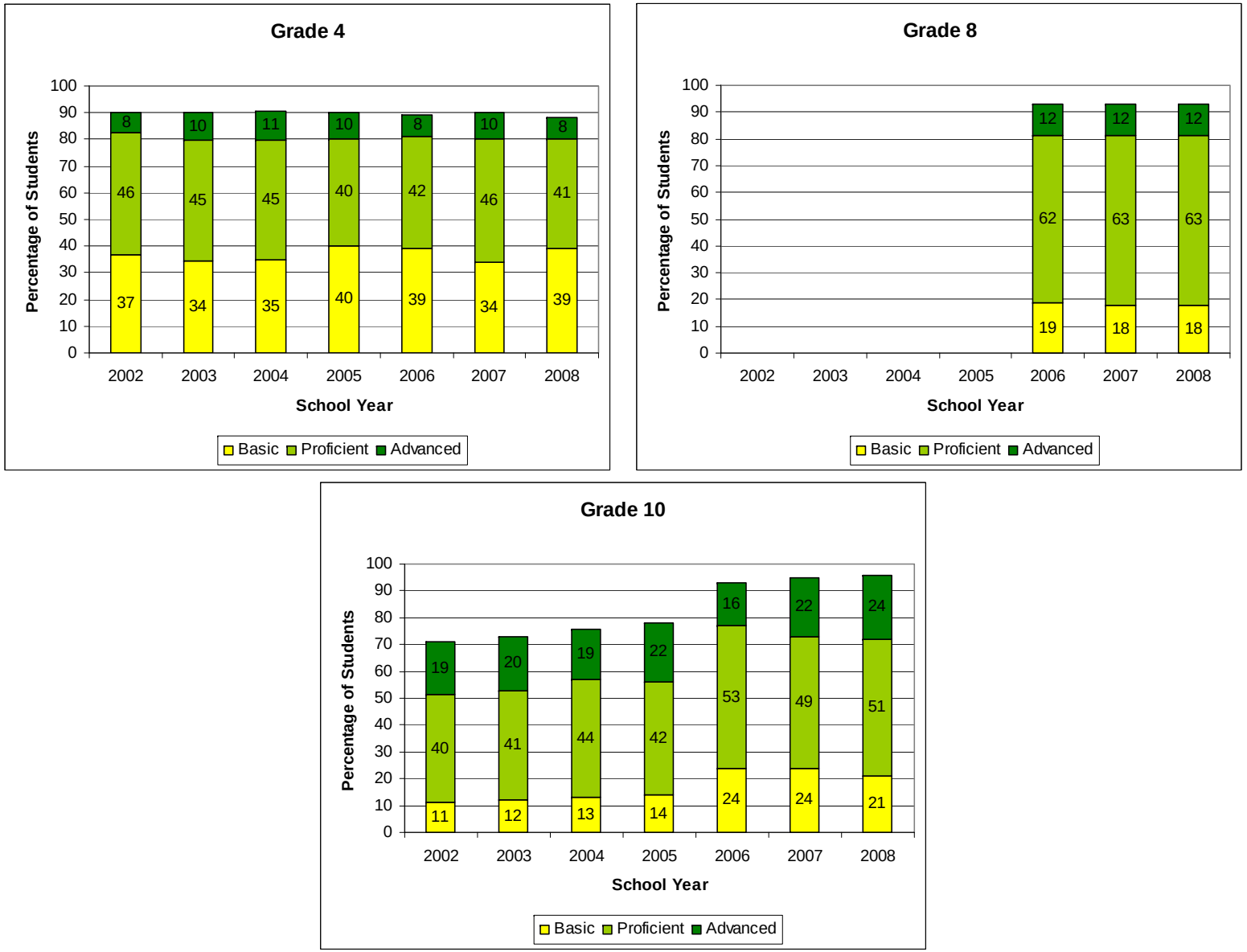

Table MA-3. Percentages of Students Scoring at the Advanced, Proficient and Above, and Basic and Above Levels in Reading

Achievement Level	Reporting Year							Average Yearly Percentage Point Gain[1]
	2002	2003	2004	2005	2006	2007	2008	
Grade 4								
Advanced	8%	10%	11%	10%	8%	10%	8%	0.1
Proficient and Above	54%	56%	56%	50%	50%	56%	49%	-0.8
Basic and Above	90%	90%	91%	90%	89%	90%	88%	-0.4
Grade 8								
Advanced					12%	12%	12%	0.0
Proficient and Above					74%	75%	75%	0.5
Basic and Above					93%	93%	93%	0.0
Grade 10								
Advanced	19%	20%	19%	22%	16%	22%	24%	0.8
Proficient and Above	60%	61%	63%	64%	70%	71%	75%	2.6
Basic and Above	86%	89%	90%	89%	93%	95%	96%	1.6

Table reads: The percentage of 4th graders who scored at the advanced level on their state reading test was 8% in 2002 and in 2008. Due to a rise and fall over these years, however, the average yearly gain in the percentage advanced was 0.1 percentage points per year in grade 4 reading.

[1]Averages are subject to rounding error.

Figure MA-4. Percentages of Students Scoring at the Advanced, Proficient, and Basic Levels in Mathematics

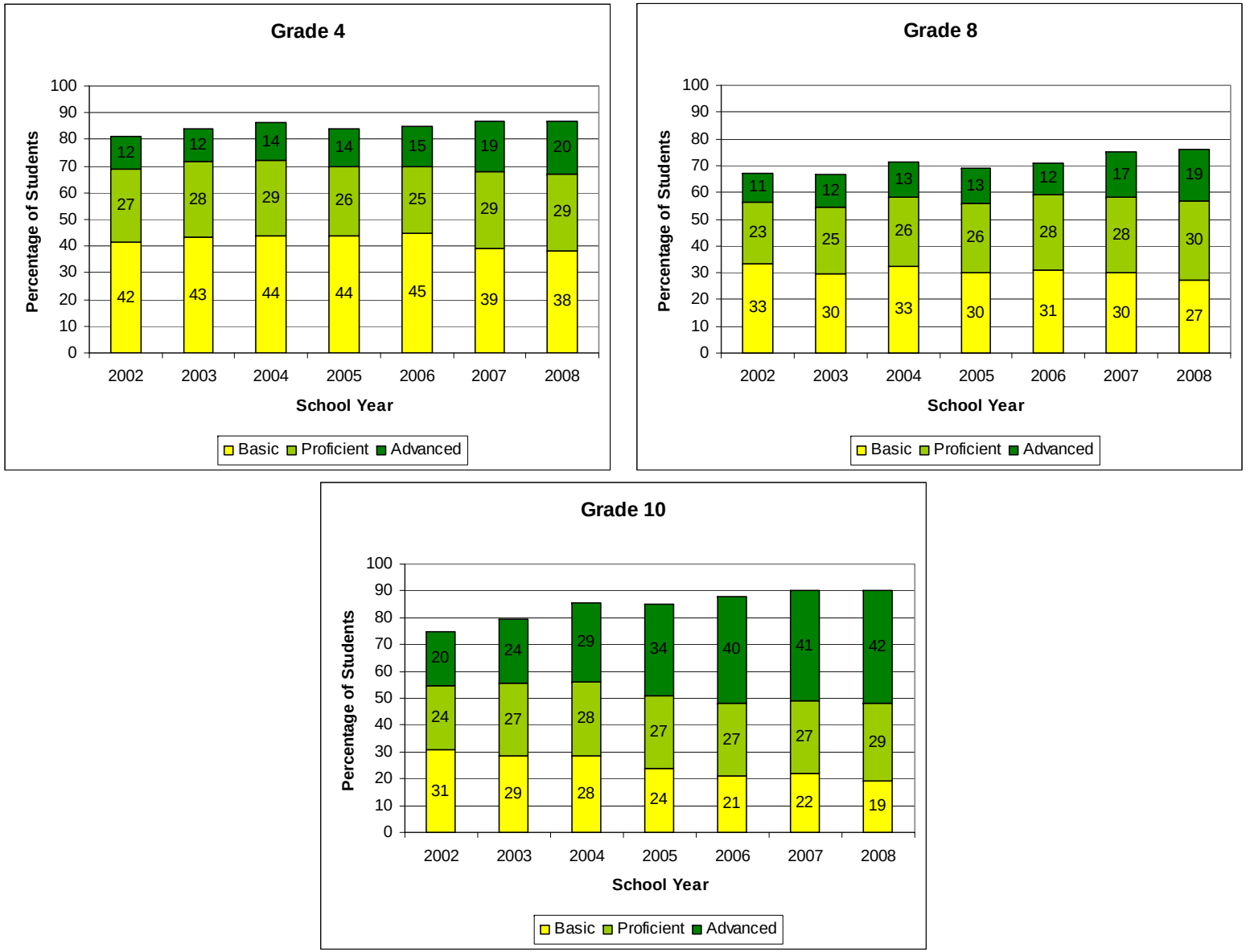

Table MA-4. Percentages of Students Scoring at the Advanced, Proficient and Above, and Basic and Above Levels in Mathematics

Achievement Level	Reporting Year							Average Yearly Percentage Point Gain[1]
	2002	2003	2004	2005	2006	2007	2008	
Grade 4								
Advanced	12%	12%	14%	14%	15%	19%	20%	1.3
Proficient and Above	39%	40%	42%	40%	40%	48%	49%	1.6
Basic and Above	81%	84%	86%	84%	85%	87%	87%	1.0
Grade 8								
Advanced	11%	12%	13%	13%	12%	17%	19%	1.4
Proficient and Above	34%	37%	39%	39%	40%	45%	49%	2.5
Basic and Above	67%	67%	71%	69%	71%	75%	76%	1.5
Grade 10								
Advanced	20%	24%	29%	34%	40%	41%	42%	3.7
Proficient and Above	44%	51%	57%	61%	67%	68%	72%	4.7
Basic and Above	75%	79%	85%	85%	88%	90%	90%	2.6

Table reads: The percentage of 4th graders who scored at the advanced level on their state math test increased from 12% in 2002 to 20% in 2008. During this period, the average yearly gain in the percentage advanced was 1.3 percentage points per year in grade 4 math.

[1]Averages are subject to rounding error.

Key Terms

Percentage proficient (and above) — The percentage of students in a group who score at and above the cut score for "proficient" performance on the state test used to determine progress under NCLB. The Act requires states to report student test performance in terms of at least three achievement levels: basic, proficient, and advanced. Adequate yearly progress determinations are based on the percentage of students scoring at the proficient level and above.

Percentage basic (and above) — The percentage of students in a group who score at and above the cut score for "basic" performance on the state test used to determine progress under NCLB.

Percentage advanced — The percentage of students in a group who reach or exceed the cut score for "advanced" performance on the state test used to determine progress under NCLB.

Moderate-to-large gain — For the percentage basic, proficient, or advanced, an average gain of 1 or more percentage points per year. For effect size, an average gain of 0.02 or greater per year.

Slight gain — For the percentage basic, proficient, or advanced, an average gain of less than 1 percentage point per year. For effect size, an average gain of less than 0.02 per year.

Moderate-to-large decline — For the percentage basic, proficient, or advanced, an average decline of 1 or more percentage points per year. For effect size, an average decline of 0.02 or greater per year.

Slight decline — For the percentage basic, proficient, or advanced, an average decline of less than 1 percentage points per year. For effect size, an average decline of less than 0.02 per year.

Effect size — A statistical tool that conveys the amount of difference between test results using a common unit of measurement which does not depend on the scoring scale for a particular test.

Accumulated annual effect size — The cumulative gain in effect size over a range of years.

Mean scale score — The arithmetical average of a group of test scores, expressed on a common scale for a particular state's test. The mean is calculated by adding the scores and dividing the sum by the number of scores.

Standard deviation — A measure of how much test scores tend to deviate from the mean—in other words, how spread out or bunched together test scores are. If students' scores are bunched together, with many scores close to the mean, then the standard deviation will be small. If scores are spread out, with many students scoring at the high or low ends of the scale, then the standard deviation will be large.

Cautions and Explanations

Different labels for achievement levels — For consistency, all of the state profiles developed for this report use a common set of labels (basic, proficient, and advanced) for the main achievement levels required by NCLB. In practice, however, some states may use different labels, such as "meets standard" instead of proficient, and some states have established additional achievement levels beyond those required by NCLB.

Different names for subgroups — For the sake of consistency and ease of data tabulation, all of the state profiles developed for this report use a common set of names for the major student subgroups. In practice, however, states use various names for subgroups that may differ from those used here (such as using "Hispanic" instead of "Latino," or "special education students" instead of "students with disabilities"). Moreover, a few states separately track the performance of subgroups not included in the analyses for this report.

Special caution for students with disabilities and English language learners — Trends for students with disabilities and English language learners should be interpreted with caution because changes in federal guidance and state accountability plans may have altered which students in these subgroups are tested for accountability purposes, how they are tested, and when their test scores are counted as proficient under NCLB. These factors could affect the year-to-year comparability of test results.

Inclusion of former English language learners — In many states, the subgroup of English language learners (also known as limited English proficient students) includes students who were formerly English language learners but who have achieved English language proficiency or fluency in the last two years. Federal NCLB regulations permit states to include these formerly ELL students (sometimes referred to as "redesignated fluent English proficient" students) in the ELL subgroup for up to two years for purposes of NCLB accountability.

Limitations of percentage proficient measure — The percentage proficient, the main gauge of student performance under NCLB, can be easily understood and gives a snapshot of how many students have met their state's performance expectations. But it also has several limitations as a measure of student achievement. Users of percentage proficient data should keep in mind these limitations, particularly the following:

* "Proficient" means different things across different states. States vary widely in curriculum, learning expectations, and tests, and state tests differ considerably in their difficulty and cut scores for proficient performance.
* Although this study has taken steps to avoid comparing test data where there have been "breaks" in comparability resulting from new tests, changes in content standards, revised cut scores, or other major changes in testing programs, the year-to-year comparability of test results in the same state may still be affected by less obvious policy and demographic changes.
* Changes in student performance may occur that are not reflected in percentage proficient data, such as an increase in the number of students reaching performance levels below and above proficient (such as the basic or advanced levels).
* The size of the achievement gaps between various subgroups depends in part on where a state sets its cut score for proficiency. For example, if a proficiency cut score is set so high that almost nobody reaches it or so low that almost everyone reaches it, there will be little apparent achievement gap. By contrast, if the cut score is closer to the mean test score, the gaps between subgroups will be more apparent.

Difficulty of attributing causes — Although the tables above show trends in test scores since the enactment of NCLB, one cannot assume that these trends have occurred *because* of NCLB. It is always difficult to determine a cause-and-effect relationship between test score trends and any specific education policy or program due to the many federal, state, and local reforms undertaken in recent years and due to the lack of an appropriate "control" group of students not affected by NCLB.