General Achievement Trends — Washington

K-12 enrollment — 1,031,846

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

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.

Due to changes in Washington's testing program, only three years of comparable test data (2006-2008) are available at the middle school level, the minimum span needed to discern a trend. Comparable data go back to 2002 for the other grade levels.

Overall, Washington students made gains at the **basic, proficient** and **advanced** levels at most, but not all, of the grade levels analyzed.

Specific results

- The percentage of students scoring at the **basic** level and above in reading declined slightly at the elementary and middle school grades analyzed but increased at a moderate-to-large rate at the high school level. In math, the percentage of students at the basic level decreased slightly at the elementary level, increased at a moderate-to-large rate at the middle school level, and rose slightly at the high school level.

- In reading, the percentage of students at the **proficient** level and above increased at a moderate-to-large rate at the elementary and high school levels but decreased at a moderate-to-large rate at the middle school grade analyzed. In math, there was a slight increase in the percentage proficient at the elementary level and moderate-to-large gains at the middle and high school grades analyzed.

- The percentage of students reaching the **advanced** level increased at a moderate-to-large rate in reading at the elementary grade analyzed and at a slight rate at the middle and high school levels. In math, the percentage of advanced students went up slightly at the elementary and high school levels and at a moderate-to-large rate at the middle school level.

Data Limitations

Years of comparable percentage proficient data	1999 through 2008, grades 4, 7, and 10 2006 through 2008, grades 3, 5, 6, and 8
Years of data needed to compute effect sizes	1999 through 2008, grades 4, 7, and 10 2006 through 2008, grades 3, 5, 6, and 8
Disaggregated data for all subgroups and comparison groups	Percentage proficient data not available until 2003 and effect size data not available until 2007 for low-income subgroup. Data are not available until 2008 for comparison groups of students who are *not* low-income, disabled, or English language learners (ELLs), so the subgroups of low-income students, students with disabilities, and ELLs are compared with all tested students in the state.
Numbers of test-takers by subgroup	Not available until 2004 for the low-income subgroup

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	Washington Assessment of Student Learning (WASL) Washington Alternate Assessment System (WAAS)
Grades tested for NCLB accountability	3–8, 10
State labels for achievement levels	WA uses four achievement levels: Level 1, Level 2, Level 3, and Level 4. For our analyses we treated Level 2 as Basic, Level 3 as Proficient, and Level 4 as Advanced.
High school NCLB test also used as an exit exam?	Yes

First year test used	1997: Grade 4 1998: Grade 7 1999: Grade 10 2006: Grades 3, 5, 6, and 8
Time of test administration	Spring
Major changes in testing system (2002–present)	2005–06: Testing expanded to include grades 3–8, 10 2008: Passing the High School WASL became a requirement for graduation.

Overall Achievement — Percentages Proficient

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

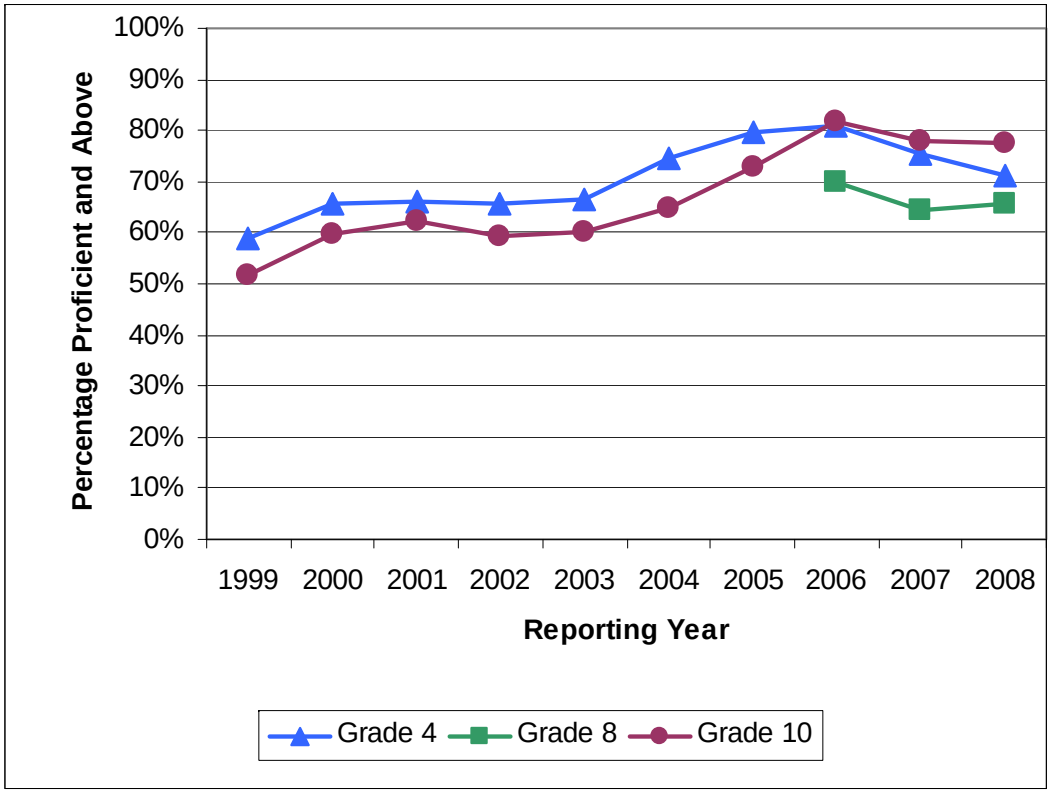


Table WA-1. Percentage of Students Scoring at the Proficient Level and Above in Reading

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								68%	70%	70%	NA	1.1
Grade 4	**59%**	**66%**	**66%**	**66%**	**67%**	**74%**	**80%**	**81%**	**76%**	**71%**	**2.2**	**1.0**
Grade 5								76%	71%	75%	NA	-0.7
Grade 6								66%	67%	68%	NA	0.6
Grade 7	41%	42%	40%	45%	48%	60%	69%	61%	68%	62%	1.3	2.9
Grade 8								**70%**	**64%**	**66%**	**NA**	**-2.1**
Grade 10	**52%**	**60%**	**62%**	**59%**	**60%**	**65%**	**73%**	**82%**	**78%**	**78%**	**2.6**	**3.1**

Table reads: The percentage of 4th graders who scored at the proficient level and above on the state reading test increased from 59% in 1999, to 66% in 2002, to 71% in 2008. The average yearly gain in the percentage proficient in grade 4 reading was 2.2 percentage points per year before NCLB was enacted in 2002 and 1.0 percentage points per year after NCLB was enacted.

[1]Averages are subject to rounding error.

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

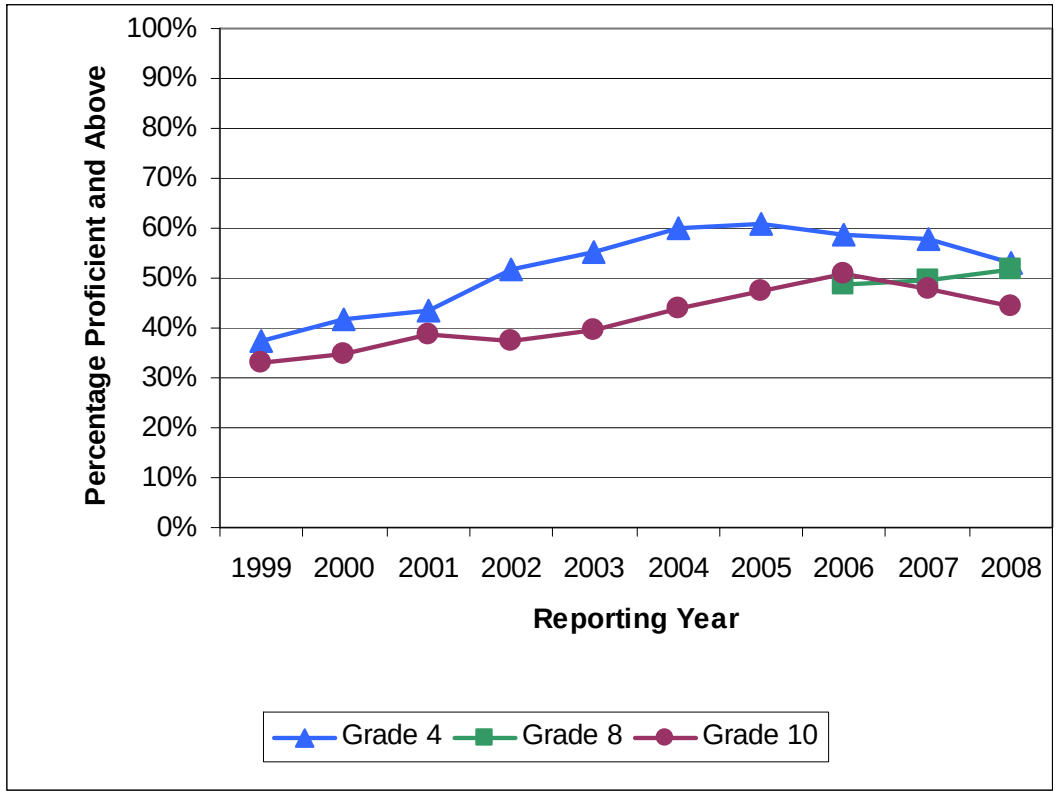


Table WA-2. Percentage of Students Scoring at the Proficient Level and Above in Mathematics

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								64%	69%	68%	NA	2.1
Grade 4	**37%**	**42%**	**43%**	**52%**	**55%**	**60%**	**61%**	**59%**	**58%**	**53%**	**4.8**	**0.2**
Grade 5								56%	59%	61%	NA	2.5
Grade 6								49%	49%	49%	NA	-0.3
Grade 7	24%	28%	27%	30%	37%	46%	51%	49%	54%	50%	2.1	3.3
Grade 8								**49%**	**50%**	**52%**	**NA**	**1.4**
Grade 10	**33%**	**35%**	**39%**	**37%**	**39%**	**44%**	**48%**	**51%**	**48%**	**44%**	**1.4**	**1.2**

Table reads: The percentage of 4th graders who scored at the proficient level and above on the state math test increased from 37% in 1999, to 52% in 2002, to 53% in 2008. The average yearly gain in the percentage proficient in grade 4 math was 4.8 percentage points per year before NCLB was enacted in 2002 and 0.2 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).

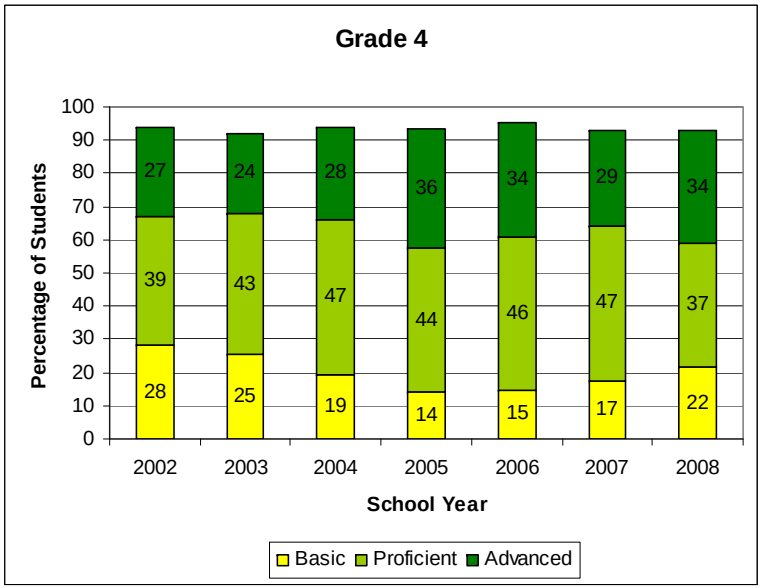
- The sums that result from adding the segments of the bars in these ways correspond with the percentages proficient and above, and basic and above, shown in tables 3 and 4. In a few instances, however, the sums in the figures may differ from those in the tables by a percentage point due to rounding.

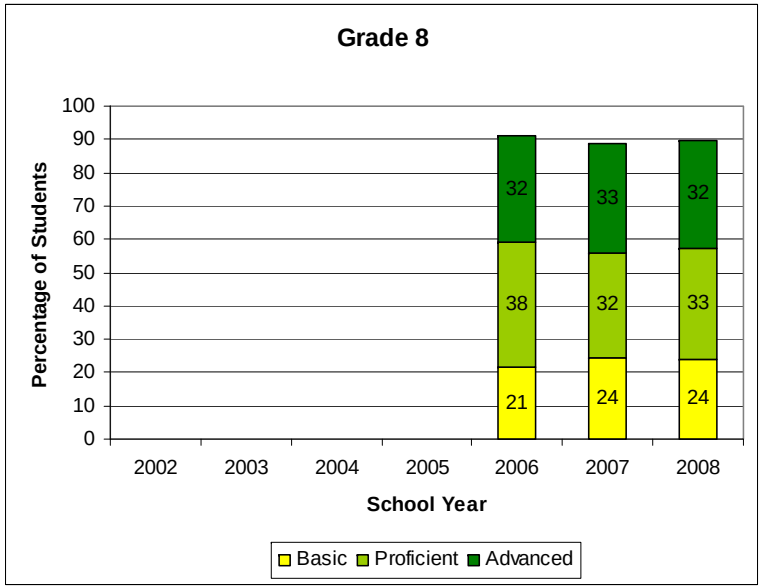
- The bars do not total 100% because students who score *below* the basic level are not displayed.

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





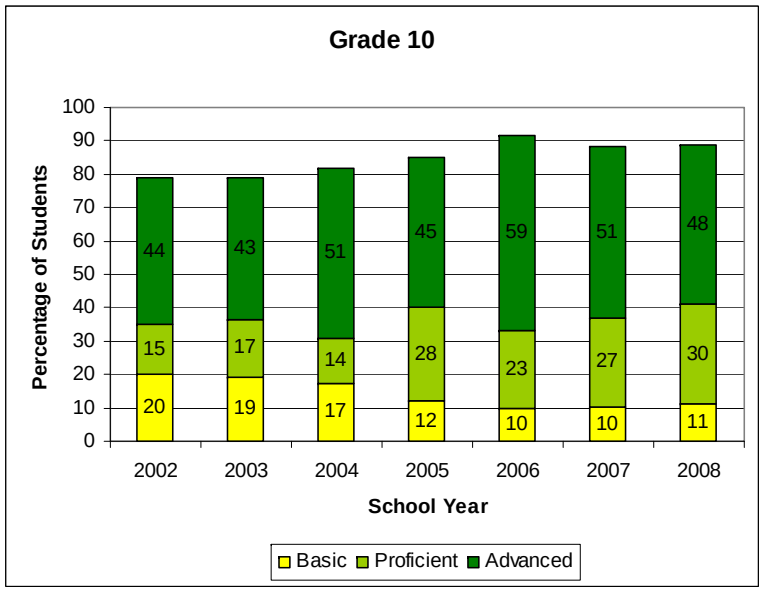


Table WA-3. Percentages of Students Scoring at the Advanced, Proficient and Above, and Basic and Above Levels in Reading

Achievement Level	Reporting Year							Average Yearly Percentage Point Gain[1]
	2002	2003	2004	2005	2006	2007	2008	
Grade 4								
Advanced	27%	24%	28%	36%	34%	29%	34%	1.2
Proficient and Above	66%	67%	74%	80%	81%	76%	71%	1.0
Basic and Above	94%	92%	94%	94%	95%	93%	93%	-0.1
Grade 8								
Advanced					32%	33%	32%	0.1
Proficient and Above					70%	64%	66%	-2.1
Basic and Above					91%	89%	90%	-0.8
Grade 10								
Advanced	44%	43%	51%	45%	59%	51%	48%	0.6
Proficient and Above	59%	60%	65%	73%	82%	78%	78%	3.1
Basic and Above	79%	79%	82%	85%	92%	88%	89%	1.6

Table reads: The percentage of 4th graders who scored at the advanced level on their state reading test increased from 27% in 2002 to 34% in 2008. During this period, the average yearly gain in the percentage advanced was 1.2 percentage points per year in grade 4 reading.

[1]Averages are subject to rounding error.

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

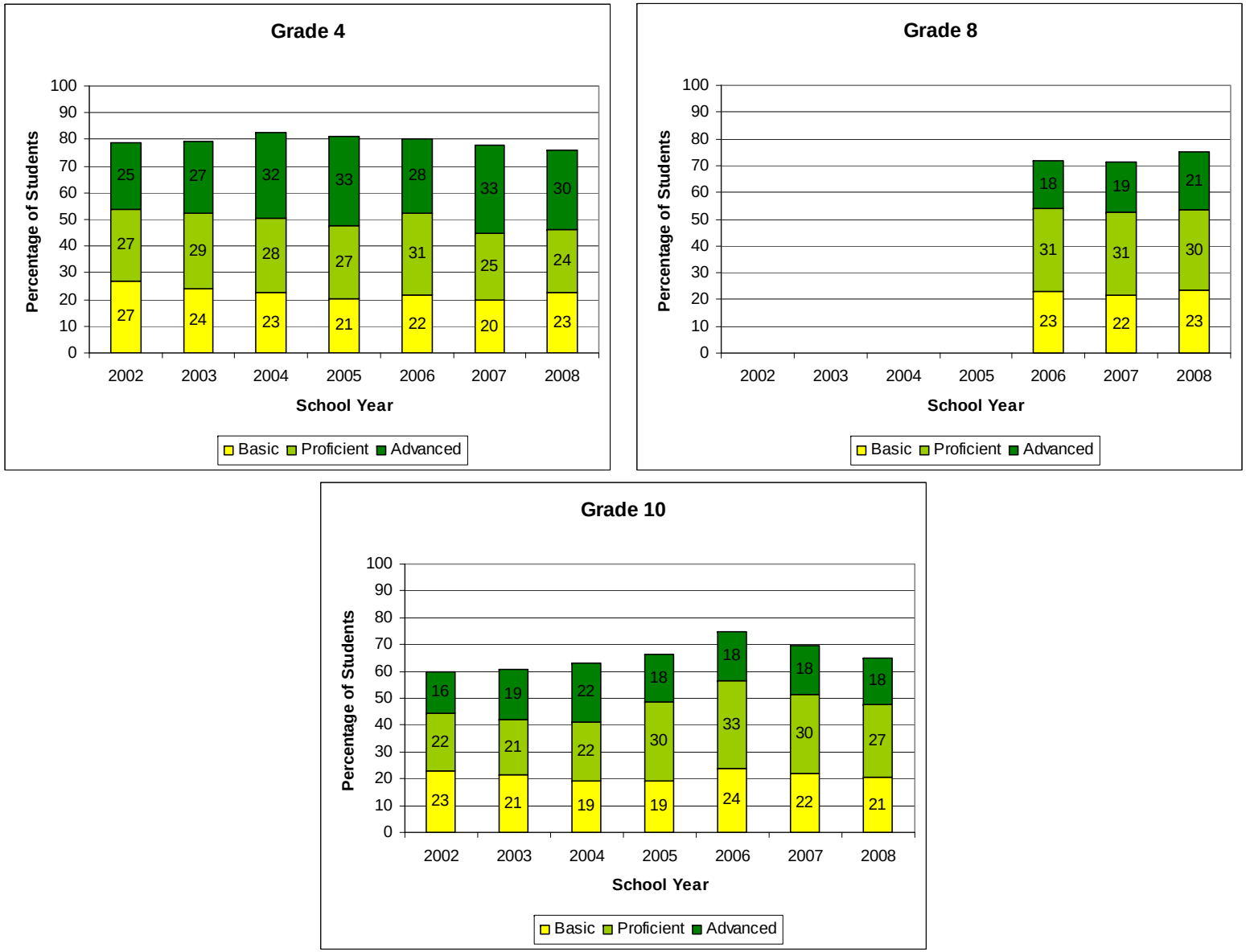


Table WA-4. Percentages of Students Scoring at the Advanced, Proficient and Above, and Basic and Above Levels in Mathematics

Achievement Level	Reporting Year							Average Yearly Percentage Point Gain[1]
	2002	2003	2004	2005	2006	2007	2008	
Grade 4								
Advanced	25%	27%	32%	33%	28%	33%	30%	0.8
Proficient and Above	52%	55%	60%	61%	59%	58%	53%	0.2
Basic and Above	79%	79%	82%	81%	80%	78%	76%	-0.4
Grade 8								
Advanced					18%	19%	21%	1.8
Proficient and Above					49%	50%	52%	1.4
Basic and Above					72%	71%	75%	1.5
Grade 10								
Advanced	16%	19%	22%	18%	18%	18%	18%	0.3
Proficient and Above	37%	39%	44%	48%	51%	48%	44%	1.2
Basic and Above	60%	61%	63%	67%	75%	70%	65%	0.8

Table reads: The percentage of 4th graders who scored at the advanced level on their state math test increased from 25% in 2002 to 30% in 2008. During this period, the average yearly gain in the percentage advanced was 0.8 percentage points per year in grade 4 math.

[1]Averages are subject to rounding error.

Overall Achievement — Effect Sizes

How to read figures 5 and 6 and tables 5 and 6

An **effect size** is 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. An effect size is computed by subtracting the **mean scale score** (the average score) on a test for one year, such as 2006, from the mean scale score for another year, such as 2007, then dividing the result by the average standard deviation. (The **standard deviation** is a measure of how much test scores tend to deviate from the mean—in other words, how spread out or bunched together scores are.) If the mean score has not changed, then the effect size is 0. An effect size of +1 indicates an increase of 1 standard deviation from the previous year's mean score. Effect sizes can also be used to calculate differences in scores between two subgroups of students.

Tables 5 and 6 show mean scale scores, standard deviations, and the **accumulated annual effect size** (AAES), which is the cumulative gain in effect size over a range of years. For example, to determine the accumulated annual effect size between 2006 and 2008, one would calculate the change in effect size from 2006 to 2007, and from 2007 to 2008, then add the results together. In figures and tables 5 and 6, 2002 (or the closest year with comparable data) was used as a starting point (0.00) to calculate accumulated annual effect sizes after NCLB was enacted (and before, if available). Steady gains in AAES are represented by negative numbers before 2002 rising to positive numbers after 2002, so that pre- and post-NCLB trends can be shown on the same trend line. A positive AAES before 2002 or a negative AAES after 2002 indicates a decline in performance over time.

Figure WA-5. Reading Achievement Trends in Terms of Effect Sizes

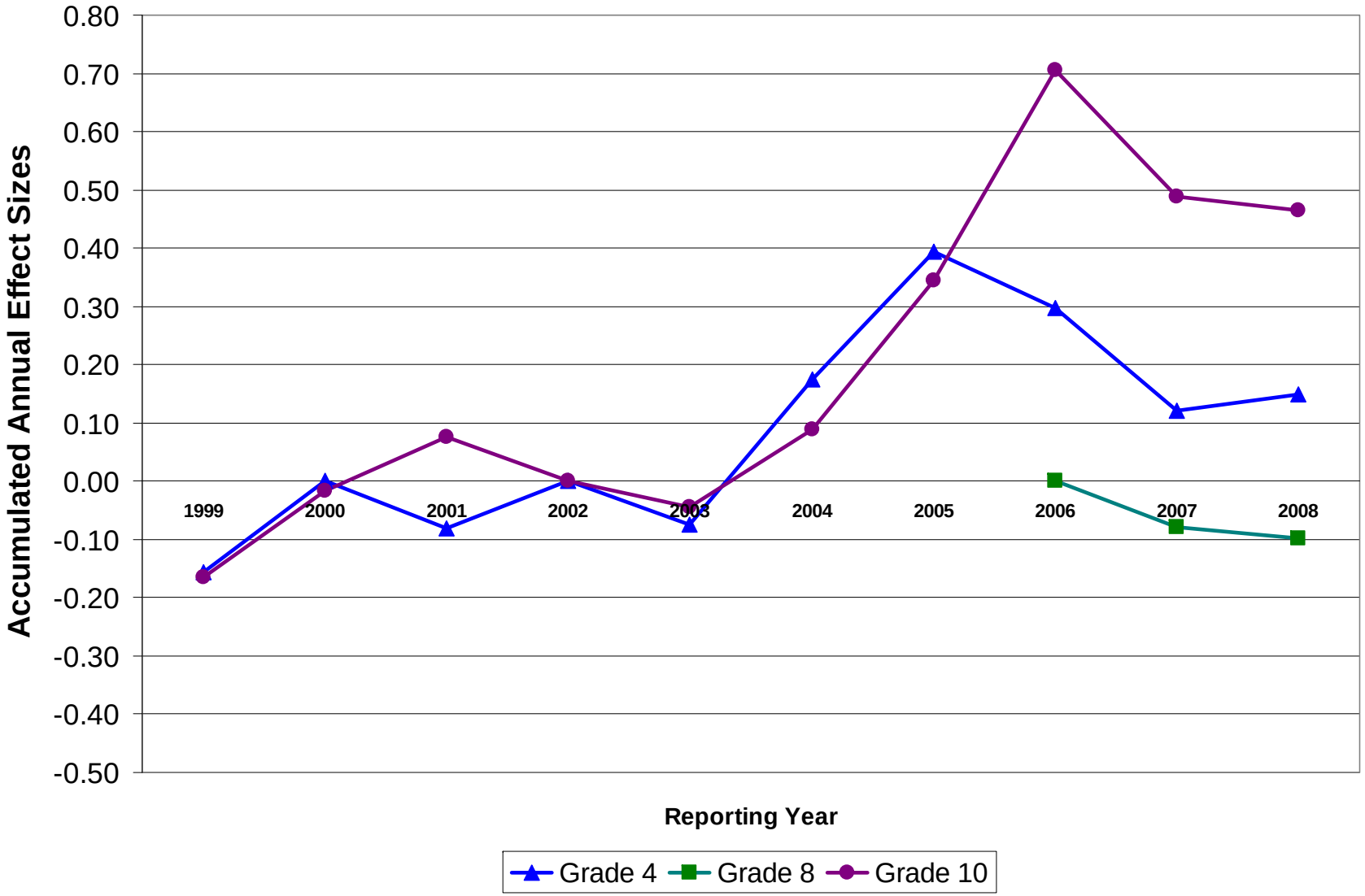


Table WA-5. Reading Achievement Trends in Terms of Effect Sizes

Grade Level		Reporting Year										Pre-NCLB Average Yearly Effect Size Gain 1999-2002[1]	Post-NCLB Average Yearly Effect Size Gain 2002-2008[1]
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008		
Grade 4	MSS *(SD)*	404.2 *(19.5)*	407.3 *(19.6)*	405.7 *(18.6)*	407.3 *(20.2)*	405.8 *(20.6)*	411.0 *(21.1)*	416.0 *(24.7)*	413.8 *(21.3)*	410.1 *(20.7)*	410.7 *(23.6)*		
	AAES	-0.16	0.00	-0.08	0.00	-0.07	0.17	0.39	0.30	0.12	0.15	0.05	0.02
Grade 8	MSS *(SD)*								408.8 *(24.7)*	406.8 *(25.8)*	406.3 *(25.9)*		
	AAES								0.00	-0.08	-0.10	NA	-0.05
Grade 10	MSS *(SD)*	402.8 *(29.5)*	407.3 *(30.2)*	410.0 *(30.5)*	407.7 *(31.6)*	406.2 *(31.9)*	410.6 *(33.2)*	419.3 *(34.4)*	431.7 *(34.4)*	424.7 *(29.8)*	423.9 *(31.8)*		
	AAES	-0.17	-0.02	0.08	0.00	-0.05	0.09	0.34	0.71	0.49	0.46	0.06	0.08

Table reads: The mean scale score (MSS) of 4th graders on the state reading test increased from 404.2 in 1999, to 407.3 in 2002, to 410.7 in 2008. The standard deviation (SD) for the mean scale score in 2002 was 20.2. Using 2002, the year NCLB was enacted, as a starting point (0.00), the accumulated annual effect size (AAES) for grade 4 reading totaled 0.15 by 2008. Working backward from 2002, the AAES for 1999 was –0.16. For the pre-NCLB period, the average yearly gain in effect size at grade 4 was 0.05; for the post-NCLB period, it was 0.02.

Note: The WASL-Reading is scored on a scale of 225-525.

[1]Averages are subject to rounding error.

Figure WA-6. Mathematics Achievement Trends in Terms of Effect Sizes

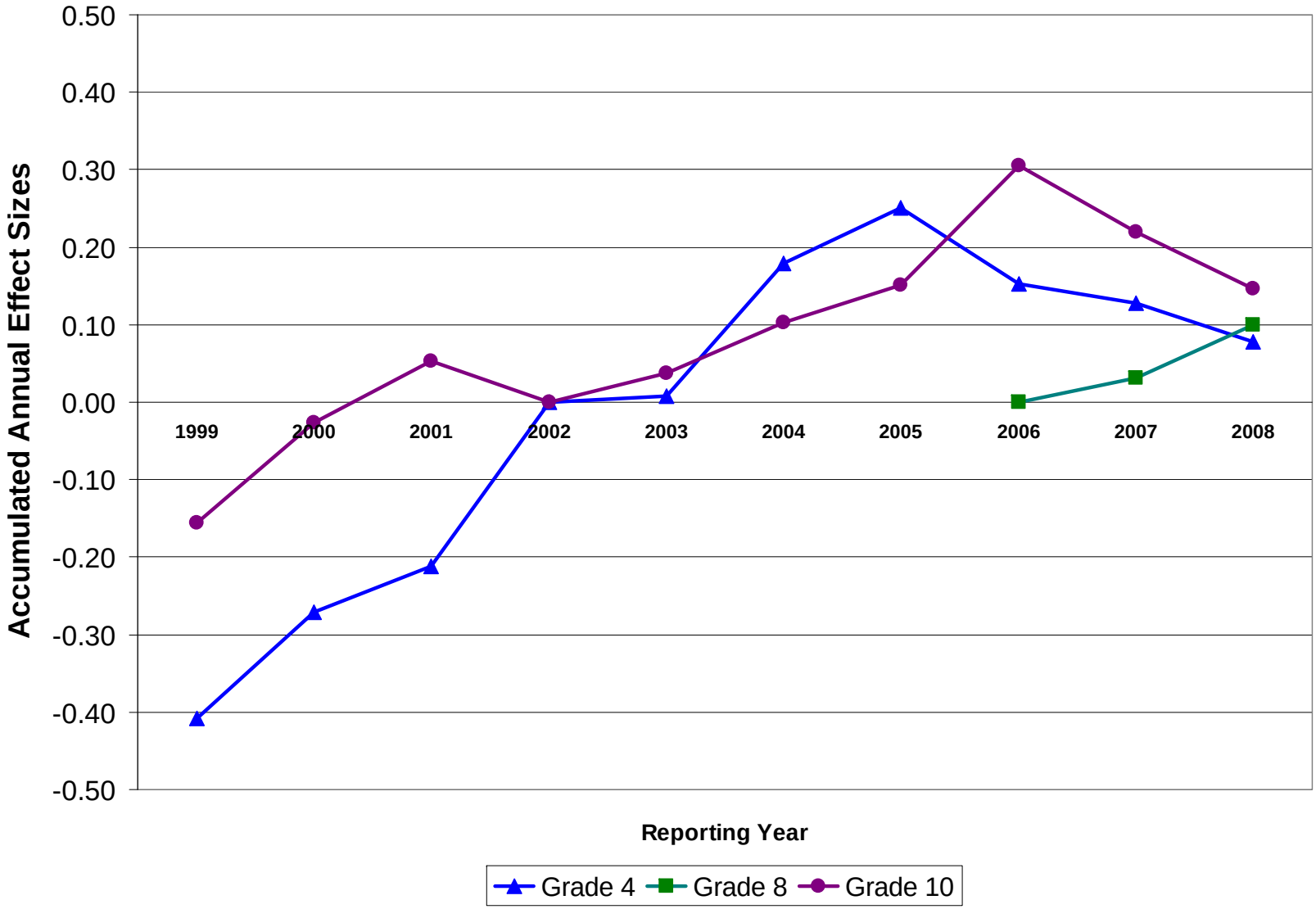


Table WA-6. Mathematics Achievement Trends in Terms of Effect Sizes

Grade Level		Reporting Year										Pre-NCLB Average Yearly Effect Size Gain 1999-2002[1]	Post-NCLB Average Yearly Effect Size Gain 2002-2008[1]
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008		
Grade 4	MSS	386.5	391.2	393.3	400.6	400.8	407.0	409.7	406.0	405.0	402.9		
	(SD)	*(33.9)*	*(34.9)*	*(34.9)*	*(34.0)*	*(34.4)*	*(37.4)*	*(39.3)*	*(37.2)*	*(41.7)*	*(41.9)*		
	AAES	-0.41	-0.27	-0.21	0.00	0.01	0.18	0.25	0.15	0.13	0.08	0.14	0.01
Grade 8	MSS								397.0	398.3	401.2		
	(SD)								*(40.8)*	*(42.5)*	*(42.8)*		
	AAES								0.00	0.03	0.10	NA	0.05
Grade 10	MSS	382.2	387.6	390.8	388.7	390.2	393.1	395.2	401.2	397.9	394.9		
	(SD)	*(42.8)*	*(40.0)*	*(41.1)*	*(38.5)*	*(42.7)*	*(44.6)*	*(40.9)*	*(37.5)*	*(39.3)*	*(41.2)*		
	AAES	-0.16	-0.03	0.05	0.00	0.04	0.10	0.15	0.31	0.22	0.15	0.05	0.02

Table reads: The mean scale score (MSS) of 4th graders on the state math test increased from 386.5 in 1999, to 400.6 in 2002, to 402.9 in 2008. The standard deviation (SD) for the mean scale score in 2002 was 34.0. Using 2002, the year NCLB was enacted, as a starting point (0.00), the accumulated annual effect size (AAES) for grade 4 math totaled 0.08 by 2008. Working backward from 2002, the AAES for 1999 was –0.41. For the pre-NCLB period, the average yearly gain in effect size at grade 4 was 0.14; for the post-NCLB period, it was 0.01.

Note: The WASL-Mathematics is scored on a scale of 125-575.

[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.