

Subgroup Achievement and Gap Trends — Arkansas

K-12 enrollment — 465,000

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 State Testing Data. 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.

Subgroup Achievement Trends and Gap Trends — Key Findings

Summary

This year the Center on Education Policy analyzed data on the achievement of different groups of students in two distinct ways. First, we looked at grade 4 test results to determine whether the performance of various groups improved at three achievement levels—basic and above, proficient and above, and advanced. Second, we looked at gaps between these groups at the proficient level across three grades (grade 4, grade 8 in most cases, and a high school grade). These two types of analyses show whether elementary school achievement has generally gone up for different groups of students and whether achievement gaps at different grade levels have narrowed, widened, or stayed the same.

Arkansas showed a clear upward trend in student achievement, at all achievement levels. There was a mixed picture on achievement gaps.

Subgroup trends by achievement level at grade 4

- **Main trend:** All subgroups showed improvements in the percentage of students scoring at two achievement levels—proficient-and-above and advanced, in both reading and math. At the basic level, all subgroups showed improvements in both subjects with the exception of the Asian subgroup, which showed no change.

Gap trends at three grade levels

- **Main trend:** There was a mixed picture in gaps between the percentages of students scoring at the proficient level between the African American and Latino subgroups and the white subgroup, and between low-income and non-low-income students, at grades 4 and 8 and at the high school grade tested. Specifically, 5 of the 9 trend lines analyzed in reading showed evidence of gaps widening, as did 4 of 9 trend lines in math. The mean scale score measure (the second achievement measure used for this study) had a result similar to that for the percentage proficient measure in reading, and in math it showed gaps widening in 7 of 9 trend lines.

Data notes

- **Limited data:** Trends are limited to 2005–2008 for the elementary and middle grades analyzed.

- Subgroups analyzed: Trends were analyzed for white, African American, Latino, Asian American, and low-income students. The Native American subgroup is too small in Arkansas to yield reliable trend data. Trends for students with disabilities, English language learners, and male and female students have not been summarized because they will be discussed in separate reports.
- Grades analyzed: Analyses of subgroup trends by three achievement levels are limited to one elementary grade because of the massive amounts of data involved and because this is the pilot year of a process that CEP hopes to extend to the middle and high school levels in future years. Analyses of achievement gap trends cover three grade levels: grade 4, grade 8, and the high school grade tested for NCLB.

Data Limitations

Years of comparable percentage proficient data	2005–2008, grades 3–8 2001–2008, grade 11 / end-of-course
Years of comparable mean scale score data	2005–2008, grades 3–8 2001–2008, grade 11 / end-of-course
Disaggregated data for all subgroups and comparison groups	2005-2008, grades 4 and 8 2002-2008, grade 11 / end-of-course Scale score data for Native American students not available in 2007 Grade 11 percent proficient data for students who are <i>not</i> low-income not available until 2003, so 2003 used as baseline year for the low-income v. <i>not</i> low-income comparison for proficiency analyses Percentage proficient data not available for comparison groups of students who are <i>not</i> English language learners (ELLs), so the ELL subgroup is compared with all tested students in the state for proficiency analyses

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	Benchmark Exams (grades 3–8) End of Course (EOC) Exams in algebra I and geometry and grade 11 Literacy Exam Arkansas Alternate Portfolio Assessment System for Students with Disabilities (grades 3–8, grade 9 math, grade 11 literacy)
--------------------------------------	---

Grades tested for NCLB accountability	3–8 for Benchmark Exams, 11 for Literacy Exam Grades vary for EOC Exams Prior to 2005: grades 4, 6, 8
State labels for achievement levels	AR uses four achievement levels: Below Basic, Basic, Proficient, and Advanced. For our analyses we treated Basic as Basic, Proficient as Proficient, and Advanced as Advanced.
High school NCLB test also used as an exit exam?	Yes
First year test used	2005 is baseline for vertical scale for grades 3–8 2001 is baseline for EOC Exams and grade 11 Literacy Exam
Time of test administration	Spring EOC Exams in algebra I and geometry are also administered at midyear.
Major changes in testing system (2002–present)	2005: Added testing in grades 3, 5, 7 in reading and math and grades 5 and 7 in science 2005: Reset standards for grades 3–8 Benchmark Exams and developed a vertical scale (scales for EOC and grade 11 Literacy Exams remained unchanged) 2008: EOC Exam in biology scheduled to become operational.

Achievement by Subgroup — Trends at the Elementary Level

Note: The tables in this profile of subgroup achievement and gap trends begin with table 7. Tables 1 through 6 can be found in the companion state profile of general achievement trends.

Table AR-7. Percentages of Grade 4 Students by Racial or Ethnic Subgroup Scoring at the Advanced, Proficient and Above, and Basic and Above Levels in Reading

Subgroup	Reporting Year					Average Yearly Percentage Point Gain ¹		
	2002	2003	2004	2005	2006		2007	2008
All tested students								
Advanced				14%	24%	21%	28%	4.7
Proficient and Above				51%	61%	59%	67%	5.3
Basic and Above				85%	89%	88%	93%	2.7
White								
Advanced				18%	29%	27%	34%	5.3
Proficient and Above				60%	69%	67%	75%	5.0
Basic and Above				90%	92%	93%	94%	1.3
African American								
Advanced				5%	9%	8%	14%	2.9
Proficient and Above				30%	37%	37%	48%	6.0
Basic and Above				76%	79%	81%	87%	3.6
Latino								
Advanced				8%	14%	10%	16%	2.7
Proficient and Above				42%	52%	44%	54%	4.0
Basic and Above				83%	88%	83%	89%	2.0
Asian								
Advanced				26%	38%	29%	37%	3.7
Proficient and Above				63%	75%	67%	69%	2.0
Basic and Above				93%	94%	90%	93%	0.0
Native American ²								
Advanced				13%	24%	19%	23%	3.3
Proficient and Above				55%	68%	60%	66%	3.7
Basic and Above				86%	91%	89%	93%	2.3

Table reads: The percentage of white 4th graders who scored at the advanced level on the state reading test increased from 18% in 2005 to 34% in 2008. During this period, the average yearly gain in the percentage advanced in reading for white 4th graders was 5.3 percentage points per year.

¹Averages are subject to rounding error.

²The number of students tested in this subgroup at this grade level was fewer than 500 in 2008 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

Table AR-8. Percentage of Grade 4 Students by Demographic Subgroup Scoring at the Advanced, Proficient and Above, and Basic and Above Levels in Reading

Subgroup	Reporting Year						Average Yearly Percentage Point Gain ¹	
	2002	2003	2004	2005	2006	2007		2008
All tested students								
Advanced				14%	24%	21%	28%	4.7
Proficient and Above				51%	61%	59%	67%	5.3
Basic and Above				85%	89%	88%	93%	2.7
Low-income students								
Advanced				8%	14%	12%	19%	3.7
Proficient and Above				40%	49%	47%	57%	5.7
Basic and Above				81%	84%	84%	90%	3.0
Students with disabilities ³								
Advanced				2%	3%	3%	5%	1.0
Proficient and Above				10%	15%	15%	21%	3.0
Basic and Above				39%	48%	49%	61%	6.5
English language learners ³								
Advanced				5%	11%	7%	10%	-0.5
Proficient and Above				32%	47%	36%	45%	-1.0
Basic and Above				76%	85%	79%	85%	0.0
Female								
Advanced				18%	28%	25%	35%	5.7
Proficient and Above				59%	67%	64%	73%	4.7
Basic and Above				90%	92%	93%	96%	2.0
Male								
Advanced				11%	19%	18%	22%	3.7
Proficient and Above				45%	55%	53%	60%	5.0
Basic and Above				82%	85%	86%	90%	2.7

Table reads: The percentage of low-income 4th graders who scored at the advanced level on the state reading test increased from 8% in 2005 to 19% in 2008. During this period, the average yearly gain in the percentage advanced in reading for low-income 4th graders was 3.7 percentage points per year.

¹Averages are subject to rounding error.

²The number of students tested in this subgroup at this grade level was fewer than 500 in 2008 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

³Gap trends for students with disabilities and English language learners should be interpreted with caution because state and federal policy changes may have affected the year-to-year comparability of test results for these subgroups. Average yearly percentage point gains are based on 2006-2008 results.

Table AR-9. Percentages of Grade 4 Students by Racial or Ethnic Subgroup Scoring at the Advanced, Proficient and Above, and Basic and Above Levels in Mathematics

Subgroup	Reporting Year					Average Yearly Percentage Point Gain ¹		
	2002	2003	2004	2005	2006		2007	2008
All tested students								
Advanced				17%	25%	35%	44%	9.0
Proficient and Above				50%	60%	65%	74%	8.0
Basic and Above				75%	83%	85%	88%	4.3
White								
Advanced				21%	30%	43%	53%	10.7
Proficient and Above				58%	68%	74%	82%	8.0
Basic and Above				83%	89%	91%	93%	3.3
African American								
Advanced				6%	9%	16%	24%	6.0
Proficient and Above				28%	35%	42%	54%	8.7
Basic and Above				55%	64%	69%	76%	7.0
Latino								
Advanced				10%	19%	24%	35%	8.3
Proficient and Above				42%	57%	55%	67%	8.3
Basic and Above				71%	83%	80%	84%	4.3
Asian								
Advanced				33%	44%	47%	53%	6.7
Proficient and Above				65%	74%	73%	76%	3.7
Basic and Above				87%	93%	87%	87%	0.0
Native American ²								
Advanced				21%	21%	37%	40%	6.3
Proficient and Above				55%	63%	68%	74%	6.3
Basic and Above				77%	87%	84%	90%	4.3

Table reads: The percentage of white 4th graders who scored at the advanced level on the state math test increased from 21% in 2005 to 53% in 2008. During this period, the average yearly gain in the percentage advanced in math for white 4th graders was 10.7 percentage points per year.

¹Averages are subject to rounding error.

²The number of students tested in this subgroup at this grade level was fewer than 500 in 2008 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

Table AR-10. Percentage of Grade 4 Students by Demographic Subgroup Scoring at the Advanced, Proficient and Above, and Basic and Above Levels in Mathematics

Subgroup	Reporting Year					Average Yearly Percentage Point Gain ¹		
	2002	2003	2004	2005	2006		2007	2008
All tested students								
Advanced				17%	25%	35%	44%	9.0
Proficient and Above				50%	60%	65%	74%	8.0
Basic and Above				75%	83%	85%	88%	4.3
Low-income students								
Advanced				10%	16%	25%	34%	8.0
Proficient and Above				39%	49%	55%	66%	9.0
Basic and Above				67%	76%	79%	83%	5.3
Students with disabilities ³								
Advanced				7%	6%	9%	16%	5.0
Proficient and Above				14%	22%	27%	36%	7.0
Basic and Above				36%	56%	51%	57%	0.5
English language learners ³								
Advanced				9%	16%	20%	29%	6.5
Proficient and Above				37%	51%	49%	61%	5.0
Basic and Above				66%	79%	76%	80%	0.5
Female								
Advanced				18%	25%	36%	46%	9.3
Proficient and Above				52%	62%	66%	75%	7.7
Basic and Above				77%	85%	86%	89%	4.0
Male								
Advanced				17%	25%	35%	43%	8.7
Proficient and Above				49%	59%	64%	73%	8.0
Basic and Above				74%	81%	84%	87%	4.3

Table reads: The percentage of low-income 4th graders who scored at the advanced level on the state math test increased from 10% in 2005 to 34% in 2008. During this period, the average yearly gain in the percentage advanced in math for low-income 4th graders was 8.0 percentage points per year.

¹Averages are subject to rounding error.

²The number of students tested in this subgroup at this grade level was fewer than 500 in 2008 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

³Gap trends for students with disabilities and English language learners should be interpreted with caution because state and federal policy changes may have affected the year-to-year comparability of test results for these subgroups. Average yearly percentage point gains are based on 2006-2008 results.

Achievement by Subgroup — Gap Trends (Percentages Proficient)**Table AR-11. Subgroup Achievement Trends in Reading by Percentages Proficient**

NOTE: L = Larger gain than comparison group. S = Smaller gain than comparison group. E = Equal gain to comparison group.

If the average annual gain for the subgroup of interest, such as African American students, is larger than the average annual gain for the comparison group, such as white students, this indicates that the achievement gap has narrowed. If the average gain for the subgroup of interest is smaller, this means the gap has widened.

Subgroup	Grade 4					Grade 8					Grade 11				
	Year Span	Starting PP	Ending PP	Average Annual Gain ¹	Gain Larger or Smaller Than Comparison Group	Year Span	Starting PP	Ending PP	Average Annual Gain ¹	Gain Larger or Smaller Than Comparison Group	Year Span	Starting PP	Ending PP	Average Annual Gain ¹	Gain Larger or Smaller Than Comparison Group
All tested students	05-08	51%	67%	5.3		05-08	57%	67%	3.3		02-08	37%	51%	2.3	
White	05-08	60%	75%	5.0		05-08	65%	75%	3.3		02-08	46%	61%	2.5	
African American	05-08	30%	48%	6.0	L	05-08	34%	45%	3.7	L	02-08	15%	23%	1.3	S
Latino	05-08	42%	54%	4.0	S	05-08	46%	54%	2.7	S	02-08	20%	33%	2.2	S
Asian	05-08	63%	69%	2.0	S	05-08	67%	74%	2.3 ²	S	02-08	49%	54%	0.8 ²	S
Native American	05-08	55%	66%	3.7 ²	S	05-08	54%	71%	5.7 ²	L	02-08	23%	52%	4.8 ²	L
Not low-income	05-08	68%	80%	4.0		05-08	71%	80%	3.0		03-08	50%	63%	2.6	
Low-income	05-08	40%	57%	5.7	L	05-08	44%	55%	3.7	L	03-08	23%	34%	2.2	S
Not disabled	06-08	67%	72%	2.5		06-08	72%	74%	1.0		06-08	50%	57%	3.5	
Students with disabilities ³	06-08	15%	21%	3.0	L	06-08	12%	13%	0.5	S	06-08	2%	4%	1.0	S
All tested students	06-08	61%	67%	3.0		06-08	65%	67%	1.0		06-08	46%	51%	2.5	
English language learners ³	06-08	47%	45%	-1.0	S	06-08	39%	33%	-3.0	S	06-08	13%	11%	-1.0	S
Female	05-08	59%	73%	4.7		05-08	67%	74%	2.3		02-08	46%	58%	2.0	
Male	05-08	45%	60%	5.0	L	05-08	48%	60%	4.0	L	02-08	29%	44%	2.5	L

Table reads: In 2005, 60% of white 4th graders and 30% of African American 4th graders scored at the proficient level on the state reading test. In 2008, 75% of white 4th graders and 48% of African American 4th graders scored at the proficient level in reading. Between 2005 and 2008, the percentage proficient improved at

an average rate of 5.0 percentage point per year for white students and 6.0 percentage points per year for African American students, indicating a larger rate of gain and a narrowing of the achievement gap for African American 4th graders.

¹Numbers in these columns are subject to rounding error.

²The number of students tested in this subgroup at this grade level was fewer than 500 in 2008 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

³Gap trends for students with disabilities and English language learners should be interpreted with caution because state and federal policy changes may have affected the year-to-year comparability of test results for these subgroups.

Table AR-12. Subgroup Achievement Trends in Mathematics by Percentages Proficient

NOTE: L = Larger gain than comparison group. S = Smaller gain than comparison group. E = Equal gain to comparison group.

If the average annual gain for the subgroup of interest, such as African American students, is larger than the average annual gain for the comparison group, such as white students, this indicates that the achievement gap has narrowed. If the average gain for the subgroup of interest is smaller, this means the gap has widened.

Subgroup	Grade 4					Grade 8					End-of-course Algebra 1				
	Year Span	Starting PP	Ending PP	Average Annual Gain ¹	Gain Larger or Smaller Than Comparison Group	Year Span	Starting PP	Ending PP	Average Annual Gain ¹	Gain Larger or Smaller Than Comparison Group	Year Span	Starting PP	Ending PP	Average Annual Gain ¹	Gain Larger or Smaller Than Comparison Group
All tested students	05-08	50%	74%	8.0		05-08	33%	56%	7.7		02-08	35%	65%	5.1	
White	05-08	58%	82%	8.0		05-08	42%	65%	7.7		02-08	43%	74%	5.2	
African American	05-08	28%	54%	8.7	L	05-08	10%	32%	7.3	S	02-08	11%	41%	5.1	S
Latino	05-08	42%	67%	8.3	L	05-08	22%	46%	8.0	L	02-08	22%	57%	5.8	L
Asian	05-08	65%	76%	3.7	S	05-08	49%	69%	6.7 ²	S	02-08	52%	78%	4.3	S
Native American	05-08	55%	74%	6.3 ²	S	05-08	32%	61%	9.7 ²	L	02-08	25%	68%	7.1 ²	L
Not low-income	05-08	64%	85%	7.0		05-08	46%	71%	8.3		03-08	51%	76%	5.1	
Low-income	05-08	39%	66%	9.0	L	05-08	20%	44%	8.0	S	03-08	29%	54%	5.0	S
Not disabled	06-08	65%	79%	7.0		06-08	49%	62%	6.5		06-08	67%	66%	-0.5	
Students with disabilities ³	06-08	22%	36%	7.0	E	06-08	5%	11%	3.0	S	06-08	19%	23%	2.0	L
All tested students	06-08	60%	74%	7.0		06-08	44%	56%	6.0		06-08	64%	65%	0.7	
English language learners ³	06-08	51%	61%	5.0	S	06-08	19%	30%	5.5	S	06-08	39%	42%	1.5	L
Female	05-08	52%	75%	7.7		05-08	33%	57%	8.0		02-08	37%	68%	5.2	
Male	05-08	49%	73%	8.0	L	05-08	35%	56%	7.0	S	02-08	34%	63%	4.8	S

Table reads: In 2005, 58% of white 4th graders and 28% of African American 4th graders scored at the proficient level on the state math test. In 2008, 82% of white 4th graders and 54% of African American 4th graders scored at the proficient level in math. Between 2005 and 2008, the percentage proficient improved at an average rate of 8.0 percentage point per year for white students and 8.7 percentage points per year for African American students, indicating a larger rate of gain and a narrowing of the achievement gap for African American 4th graders.

¹Numbers in these columns are subject to rounding error.

²The number of students tested in this subgroup at this grade level was fewer than 500 in 2008 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

³Gap trends for students with disabilities and English language learners should be interpreted with caution because state and federal policy changes may have affected the year-to-year comparability of test results for these subgroups.

Achievement by Subgroup — Gap Trends (Mean Scale Scores)

Table AR-13. Achievement Gap Trends in Reading by Mean Scale Scores

NOTE: L = Larger gain than comparison group. S = Smaller gain than comparison group. E = Equal gain to comparison group. If the average gain for the subgroup of interest, such as African American students, is larger than the average gain for the comparison group, such as white students, this indicates that the achievement gap has narrowed. If the average gain for the subgroup of interest is smaller, this means the gap has widened.

Subgroup	Statistic	Grade 4					Grade 8					Grade 11				
		Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group	Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group	Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group
All tested students	Mean SS	05-08	553.5	635.8	27.4		05-08	666.0	759.9	31.3		02-08	188.2	199.5	1.9	
	SD	05-08	183.6	184.1			05-08	150.1	172.4			02-08	32.2	22.6		
White	Mean SS	05-08	585.9	670.2	28.1		05-08	691.3	796.3	35.0		02-08	195.0	204.5	1.6	
	SD	05-08	176.9	176.1			05-08	145.1	154.4			02-08	29.2	21.2		
African American	Mean SS	05-08	463.9	552.8	29.6	L	05-08	607.6	668.4	20.3	S	02-08	170.5	185.5	2.5	L
	SD	05-08	172.6	176.7			05-08	145.2	178.2			02-08	31.6	20.4		
Latino	Mean SS	05-08	505.4	573.7	22.8	S	05-08	632.9	690.8	19.3	S	02-08	171.3	189.7	3.1	L
	SD	05-08	178.1	177.1			05-08	148.7	189.1			02-08	33.7	22.3		
Asian	Mean SS	05-08	619.8	663.5	14.6	S	05-08	678.8	785.0	35.4 ²	L	02-08	194.8	201.1	1.1 ²	S
	SD	05-08	175.8	201.3			05-08	144.4	175.7			02-08	34.4	22.0		
Native American	Mean SS	05-08	552.8	624.9	24.0 ²	S	05-08	661.4	774.7	37.8 ²	L	02-08	174.7	198.1	3.9 ²	L
	SD	05-08	176.8	181.6			05-08	157.8	165.7			02-08	35.0	22.4		
Not Low-income	Mean SS	05-08	622.8	707.0	28.1		05-08	710.4	822.9	37.5		02-08	194.0	206.0	2.0	
	SD	05-08	168.3	165.7			05-08	139.0	141.3			02-08	30.1	21.1		
Low-income	Mean SS	05-08	501.2	586.0	28.3	L	05-08	630.2	704.5	24.8	S	02-08	174.1	191.0	2.8	L
	SD	05-08	177.3	180.0			05-08	149.2	178.2			02-08	32.6	21.7		
Not disabled	Mean SS	06-08	627.8	661.6	16.9		06-08	777.7	790.8	6.6		06-08	199.4	203.1	1.9	
	SD	06-08	168.8	166.7			06-08	140.2	145.4			06-08	19.5	20.3		
Students with disabilities ³	Mean SS	06-08	365.0	423.4	29.2	L	06-08	512.2	510.3	-1.0	S	06-08	163.4	169.3	3.0	L
	SD	06-08	189.2	183.3			06-08	156.1	170.8			06-08	19.6	18.6		
Not ELLs	Mean SS	06-08	599.9	642.7	21.4		06-08	747.2	766.6	9.7		06-08	195.9	200.1	2.1	
	SD	06-08	190.7	183.0			06-08	166.1	168.6			06-08	22.4	22.4		
English language learners ³	Mean SS	06-08	533.0	535.4	1.2	S	06-08	639.1	599.2	-19.9	S	06-08	179.1	177.0	-1.0	S
	SD	06-08	178.1	170.5			06-08	170.6	184.0			06-08	20.2	20.5		
Female	Mean SS	05-08	587.6	671.1	27.9		05-08	697.6	792.1	31.5		02-08	195.2	203.7	1.4	
	SD	05-08	175.6	176.9			05-08	140.4	157.1			02-08	28.9	21.5		

Subgroup	Statistic	Grade 4					Grade 8					Grade 11				
		Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group	Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group	Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group
Male	Mean SS	05-08	520.9	601.4	26.8	S	05-08	640.3	728.8	29.5	S	02-08	181.2	195.5	2.4	L
	SD	05-08	185.2	184.6			05-08	152.9	180.6			02-08	33.5	23.0		

Table reads: In 2005, the mean scale score on the state 4th grade reading test was 585.9 for white students and 463.9 for African American students. In 2008, the mean scale score in 4th grade reading was 670.2 for white students and 552.8 for African American students. Between 2005 and 2008, the mean scale score improved at an average yearly rate of 28.1 points for white students and 29.6 points for African American students, indicating a narrowing of the achievement gap for African Americans.

Note: The Benchmark Exams for grades 3-8 are scored on a vertical scale of 0-999. The grade 11 Literacy Exam is scored on a scale of 0-315.

¹Numbers in these columns are subject to rounding error.

²The number of students tested in this subgroup at this grade level was fewer than 500 in 2008 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

³Gap trends for students with disabilities and English language learners should be interpreted with caution because state and federal policy changes may have affected the year-to-year comparability of test results for these subgroups.

Table AR-14. Subgroup Achievement Trends in Mathematics by Mean Scale Scores

NOTE: L = Larger gain than comparison group. S = Smaller gain than comparison group. E = Equal gain to comparison group.

If the average gain for the subgroup of interest, such as African American students, is larger than the average gain for the comparison group, such as white students, this indicates that the achievement gap has narrowed. If the average gain for the subgroup of interest is smaller, this means the gap has widened.

Subgroup	Statistic	Grade 4					Grade 8					End-of-course Algebra I				
		Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group	Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group	Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group
All tested students	Mean SS	05-08	553.1	617.9	21.6		05-08	633.6	717.1	27.8		02-08	183.4	217.6	5.7	
	SD	05-08	91.8	100.6			05-08	72.0	103.3			02-08	43.3	45.8		
White	Mean SS	05-08	570.5	638.0	22.5		05-08	649.4	738.8	29.8		02-08	194.1	227.4	5.6	
	SD	05-08	87.0	93.5			05-08	68.6	99.2			02-08	40.5	42.6		
African American	Mean SS	05-08	501.9	564.3	20.8	S	05-08	595.0	656.6	20.6	S	02-08	154.5	189.8	5.9	L
	SD	05-08	88.2	99.5			05-08	65.5	91.7			02-08	37.6	44.0		
Latino	Mean SS	05-08	537.8	594.7	19.0	S	05-08	625.9	689.0	21.1	S	02-08	167.9	207.0	6.5	L
	SD	05-08	83.4	99.8			05-08	68.1	90.8			02-08	40.7	42.1		
Asian	Mean SS	05-08	593.4	634.8	13.8	S	05-08	651.5	754.2	34.3 ²	L	02-08	202.7	235.6	5.5	S
	SD	05-08	92.9	109.9			05-08	73.8	111.7			02-08	49.7	48.4		
Native American	Mean SS	05-08	562.6	612.6	16.7 ²	S	05-08	632.2	726.1	31.3 ²	L	02-08	171.4	220.9	8.3 ²	L
	SD	05-08	90.4	92.5			05-08	71.2	104.2			02-08	41.4	40.4		
Not Low-income	Mean SS	05-08	585.1	655.3	23.4		05-08	656.0	755.3	33.1		02-08	190.5	231.2	6.8	
	SD	05-08	85.7	90.7			05-08	67.6	97.9			02-08	42.4	43.1		
Low-income	Mean SS	05-08	529.0	591.8	20.9	S	05-08	615.6	683.4	22.6	S	02-08	168.6	203.9	5.9	S
	SD	05-08	88.9	98.8			05-08	70.3	95.9			02-08	41.3	44.3		
Not disabled	Mean SS	06-08	588.3	629.6	20.7		06-08	695.8	731.4	17.8		06-08	218.0	221.3	1.7	
	SD	06-08	87.8	92.9			06-08	84.8	96.3			06-08	48.7	44.1		
Students with disabilities ³	Mean SS	06-08	484.3	521.4	18.6	S	06-08	578.8	600.6	10.9	S	06-08	158.7	170.3	5.8	L
	SD	06-08	99.5	109.2			06-08	75.6	81.4			06-08	45.1	40.6		
Not ELLs	Mean SS	06-08	577.0	620.6	21.8		06-08	682.3	719.8	18.7		06-08	214.7	218.5	1.9	
	SD	06-08	95.4	100.1			06-08	92.2	103.1			06-08	50.4	45.8		
English language learners ³	Mean SS	06-08	558.0	579.0	10.5	S	06-08	634.9	653.6	9.3	S	06-08	185.6	193.2	3.8	L
	SD	06-08	86.3	99.4			06-08	79.0	84.7			06-08	51.5	39.9		
Female	Mean SS	05-08	557.3	620.7	21.2		05-08	636.3	717.8	27.2		02-08	185.7	219.7	5.7	

Subgroup	Statistic	Grade 4					Grade 8					End-of-course Algebra I				
		Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group	Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group	Year Span	Starting Year	Ending Year	Average Gain (Mean Scale Score) ¹	Gain Larger or Smaller than Comparison Group
	SD	05-08	90.0	99.6			05-08	69.8	98.3			02-08	41.8	43.7		
Male	Mean SS	05-08	549.2	615.2	22.0	L	05-08	631.1	716.4	28.4	L	02-08	181.2	215.6	5.7	L
	SD	05-08	93.5	101.4			05-08	73.8	107.9			02-08	44.6	47.7		

Table reads: In 2005, the mean scale score on the state 4th grade math test was 570.5 for white students and 501.9 for African American students. In 2008, the mean scale score in 4th grade math was 638.0 for white students and 564.3 for African American students. Between 2005 and 2008, the mean scale score improved at an average yearly rate of 22.5 points for white students and 20.8 points for African American students, indicating a widening of the achievement gap for African Americans.

Note: The Benchmark Exams for grades 3-8 are scored on a vertical scale of 0-999. The Algebra I End-of-Course Exam is scored on a scale of 0-499.

¹Numbers in these columns are subject to rounding error.

²The number of students tested in this subgroup at this grade level was fewer than 500 in 2008 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

³Gap trends for students with disabilities and English language learners should be interpreted with caution because state and federal policy changes may have affected the year-to-year comparability of test results for these subgroups.

Table AR-15. Numbers of Test-Takers

Subgroup	Subject	Grade 4					Grade 8					Grade 11/EOC Algebra I				
		Year Span	# of Test-Takers Start Year	# of Test-Takers End Year	Change in # of Test-Takers Over Time	% of Test-Takers in Subgroup in End Year	Year Span	# of Test-Takers Start Year	# of Test-Takers End Year	Change in # of Test-Takers Over Time	% of Test-Takers in Subgroup in End Year	Year Span	# of Test-Takers Start Year	# of Test-Takers End Year	Change in # of Test-Takers Over Time	% of Test-Takers in Subgroup in End Year
All tested students	Reading	05-08	33,145	32,540	-1.8%	100.0%	05-08	27,343	32,342	18.3%	100.0%	02-08	28,854	29,663	2.8%	100.0%
	Math	05-08	33,101	32,540	-1.7%	100.0%	05-08	29,930	32,342	8.1%	100.0%	02-08	30,500	33,450	9.7%	100.0%
White	Reading	05-08	22,971	21,852	-4.9%	67.2%	05-08	18,222	22,110	21.3%	68.4%	02-08	20,063	20,964	4.5%	70.7%
	Math	05-08	22,962	21,852	-4.8%	67.2%	05-08	19,903	22,110	11.1%	68.4%	02-08	20,502	22,767	11.0%	68.1%
African American	Reading	05-08	7,472	7,141	-4.4%	21.9%	05-08	7,148	7,143	-0.1%	22.1%	02-08	5,902	6,311	6.9%	21.3%
	Math	05-08	7,464	7,141	-4.3%	21.9%	05-08	7,907	7,143	-9.7%	22.1%	02-08	6,476	7,485	15.6%	22.4%
Latino	Reading	05-08	1,962	2,783	41.8%	8.6%	05-08	1,368	2,393	74.9%	7.4%	02-08	860	1,682	95.6%	5.7%
	Math	05-08	1,938	2,783	43.6%	8.6%	05-08	1,477	2,393	62.0%	7.4%	02-08	1,121	2,405	114.5%	7.2%
Asian	Reading	05-08	361	525	45.4%	1.6%	05-08	252	478	89.7%	1.5%	02-08	361	458	26.9%	1.5%
	Math	05-08	360	525	45.8%	1.6%	05-08	267	478	79.0%	1.5%	02-08	336	527	56.8%	1.6%
Native American	Reading	05-08	230	233	1.3%	0.7%	05-08	196	217	10.7%	0.7%	02-08	436	240	-45.0%	0.8%
	Math	05-08	229	233	1.7%	0.7%	05-08	205	217	5.9%	0.7%	02-08	495	252	-49.1%	0.8%
Low-income	Reading	05-08	18,899	19,161	1.4%	58.9%	05-08	15,132	17,204	13.7%	53.2%	02-08	8,383	12,793	52.6%	43.1%
	Math	05-08	18,866	19,161	1.6%	58.9%	05-08	16,575	17,204	3.8%	53.2%	02-08	9,794	16,669	70.2%	49.8%
Students w/ disabilities	Reading	06-08	3,863	3,525	-8.7%	10.8%	06-08	4,406	3,551	-19.4%	11.0%	06-08	3,208	3,116	-2.9%	10.5%
	Math	06-08	3,863	3,525	-8.7%	10.8%	06-08	4,406	3,551	-19.4%	11.0%	06-08	2,240	2,448	9.3%	7.3%
English language learners	Reading	06-08	1,126	2,102	86.7%	6.5%	06-08	779	1,313	68.5%	4.1%	06-08	634	789	24.4%	2.7%
	Math	06-08	1,127	2,102	86.5%	6.5%	06-08	784	1,313	67.5%	4.1%	06-08	714	1,242	73.9%	3.7%
Female	Reading	05-08	16,222	16,070	-0.9%	49.4%	05-08	12,279	15,921	29.7%	49.2%	02-08	14,483	14,578	0.7%	49.1%
	Math	05-08	16,202	16,070	-0.8%	49.4%	05-08	14,539	15,921	9.5%	49.2%	02-08	15,284	16,722	9.4%	50.0%
Male	Reading	05-08	16,886	16,464	-2.5%	50.6%	05-08	15,043	16,420	9.2%	50.8%	02-08	14,336	15,050	5.0%	50.7%
	Math	05-08	16,862	16,464	-2.4%	50.6%	05-08	15,364	16,420	6.9%	50.8%	02-08	15,151	16,692	10.2%	49.9%

Table reads: In 2005, 22,971 students in the white subgroup took the state 4th grade reading test. By 2008, the number of white test-takers had fallen to 21,852 students, a decrease of 4.9%. In 2008, the white subgroup made up 67.2% of the 32,540 4th graders taking the reading test that year.

Note: **Bold** type indicates that the number of students tested in this subgroup at this grade level was fewer than 500 in 2008 or the most recent year with available data.

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.