Subgroup Achievement and Gap Trends — Pennsylvania

K-12 enrollment — 1,773,062

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 labeled State Testing Data. In the list of results that appears, look for the most recent report on student achievement since 2002. Below the name of the report, click on the link for State Profiles and Worksheets. Scroll down the page until you reach the list of states. Click on the Worksheet link for proficiency data or scale score data for a particular state.

Subgroup Achievement and Gap Trends — Key Findings

Summary. In grade 8 (the only grade in which subgroup trends were analyzed by achievement level), Pennsylvania showed across-the-board gains—improvements in reading and math at the *basic, proficient,* and *advanced* levels for all racial/ethnic subgroups, low-income students, and boys and girls. Achievement gaps generally narrowed at grades 4 and 8 but progress was mixed at grade 11. Comparable data were available for 2006-2009 at grade 4 and for 2002-2009 at grades 8 and 11.

- ***Mixed gap trends at grade 11.*** In reading and math across three grade levels almost all gaps narrowed using percentages proficient. But gaps widened more often than they narrowed using average (mean) test scores at grade 11; average (mean scale) scores for white students improved at an average yearly rate that was greater than that of African American and Latino students. Non-low-income students also outperformed low-income students at grade 11 using average test scores.

- ***Gaps widen between boys and girls in reading.*** The gap in the percentage proficient widened between boys and girls in reading at all three grades analyzed.

Data Limitations

Years of comparable percentage proficient data	2005 through 2009 for grade 3 2001 through 2009 for grades 5, 8, and 11 2006 through 2009 for grades 4, 6, and 7 State could not provide any percentages proficient before 2001
Years of comparable mean scale score data	Available overall for 1999 through 2009 (equating and linking make it possible to compare scores during this period despite changes in the assessment system) for grades 8 and 11 and from 2006 through 2009 for grade 4 Available disaggregated by subgroups for 2002 through 2009 for grades 8 and 11 and from 2006 through 2009 for grade 4
Disaggregated data for all subgroups and comparison groups	Scale scores and standard deviations are available for subgroups from 2002 through 2009 for grades 8 and 11 and from 2006 through 2009 for grade 4

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	Pennsylvania System of School Assessment (PSSA) Pennsylvania Alternate System of Assessment (PASA)
Grades tested for NCLB accountability	3–8 and 11 For AYP purposes, Pennsylvania uses two-year averaging for student test scores and three-year averaging for test participation data; a grade is not included in AYP determinations until it has two years of test data to average.
State labels for achievement levels	PA 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?	No
First year test used	1996. Scoring scales have been equated since 1996 to enable scores to be compared from year to year despite changes in the assessment system. Grade 3 added in 2004-05; Grades 4, 6, and 7 added in 2005-06.

Time of test administration	Spring (retest opportunity in fall for grade 11 test only)
Major changes in testing system (2002–present)	2003–04: Reset standards but not scoring scale 2004–05: Administered first PSSA based on Assessment Anchor Content Standards instead of previous standards. 2004–05: Conducted validity study of reading and mathematics cut scores in grades 3, 5, 8, 11 2005-06: Conducted validity study of reading and mathematics cut scores in grades 4, 6, and 7 2006: Expanded AYP calculations to include grade 3 2006–07: Revised assessment anchors based on Achieve, Inc., alignment study; formed the blueprint/test specifications for the 2007 PSSA 2007: Expanded AYP calculations to include grades 4, 6, and 7 2008: Brought in new test contractor; conducted validation study of cut scores for grade 3

Achievement by Subgroup — Trends at the Middle School 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 PA-7. Percentages of grade 8 students by racial or ethnic subgroup scoring at the advanced, proficient-and-above, and basic-and-above levels in reading

	Reporting year								Average yearly percentage point gain[1]
Subgroup	2002	2003	2004	2005	2006	2007	2008	2009	
All tested students									
Advanced	20%	26%	33%	34%	44%	46%	54%	55%	5.0
Proficient-and-above	59%	63%	69%	64%	71%	75%	78%	81%	3.1
Basic-and-above	80%	82%	84%	80%	84%	88%	88%	89%	1.4
White									
Advanced	24%	31%	38%	39%	51%	53%	62%	62%	5.3
Proficient-and-above	67%	71%	76%	71%	78%	82%	84%	86%	2.7
Basic-and-above	86%	88%	89%	86%	89%	92%	92%	93%	1.0
African American									
Advanced	4%	7%	11%	12%	17%	21%	27%	33%	4.2
Proficient-and-above	24%	33%	41%	37%	44%	51%	57%	63%	5.6
Basic-and-above	52%	61%	65%	60%	65%	73%	74%	79%	3.8
Latino									
Advanced	6%	8%	11%	14%	19%	22%	29%	31%	3.6
Proficient-and-above	30%	32%	40%	39%	45%	51%	58%	62%	4.5
Basic-and-above	56%	57%	62%	60%	65%	72%	73%	77%	3.0
Asian									
Advanced	29%	34%	44%	43%	56%	60%	69%	73%	6.3
Proficient-and-above	63%	67%	74%	73%	81%	83%	88%	90%	3.8
Basic-and-above	84%	84%	87%	86%	90%	93%	94%	95%	1.6
Native American[2]									
Advanced	7%	18%	28%	24%	38%	38%	51%	42%	5.0
Proficient-and-above	33%	56%	58%	53%	63%	74%	74%	71%	5.4
Basic-and-above	55%	79%	83%	73%	77%	90%	87%	86%	4.4

Table reads: The percentage of white 8th graders who scored at the advanced level on the state reading test increased from 24% in 2002 to 62% in 2009. During this period, the average yearly gain in the percentage advanced in reading for white 8th graders was 5.3 percentage points per year.

[1]Averages are subject to rounding error.

[2]The number of students tested in this subgroup at this grade level was fewer than 500 in 2009 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

Table PA-8. Percentage of grade 8 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	2009	
All tested students									
Advanced	20%	26%	33%	34%	44%	46%	54%	55%	5.0
Proficient-and-above	59%	63%	69%	64%	71%	75%	78%	81%	3.1
Basic-and-above	80%	82%	84%	80%	84%	88%	88%	89%	1.4
Low-income students									
Advanced	6%	9%	14%	16%	22%	25%	32%	35%	4.2
Proficient-and-above	31%	39%	47%	43%	50%	56%	62%	66%	5.0
Basic-and-above	58%	64%	69%	64%	70%	76%	77%	81%	3.3
Students with disabilities[3]									
Advanced	2%	3%	5%	5%	10%	11%	14%	15%	1.8
Proficient-and-above	13%	17%	23%	19%	27%	33%	37%	40%	4.1
Basic-and-above	32%	40%	44%	37%	46%	56%	56%	59%	4.4
English language learners[3]									
Advanced	1%	4%	4%	4%	6%	6%	9%	7%	0.1
Proficient-and-above	10%	17%	20%	18%	24%	23%	30%	29%	1.8
Basic-and-above	30%	38%	40%	37%	43%	45%	50%	53%	3.4
Female									
Advanced	23%	30%	37%	39%	47%	50%	58%	61%	5.5
Proficient-and-above	62%	68%	73%	70%	74%	79%	82%	85%	3.3
Basic-and-above	83%	86%	88%	85%	87%	91%	91%	93%	1.4
Male									
Advanced	19%	23%	30%	29%	40%	41%	51%	50%	4.4
Proficient-and-above	56%	60%	65%	59%	67%	71%	75%	76%	2.9
Basic-and-above	77%	79%	81%	76%	81%	85%	85%	86%	1.4

Table reads: The percentage of low-income 8th graders who scored at the advanced level on the state reading test increased from 6% in 2002 to 35% in 2009. During this period, the average yearly gain in the percentage advanced in reading for low-income 8th graders was 4.2 percentage points per year.

[1]Averages are subject to rounding error.

[2]The number of students tested in this subgroup at this grade level was fewer than 500 in 2009 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

[3]Gap 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 2006-2009 results.

Table PA-9. Percentages of grade 8 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	2009	
All tested students									
Advanced	18%	19%	24%	36%	36%	40%	43%	45%	3.9
Proficient-and-above	52%	51%	58%	63%	62%	68%	70%	71%	2.8
Basic-and-above	73%	74%	78%	81%	81%	83%	84%	87%	2.0
White									
Advanced	21%	23%	28%	42%	42%	47%	49%	51%	4.2
Proficient-and-above	60%	59%	65%	70%	70%	75%	77%	77%	2.5
Basic-and-above	81%	81%	84%	87%	87%	88%	89%	91%	1.5
African American									
Advanced	2%	3%	5%	12%	12%	15%	19%	22%	2.8
Proficient-and-above	16%	19%	26%	33%	33%	40%	46%	49%	4.8
Basic-and-above	38%	43%	52%	56%	58%	63%	66%	73%	5.0
Latino									
Advanced	5%	5%	8%	18%	16%	21%	24%	25%	2.8
Proficient-and-above	24%	22%	31%	41%	39%	48%	51%	52%	4.0
Basic-and-above	47%	47%	57%	64%	64%	69%	71%	76%	4.2
Asian									
Advanced	35%	37%	47%	60%	61%	68%	68%	72%	5.3
Proficient-and-above	69%	68%	77%	81%	82%	88%	88%	89%	2.9
Basic-and-above	85%	86%	90%	92%	93%	95%	95%	96%	1.6
Native American[2]									
Advanced	6%	14%	20%	28%	30%	35%	33%	34%	3.9
Proficient-and-above	26%	44%	50%	55%	55%	64%	63%	59%	4.6
Basic-and-above	48%	70%	75%	73%	75%	86%	81%	82%	4.8

Table reads: The percentage of white 8th graders who scored at the advanced level on the state math test increased from 21% in 2002 to 51% in 2009. During this period, the average yearly gain in the percentage advanced in math for white 8th graders was 4.2 percentage points per year.

[1]Averages are subject to rounding error.

[2]The number of students tested in this subgroup at this grade level was fewer than 500 in 2009 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

Table PA-10. Percentage of grade 8 students by demographic subgroup scoring at the advanced, proficient-and-above, and basic-and-above levels in mathematics

	Reporting year								Average yearly percentage point gain[1]
Subgroup	2002	2003	2004	2005	2006	2007	2008	2009	
All tested students									
Advanced	18%	19%	24%	36%	36%	40%	43%	45%	3.9
Proficient-and-above	52%	51%	58%	63%	62%	68%	70%	71%	2.8
Basic-and-above	73%	74%	78%	81%	81%	83%	84%	87%	2.0
Low-income students									
Advanced	5%	6%	9%	18%	18%	22%	24%	26%	3.1
Proficient-and-above	25%	26%	35%	42%	42%	49%	53%	55%	4.3
Basic-and-above	48%	51%	61%	65%	66%	70%	72%	78%	4.3
Students with disabilities[3]									
Advanced	2%	2%	3%	7%	7%	9%	10%	11%	1.4
Proficient-and-above	10%	11%	16%	21%	20%	26%	28%	30%	3.2
Basic-and-above	26%	28%	35%	41%	41%	46%	47%	55%	4.7
English language learners[3]									
Advanced	5%	7%	9%	14%	13%	13%	11%	11%	-0.6
Proficient-and-above	23%	23%	28%	30%	29%	31%	33%	33%	1.4
Basic-and-above	40%	43%	49%	52%	51%	52%	55%	61%	3.4
Female									
Advanced	17%	19%	23%	36%	35%	39%	42%	44%	4.0
Proficient-and-above	52%	51%	58%	63%	62%	68%	71%	72%	3.0
Basic-and-above	74%	74%	80%	81%	82%	84%	85%	89%	2.1
Male									
Advanced	19%	20%	25%	37%	38%	41%	43%	45%	3.7
Proficient-and-above	53%	52%	58%	63%	63%	68%	70%	70%	2.5
Basic-and-above	73%	73%	77%	80%	80%	82%	83%	86%	1.9

Table reads: The percentage of low-income 8th graders who scored at the advanced level on the state math test increased from 5% in 2002 to 26% in 2009. During this period, the average yearly gain in the percentage advanced in math for low-income 8th graders was 3.1 percentage points per year.

[1]Averages are subject to rounding error.

[2]The number of students tested in this subgroup at this grade level was fewer than 500 in 2009 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

[3]Gap 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 2006-2009 results.

Achievement by Subgroup — Gap Trends (Percentages Proficient)

Table PA-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.

	Grade 4					Grade 8					Grade 11				
Subgroup	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	06-09	68%	73%	1.5		02-09	59%	81%	3.1		02-09	59%	65%	0.9	
White	06-09	76%	79%	1.1		02-09	67%	86%	2.7		02-09	64%	72%	1.1	
African American	06-09	40%	50%	3.2	L	02-09	24%	63%	5.6	L	02-09	26%	39%	1.8	L
Latino	06-09	42%	53%	3.7	L	02-09	30%	62%	4.5	L	02-09	29%	40%	1.5	L
Asian	06-09	76%	84%	2.8	L	02-09	63%	90%	3.8	L	02-09	61%	75%	1.9	L
Native American	06-09	61%	65%	1.2[2]	L	02-09	33%	71%	5.4[2]	L	02-09	42%	57%	2.1[2]	L
Not low-income	06-09	79%	84%	1.4		02-09	68%	88%	3.0		02-09	64%	73%	1.3	
Low-income	06-09	48%	56%	2.7	L	02-09	31%	66%	5.0	L	02-09	29%	44%	2.1	L
Not disabled	06-09	74%	79%	1.6		06-09	78%	88%	3.3		06-09	72%	72%	0.2	
Students with disabilities[3]	06-09	34%	39%	1.7	L	06-09	27%	40%	4.1	L	06-09	19%	20%	0.5	L
Not ELLs	06-09	69%	74%	1.5		06-09	71%	82%	3.4		06-09	66%	66%	0.1	
English language learners[3]	06-09	26%	30%	1.2	S	06-09	24%	29%	1.8	S	06-09	16%	14%	-0.7	S
Female	06-09	71%	77%	2.0		02-09	62%	85%	3.3		02-09	62%	70%	1.1	
Male	06-09	66%	69%	1.0	S	02-09	56%	76%	2.9	S	02-09	56%	61%	0.7	S

Table reads: In 2006, 76% of white 4th graders and 40% of African American 4th graders scored at the proficient level on the state reading test. In 2009, 79% of white 4th graders and 50% of African American 4th graders scored at the proficient level in reading. Between 2006 and 2009, the percentage proficient improved at an average rate of 1.1 percentage points per year for white students and 3.2 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.

[1]Numbers in these columns are subject to rounding error.

[2]The number of students tested in this subgroup at this grade level was fewer than 500 in 2009 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

[3]Gap 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 PA-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.

	Grade 4					Grade 8					Grade 11				
Subgroup	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	06-09	77%	82%	1.5		02-09	52%	71%	2.8		02-09	50%	56%	0.9	
White	06-09	84%	87%	1.1		02-09	60%	77%	2.5		02-09	54%	62%	1.1	
African American	06-09	53%	62%	3.2	L	02-09	16%	49%	4.8	L	02-09	17%	28%	1.6	L
Latino	06-09	56%	67%	3.7	L	02-09	24%	52%	4.0	L	02-09	21%	31%	1.3	L
Asian	06-09	89%	93%	1.4	L	02-09	69%	89%	2.9	L	02-09	67%	80%	1.9	L
Native American	06-09	66%	74%	2.7[2]	L	02-09	26%	59%	4.6[2]	L	02-09	35%	46%	1.6[2]	L
Not low-income	06-09	86%	90%	1.2		02-09	60%	80%	2.9		02-09	54%	63%	1.3	
Low-income	06-09	62%	70%	2.7	L	02-09	25%	55%	4.3	L	02-09	22%	35%	1.9	L
Not disabled	06-09	82%	87%	1.5		06-09	70%	79%	3.2		06-09	58%	62%	1.5	
Students with disabilities[3]	06-09	49%	56%	2.2	L	06-09	20%	30%	3.2	E	06-09	11%	15%	1.3	S
Not ELLS	06-09	78%	83%	1.5		06-09	63%	72%	3.0		06-09	52%	56%	1.3	
English language learners[3]	06-09	48%	52%	1.3	S	06-09	29%	33%	1.4	S	06-09	26%	24%	-0.9	S
Female	06-09	76%	82%	1.7		02-09	52%	72%	3.0		02-09	48%	55%	1.0	
Male	06-09	78%	82%	1.2	S	02-09	53%	70%	2.5	S	02-09	51%	56%	0.7	S

Table reads: In 2006, 84% of white 4th graders and 53% of African American 4th graders scored at the proficient level on the state math test. In 2009, 87% of white 4th graders and 62% of African American 4th graders scored at the proficient level in math. Between 2006 and 2009, the percentage proficient improved at an average rate of 1.1 percentage points per year for white students and 3.2 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.

[1]Numbers in these columns are subject to rounding error.

[2]The number of students tested in this subgroup at this grade level was fewer than 500 in 2009 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

[3]Gap 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 PA-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. MSS = mean scale score. SD = standard deviation.
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.

		Grade 4					Grade 8					Grade 11				
Subgroup	Statistic	Year span	Start year	End year	Avg. gain MSS[1]	Gain larger or smaller than comp. group	Year span	Start year	End year	Avg. gain MSS[1]	Gain larger or smaller than comp. group	Year span	Start year	End year	Avg. gain MSS[1]	Gain larger or smaller than comp. group
All tested students	MSS	06-09	1340	1380	13.3		02-09	1310	1500	27.1		02-09	1320	1370	7.1	
	SD	06-09	217.9	223.0			02-09	217.5	263.7			02-09	213.1	280.8		
White	MSS	06-09	1380	1410	10.0		02-09	1350	1540	27.1		02-09	1340	1410	10.0	
	SD	06-09	204.5	212.7			02-09	203.5	251.3			02-09	202.0	270.3		
African American	MSS	06-09	1200	1250	16.7	L	02-09	1150	1360	30.0	L	02-09	1150	1190	5.7	S
	SD	06-09	200.0	206.1			02-09	192.3	250.8			02-09	199.2	250.8		
Latino	MSS	06-09	1200	1260	20.0	L	02-09	1160	1350	27.1	E	02-09	1170	1210	5.7	S
	SD	06-09	207.0	213.0			02-09	210.4	252.9			02-09	210.7	252.1		
Asian	MSS	06-09	1400	1460	20.0	L	02-09	1350	1620	38.6	L	02-09	1340	1470	18.6	L
	SD	06-09	220.1	216.1			02-09	221.1	263.8			02-09	229.4	302.0		
Native American	MSS	06-09	1300	1320	6.7[2]	S	02-09	1170	1430	37.1[2]	L	02-09	1220	1310	12.9[2]	L
	SD	06-09	229.8	194.0			02-09	225.0	274.3			02-09	245.2	276.5		
Not low-income	MSS	06-09	1400	1440	13.3		02-09	1360	1570	30.0		02-09	1340	1420	11.4	
	SD	06-09	200.8	206.6			02-09	201.5	246.6			02-09	203.7	272.0		
Low-income	MSS	06-09	1230	1280	16.7	L	02-09	1170	1380	30.0	E	02-09	1170	1230	8.6	S
	SD	06-09	205.7	210.6			02-09	205.8	249.5			02-09	208.3	254.8		
Not disabled	MSS	06-09	1370	1410	13.3		06-09	1480	1550	23.3		06-09	1410	1410	0.0	
	SD	06-09	201.7	204.4			06-09	259.7	235.4			06-09	256.8	258.7		
Students with disabilities[3]	MSS	06-09	1160	1200	13.3	E	06-09	1140	1230	30.0	L	06-09	1060	1080	6.7	L
	SD	06-09	217.1	229.0			06-09	246.8	239.9			06-09	231.4	237.3		
Not ELLs	MSS	06-09	1350	1380	10.0		06-09	1430	1510	26.7		06-09	1370	1370	0.0	
	SD	06-09	216.2	221.5			06-09	282.8	261.2			06-09	277.3	279.6		
English language learners[3]	MSS	06-09	1140	1150	3.3	S	06-09	1110	1180	23.3	S	06-09	1050	1060	3.3	L
	SD	06-09	188.4	184.5			06-09	229.0	199.5			06-09	206.8	196.8		
Female	MSS	06-09	1360	1400	13.3		02-09	1330	1540	30.0		02-09	1340	1400	8.6	
	SD	06-09	215.8	219.5			02-09	207.2	255.8			02-09	199.3	276.6		
Male	MSS	06-09	1320	1350	10.0	S	02-09	1290	1460	24.3	S	02-09	1300	1340	5.7	S
	SD	06-09	218.6	223.6			02-09	223.5	264.2			02-09	222.7	280.2		

Table reads: In 2006, the mean scale score on the state 4th grade reading test was 1380 for white students and 1200 for African American students. In 2009, the mean scale score in 4th grade reading was 1410 for white students and 1250 for African American students. Between 2006 and 2009, the mean scale score improved at an average yearly rate of 10.0 points for white students and 16.7 points for African American students, indicating a narrowing of the achievement gap for African Americans.

Note: The Pennsylvania System of School Assessment (PSSA) is scaled with a minimum score of 700 and no maximum.

[1]Numbers in these columns are subject to rounding error.

[2]The number of students tested in this subgroup at this grade level was fewer than 500 in 2009 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

[3]Gap 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 PA-14. Achievement gap 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. MSS = mean scale score. SD = standard deviation. 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.

		Grade 4					Grade 8					Grade 11				
Subgroup	Statistic	Year span	Start year	End year	Avg. gain MSS[1]	Gain larger or smaller than comp. group	Year span	Start year	End year	Avg. gain MSS[1]	Gain larger or smaller than comp. group	Year span	Start year	End year	Avg. gain MSS[1]	Gain larger or smaller than comp. group
All tested students	MSS	06-09	1400	1460	20.0		02-09	1320	1420	14.3		02-09	1320	1350	4.3	
	SD	06-09	220.6	234.0			02-09	198.9	220.3			02-09	227.7	259.9		
White	MSS	06-09	1440	1490	16.7		02-09	1350	1450	14.3		02-09	1340	1380	5.7	
	SD	06-09	210.0	224.9			02-09	190.7	213.8			02-09	220.5	250.5		
African American	MSS	06-09	1260	1320	20.0	L	02-09	1160	1300	20.0	L	02-09	1150	1180	4.3	S
	SD	06-09	193.2	207.3			02-09	145.1	188.0			02-09	177.2	222.2		
Latino	MSS	06-09	1280	1350	23.3	L	02-09	1190	1310	17.1	L	02-09	1170	1200	4.3	S
	SD	06-09	198.5	213.7			02-09	167.1	190.6			02-09	191.3	224.7		
Asian	MSS	06-09	1510	1590	26.7	L	02-09	1420	1590	24.3	L	02-09	1440	1530	12.9	L
	SD	06-09	235.6	251.8			02-09	220.6	247.3			02-09	267.8	277.2		
Native American	MSS	06-09	1350	1390	13.3[2]	S	02-09	1200	1360	22.9[2]	L	02-09	1220	1280	8.6[2]	L
	SD	06-09	229.8	207.2			02-09	174.7	220.1			02-09	220.3	249.8		
Not low-income	MSS	06-09	1460	1520	20.0		02-09	1360	1470	15.7		02-09	1340	1390	7.1	
	SD	06-09	210.3	224.8			02-09	192.5	216.1			02-09	224.0	254.3		
Low-income	MSS	06-09	1300	1360	20.0	E	02-09	1190	1320	18.6	L	02-09	1170	1220	7.1	E
	SD	06-09	202.1	215.3			02-09	165.1	194.3			02-09	189.4	232.5		
Not disabled	MSS	06-09	1430	1490	20.0		06-09	1410	1460	16.7		06-09	1390	1390	0.0	
	SD	06-09	209.5	223.0			06-09	208.7	206.6			06-09	277.5	243.3		
Students with disabilities[3]	MSS	06-09	1250	1300	16.7	S	06-09	1160	1220	20.0	L	06-09	1040	1090	16.7	L
	SD	06-09	216.4	229.2			06-09	175.9	180.0			06-09	205.7	207.6		
Not ELLs	MSS	06-09	1410	1460	16.7		06-09	1370	1420	16.7		06-09	1350	1350	0.0	
	SD	06-09	219.6	233.1			06-09	222.0	219.5			06-09	292.1	258.9		
English language learners[3]	MSS	06-09	1240	1270	10.0	S	06-09	1210	1230	6.7	S	06-09	1170	1150	-6.7	S
	SD	06-09	202.2	200.6			06-09	196.9	168.8			06-09	273.1	243.8		
Female	MSS	06-09	1390	1450	20.0		02-09	1320	1420	14.3		02-09	1310	1340	4.3	
	SD	06-09	215.0	227.1			02-09	191.8	213.5			02-09	216.6	249.6		
Male	MSS	06-09	1410	1470	20.0	E	02-09	1320	1420	14.3	E	02-09	1330	1350	2.9	S
	SD	06-09	225.3	239.8			02-09	204.8	226.2			02-09	237.1	269.1		

Table reads: In 2006, the mean scale score on the state 4th grade math test was 1440 for white students and 1260 for African American students. In 2009, the mean scale score in 4th grade math was 1490 for white students and 1320 for African American students. Between 2006 and 2009, the mean scale score improved

at an average yearly rate of 16.7 points for white students and 20.0 points for African American students, indicating a narrowing of the achievement gap for African Americans.

Note: The Pennsylvania System of School Assessment (PSSA) is scaled with a minimum score of 700 and no maximum.

[1]Numbers in these columns are subject to rounding error.

[2]The number of students tested in this subgroup at this grade level was fewer than 500 in 2009 or the most recent year with available data, so changes for this subgroup should be interpreted with caution.

[3]Gap 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 PA-15. Numbers of test-takers

Subgroup	Subject	Grade 4					Grade 8					Grade 11				
		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	06-09	127,680	127,519	-0.1%	100.0%	02-09	137,310	135,739	-1.1%	100.0%	02-09	119,890	133,753	11.6%	100.0%
	Math	06-09	127,959	127,601	-0.3%	100.0%	02-09	137,374	135,909	-1.1%	100.0%	02-09	120,102	133,952	11.5%	100.0%
White	Reading	06-09	95,151	92,508	-2.8%	72.5%	02-09	102,335	101,091	-1.2%	74.5%	02-09	95,403	104,038	9.1%	77.8%
	Math	06-09	95,272	92,546	-2.9%	72.5%	02-09	102,383	101,173	-1.2%	74.4%	02-09	95,550	104,149	9.0%	77.8%
African American	Reading	06-09	19,676	19,936	1.3%	15.6%	02-09	15,015	20,381	35.7%	15.0%	02-09	9,977	17,985	80.3%	13.4%
	Math	06-09	19,758	19,961	1.0%	15.6%	02-09	15,018	20,429	36.0%	15.0%	02-09	10,032	18,024	79.7%	13.5%
Latino	Reading	06-09	8,194	9,722	18.6%	7.6%	02-09	5,390	9,309	72.7%	6.9%	02-09	3,329	7,020	110.9%	5.2%
	Math	06-09	8,251	9,737	18.0%	7.6%	02-09	5,389	9,338	73.3%	6.9%	02-09	3,324	7,048	112.0%	5.3%
Asian	Reading	06-09	3,312	3,698	11.7%	2.9%	02-09	2,726	3,634	33.3%	2.7%	02-09	2,604	3,377	29.7%	2.5%
	Math	06-09	3,322	3,701	11.4%	2.9%	02-09	2,732	3,635	33.1%	2.7%	02-09	2,607	3,382	29.7%	2.5%
Native American	Reading	06-09	166	211	27.1%	0.2%	02-09	803	217	-73.0%	0.2%	02-09	417	212	-49.2%	0.2%
	Math	06-09	167	211	26.3%	0.2%	02-09	802	217	-72.9%	0.2%	02-09	418	212	-49.3%	0.2%
Low-income	Reading	06-09	46,374	50,926	9.8%	39.9%	02-09	33,246	48,534	46.0%	35.8%	02-09	16,791	36,778	119.0%	27.5%
	Math	06-09	46,526	50,983	9.6%	40.0%	02-09	33,246	48,643	46.3%	35.8%	02-09	16,841	36,873	118.9%	27.5%
Students w/ disabilities	Reading	06-09	19,664	20,760	5.6%	16.3%	06-09	21,370	21,269	-0.5%	15.7%	06-09	16,549	18,134	9.6%	13.6%
	Math	06-09	19,757	20,781	5.2%	16.3%	06-09	21,463	21,323	-0.7%	15.7%	06-09	16,642	18,202	9.4%	13.6%
English language learners	Reading	06-09	3,171	3,202	1.0%	2.5%	06-09	2,190	2,178	-0.5%	1.6%	06-09	1,302	1,598	22.7%	1.2%
	Math	06-09	3,212	3,217	0.2%	2.5%	06-09	2,225	2,194	-1.4%	1.6%	06-09	1,312	1,611	22.8%	1.2%
Female	Reading	06-09	61,929	62,153	0.4%	48.7%	02-09	66,401	66,037	-0.5%	48.6%	02-09	58,257	65,604	12.6%	49.0%
	Math	06-09	62,047	62,191	0.2%	48.7%	02-09	66,416	66,107	-0.5%	48.6%	02-09	58,379	65,677	12.5%	49.0%
Male	Reading	06-09	65,494	65,295	-0.3%	51.2%	02-09	68,953	69,498	0.8%	51.2%	02-09	58,798	67,700	15.1%	50.6%
	Math	06-09	65,648	65,339	-0.5%	51.2%	02-09	69,003	69,589	0.8%	51.2%	02-09	58,880	67,813	15.2%	50.6%

Table reads: In 2006, 95,151 students in the white subgroup took the state 4th grade reading test. By 2009, the number of white test-takers had fallen to 92,508 students, a decrease of 2.8%. In 2009, the white subgroup made up 72.5% of the 127,519 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 2009 or the most recent year with available data.

Key Terms

Percentage proficient (and above) — The percentage of students in a group who score at or 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 or 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 point 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 end 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 in this profile 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.