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# Understanding Colorado's Achievement Gap



**An Analysis of Student Performance Data by Race and Income**

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**By Jennifer Sharp-Silverstein**

**with Andrew J. Hartman • Angela Frye • Rich Jones**

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August 2005



The Bell Policy Center is a nonprofit public policy organization committed to making Colorado a state of opportunity for all. The Bell seeks to reinvigorate the debate on issues affecting the well-being of families and working adults.

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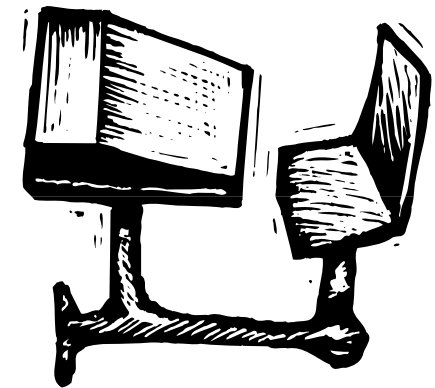
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# Understanding Colorado's Achievement Gap

## An Analysis of Student Performance Data by Race and Income

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# Executive Summary

This report shows that academic achievement gaps exist in Colorado at all grade levels and across subject areas. It serves as a comprehensive sourcebook for test results, comparisons and recommendations.

Asian American and white students and students from middle- to high -income families consistently score higher on tests measuring academic achievement than do American Indian, black, Hispanic and low-income students.

The fact that these gaps are present in the early grades, are large, and persist throughout the school years is cause for serious concern.

Throughout the report we use the term “achievement gap” to describe the differences in scores on standardized tests and graduation rates among students from different ethnic, racial and income levels. However, others have referred to the difference in scores as an attainment gap. While both achievement and attainment could be used interchangeably to refer to the differences in test scores, we chose to use achievement for several reasons.

First, it is the more commonly used term among educational researchers around the nation and in Colorado. Second, it is consistent with the term used by the Colorado General Assembly when it created a special commission to address the problem. Third, we feel researchers and policy makers readily understand that achievement gap refers to the difference in test scores among student from different ethnic, racial and economic backgrounds.

Using state-level data from the Colorado Department of Education and national data from the United States Department of Education, we analyze reading and math test scores for various ethnic and racial populations as well as for students from



low-income families. For high school students, we also examine academic indicators such as ACT scores and graduation rates.

The data is presented in two sections: the gap measured by race and the gap measured by income level. Within each section, we look at the performance of each group of students in relation to the performance of other groups, as well as against the ultimate goal of 100 percent proficiency.

We also examine Colorado’s gap in a national context. We compare Colorado’s test scores on the Colorado Student Assessment Program (CSAP) to the scores on the National Assessment of Educational Progress (NAEP) and compare Colorado’s gap to the gaps found in other states.

## Summary Findings

Some of the more important findings from our analyses are:

1. The achievement gap is real. Asian American and white students outperform black, Hispanic, and American Indian students on all achievement tests analyzed.
2. The achievement gap in reading between white and Hispanic students is greater in all grades we analyzed than the gap between white and black students.
3. Income matters. On average, 31 percent more students from middle- to high-income families scored proficient or advanced on the CSAPs than did students from low-income families.
4. White students are almost twice as likely to graduate from high school as American Indian students.
5. Overall, students score lower on the NAEP than on the CSAP, and the achievement gap between groups is smaller on the NAEP than on the CSAP. However, the gap in Colorado on the NAEP tests between white and Hispanic students is larger than that found in more than three-quarters of the other states.

## Background on Causes

There is no consensus on why the achievement gap exists. Like most areas of research, there is wide disagreement within the educational community about the relative importance of a variety of factors in explaining the achievement gap.

To illuminate this debate, in this report we also examine three recent studies that analyze research on the achievement gap in detail and arrive at very different conclusions. The most significant factors that contribute to the achievement gap based on these analyses are:

- **School environment matters.** High quality teachers, high expectations of students, and rigorous curriculum all contribute to helping close the achievement gap.
- **Social and cultural conditions matter.** Racial discrimination, nutrition, parental involvement, lack of learning opportunities at a young age and student mobility due to the employment or housing circumstances of the family all affect student performance.

If nothing else, these analyses show the nature of the achievement gap is complex and there is no single explanation or silver bullet solution. Instead, a complicated relationship exists among social, economic, and educational factors that produce the differences in educational achievement.

And yet there are classrooms, schools, districts and states that have been able to make significant progress in addressing the achievement gap. We have highlighted four such examples: North Carolina, Cherry Creek School District, the Cesar Chavez Academy charter school in Pueblo, and Roy Moore Elementary School in Silt.

## Lessons Learned

Some of the lessons learned from these four examples of closing, or at least narrowing, the achievement gap are:

- A statewide commitment to the elimination of the achievement gap is needed. This includes the Legislature, State Board of Education, school districts, schools, parents and community groups.
- Efforts to close the achievement gap cost money.
- Dedicated and focused educators can make a difference at the school level if they have flexibility and support.

## Recommendations

Based on the data, research, and effective practices, we recommend that Colorado take the following steps to better meet its constitutional responsibility to help all students achieve high standards.

- Modify Colorado's School Accountability Report (SAR) to make closing the achievement gap and continuous academic growth the benchmarks against which schools, school districts and the state are judged.
- Make quality preschool education available to all low-income families that choose to participate. Furthermore, ensure that the preschool programs are designed and operated to prepare children for success in school.
- Recruit, retain, and reward highly qualified teachers, especially in schools that serve high percentages of students from low-income families.
- Change the structure of the state school finance system to target more resources to schools and students that need them the most.
- Assess why Colorado high school students are performing so poorly and make the appropriate reforms.

The following pages describe in great detail the depth and breadth of the achievement gap in Colorado and offer ideas based on research for ways to close it. Our ability to successfully compete in a knowledge-based, global economy depends on it.

# I. Introduction

Colorado's Constitution requires the state to "provide for the establishment and maintenance of a thorough and uniform system of free public schools throughout the state."<sup>1</sup> This means that every child should be taught the same rigorous content and expected to achieve at the same high standards.

Colorado is failing to uphold this responsibility. We know this because the state has developed standards that define what students should know (Colorado's Model Content Standards) and assessments to determine whether they know it (the Colorado Student Assessment Program or CSAP). The CSAP's tell us many individual students are not learning up to the expected standards, and entire groups of students — identified by race, ethnicity, gender, income and disability — are falling behind.

Using data from state and federal assessments, the Bell Policy Center found that white, Asian-American and students from middle- to high-income families consistently scored higher on tests measuring academic achievement than did American Indian, black and Hispanic students and children from low-income families. Political, educational and civic leaders across the country have identified this achievement gap as one of the greatest threats to the health and prosperity of our nation.

Much information on Colorado's achievement gap has already been reported in various places. With this document, we collect it in one place, sort it by race and income level, and make it accessible for easy reference. It serves as a single, comprehensive sourcebook on test results, comparisons and recommendations.

Throughout the report we use the term "achievement gap" to describe the differences in scores on standardized tests and graduation rates among students from different ethnic, racial and income levels. However, others have referred to the difference in scores as an attainment gap. While both achievement and attainment could be used interchangeably to refer to the differences in test scores, we chose to use achievement for several reasons.

First, it is the more commonly used term among educational researchers around the nation and in Colorado. Second, it is consistent with the term used by the Colorado General Assembly when it created a special commission to address the problem. Third, we feel researchers and policy makers readily understand that achievement gap refers to the difference in test scores among student from different ethnic, racial and economic backgrounds.



In Colorado, Gov. Bill Owens and former Attorney General Ken Salazar, now a U.S. senator, co-chaired the Closing the Achievement Gap Coalition. The group was endorsed by the state Legislature and designated an official advisor to the state Board of Education. The mission statement of the coalition reads in part, "If our American democracy is to endure and prosper, it cannot be as a society that tolerates two systems of education — one of high expectations for the children of the fortunate and one of lesser standards for the children of poverty and color."<sup>2</sup>

Why have Democrats and Republicans, federal and state officials, educators and business leaders all come together around closing the achievement gap? Because educational attainment matters to the social, economic and civic health of our families, communities and state.

Today, education is the ticket to the American dream. Higher levels of educational attainment mean a greater chance of securing good-paying jobs. Better jobs provide individuals and families with the opportunity to access health care, homeownership and quality education for their children.

Everyone benefits when we do a better job of educating all students. Economically, people with higher levels of education tend to be more productive, earn more, buy more goods and services and pay more taxes. They are less likely to need

government services such as welfare or Medicaid. Well-educated people are more likely to vote and make more informed choices on who should represent them in government and how society should address increasingly complex challenges to our security, health and economy. Furthermore, studies have shown that more education leads to less crime.

Unfortunately, if the achievement gap persists, these opportunities may become severely limited for some groups — threatening our ability to extend the American dream to everyone and prosper as a nation.

## Colorado Deals with the Achievement Gap

There have been, and continue to be, statewide activities focused on the achievement gap in Colorado. In the 1990s, under the “school reform” banner, Gov. Roy Romer and the state Legislature worked together to enact legislation that created state content standards, statements of what students should know at different grade levels, and a system of state tests, the Colorado Student Assessment Program or CSAPs, which assess what students know relative to the standards. These standards and tests are important developments because they allow us to analyze the achievement gap across the state with comparable, objective data.

As part of the school reform movement in the 1990s, most states implemented accountability systems based on their own systems of standards and tests. That is, they set expectations for how well students should perform on these tests, with most of the focus on schools rather than either classrooms or districts, and created rewards and penalties based on a school’s performance.

In 2000, the Colorado Legislature, through SB00-186, created a School Accountability Report for Colorado. Unfortunately, closing the achievement gap is not a focus of this report. As long as overall performance in a school is adequate, regardless of the differences in achievement among groups, there are no negative consequences.

Also in 2000, a group of concerned citizens, including educators, politicians, business people and the heads of civic organizations, formed the Closing the Achievement Gap Coalition. Their goals included creating greater awareness of the gap in Colorado and advocating for public policies that would address this problem. The coalition has increased attention to the problem of low achievement among children of poverty and color.

The coalition successfully advocated a change in the state’s accreditation process. On a separate track from the accountability report, school districts must also go through a periodic process of accreditation with the Colorado Department of Education (CDE). One of the factors that CDE looks at during this review process is progress in closing the achievement gap. While this is an important development, it is largely overshadowed by the accountability system that every year issues report cards on individual schools and receives the bulk of attention from parents, educators and the media.

In 2003, the Legislature, through SB03-254, created the Commission on Closing the Achievement Gap. Appointed by the governor and state commissioner of education, the commission is to report to the state Board of Education and Legislature with “recommendations for action on programmatic and policy changes to close the achievement gap.”

The commission issued an interim report in November 2004 that included preliminary recommendations.<sup>3</sup> In the same bill, the Legislature created a program to assist schools with program planning and implementation. However, no public funds were provided to carry this out.

## America Deals with the Achievement Gap

While there has long been a discussion of the achievement gap at the national level, President Bush’s proposal to “leave no child behind” made the issue a top policy concern for the country. With the enactment of the No Child Left Behind Act (NCLB) in 2002, Congress and the president created a national accountability system based on closing the gap.

## I. Introduction

Unlike Colorado's system created through SB00-186, NCLB requires schools, districts and states to disaggregate data by race, income, gender and disability, and to measure how well their educational efforts are closing the gap by moving all students to proficiency on a specific timetable.<sup>4</sup>

The first school, district and state ratings under NCLB were released to the public in the fall of 2003. Some schools that were rated highly under Colorado's own accountability system were rated as failing under NCLB.

Colorado's practice of averaging scores across all students in a school obscures the low performance of groups of students — the achievement gap — where those students are a relatively small percentage of the overall student body. By disaggregating data by race, income and other characteristics, NCLB exposed serious gaps in otherwise high-performing schools.

Another provision of NCLB requires every state to take part in the National Assessment of Educational Progress (NAEP). NAEP is designed to assess students against a set of national content standards.

Data from NAEP is broken out by the same groups as is used in reporting CSAP results. This allows for several additional analyses of the achievement gap:

- How do the Colorado performance standards (e.g.—basic, proficient, advanced) compare to the national standards?
- Are the gaps in student achievement observed on the CSAP tests different from those based on the NAEP?
- Using NAEP data (which has comparable data for nearly all states), how does the size of the gap in Colorado compare to those found in other states?

The main purpose of this publication is to clearly describe and analyze the nature of the achievement gap in Colorado. In the following pages we present statistics and analyses that illustrate the breadth and depth of this gap.

We know that is the easy part. The real challenge is what to do to close the achievement gap. With this report, we hope to provide a common reference point for identifying where we are now and how to measure future progress.

With information in hand, it's time for Colorado educators, parents and decision-makers to join in a dialogue aimed at a solution that leads to all students successfully meeting the same high standards.



## II. Colorado's Achievement Gap by Race

Colorado suffers from a broad and persistent achievement gap. Because achievement is defined so many different ways in our state, describing and understanding the gap is difficult.

The following section illustrates that, whether using the state or federal definition of achievement, American Indian, black and Hispanic students score lower on tests measuring academic achievement than do white and Asian American students.

### Analysis of Performance Criteria

Using both 2003 and 2004 data, we set out to describe the achievement gap in Colorado. In order to understand the extent of the achievement gap by race, we assessed:

- How students compare with each other.
- How students compare with the goal of 100 percent proficiency.
- How students perform on national assessments versus state assessments.
- How Colorado students compare with their counterparts in other states.

Each of these criteria allowed us to focus on the achievement gap using different lenses of analysis. We used each of these lenses to gain insight into how students were performing based on the definitions of achievement developed by the state and by the federal No Child Left Behind Act.

Furthermore, we were able to look at the students' scores on national assessments and make comparisons to their scores on state assessments. Finally, the comparison between Colorado's results on the national assessment and other states' results were used to see where Colorado stands nationally.

Where data was available, the analysis of the achievement gap was conducted for elementary, middle, and high school. We used the results from the Colorado Student Assessment Program (CSAP) and the National Assessment of Educational Progress (NEAP) to calculate the magnitude of the gaps.

### 1. Comparing Students with Each Other

Using 2004 CSAP data, we analyzed how students performed on the reading and math assessments. We calculated the percentage of students that scored proficient or advanced on the CSAP, Colorado's definition of successful student achievement.

At the high school level, in addition to the CSAP results, we also measured the gap on the ACT, a college entrance exam, advanced placement results, and graduation rates. We measured the achievement gap using five comparison groups:

- White students to black students
- White students to Hispanic students
- Black students to Hispanic students
- White students to Asian American students
- White students to American Indian students

## Elementary School

- There is an achievement gap between white students and those from other racial groups on the fourth grade reading and fifth grade math CSAP tests.
- 40 percent of Hispanic students and 47 percent of black students scored proficient or advanced on the fourth grade reading test compared with 75 percent of white students.,
- 36 percent of Hispanic students and 36 percent of black students scored proficient or advanced on the fifth grade math test compared with 73 percent of Asian American students.

### Reading Scores

White students scored higher on the 2004 CSAP fourth grade reading test than did students from any other racial group. In fact, 87 percent more white students scored proficient or advanced on this assessment than Hispanic students, 75 percent compared to 40 percent. By comparison, 47 percent of black students and 48 percent of American Indian students scored proficient or advanced.

Research has found that children who are not reading proficiently by the end of third grade are much more likely to fail in school and drop out before graduating. The CSAP results show that over half of American Indian, black and Hispanic fourth graders were reading at a less-than-proficient level in 2004.

### Math Scores

Table 1 shows an achievement gap also exists in math at an early age. On the 2004 fifth grade math assessment, more white students scored at a proficient or advanced level than did American Indian, black or Hispanic students. But a higher percentage of Asian American students scored proficient or higher than white students.

Overall, student achievement in math was lower than in reading for all groups of students except Asian Americans, where five percent more students scored proficient or advanced in math than in reading.

Table 1 – Achievement Gap in 2004 CSAP 4th grade reading and 5th grade math scores, by race

(Difference in percent of students scoring proficient and advanced)

Group Comparison*	4 <sup>th</sup> Grade Reading Gap	5 <sup>th</sup> Grade Math Gap
White – Black	28	34
White – Hispanic	35	34
Black – Hispanic	7	0
White – Asian American	7	- 3
White – American Indian	27	25

\* These are the racial/ethnic categories used by the Colorado Department of Education to report CSAP results.

Figure 1 – 2004 fourth grade CSAP reading scores, by race

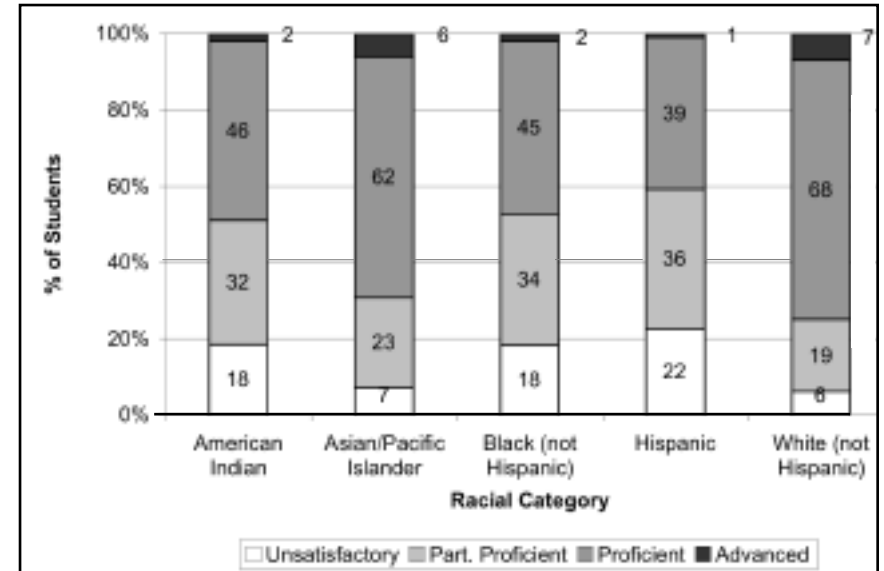
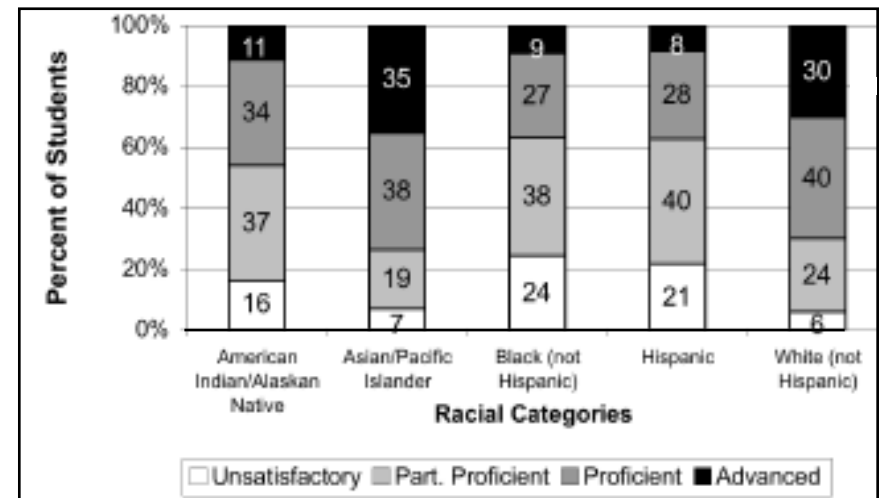


Figure 2 – 2004 fifth grade CSAP math scores, by race

Table 2 – Percent of students scoring proficient or advanced on fourth and fifth grade CSAP tests, by race

Racial Group*	4 <sup>th</sup> Grade Reading Test	5 <sup>th</sup> Grade Math Test
American Indian	48	45
Asian American	68	73
Black	47	36
Hispanic	40	36
White	75	70

\*These are the racial/ethnic categories used by the Colorado Department of Education to report CSAP results.



## Middle School

- Black and Hispanic students lose ground between elementary and middle school, particularly in math.
- The gaps between white students and black and Hispanic students in math and reading are slightly larger in middle school than in elementary school.
- All student groups lose ground in math performance between elementary and middle school.

### Reading Scores

As Table 4 shows, 75 percent of white students and 68 percent of Asian American students scored proficient or advanced on the 2004 eighth grade reading assessment. By comparison, less than 50 percent of American Indian, black and Hispanic students performed at this level.

The percentage of black students performing at the proficient or advanced level was slightly lower in middle school than in elementary school. The percentage of Hispanic students in these performance categories was 10 percent lower.

The percentage of middle school students that performed at the proficient or advanced level was about the same as the percentage of elementary school students for each of the other groups

### Math Scores

Middle school students scored much lower on the 2004 eighth grade math CSAP test than elementary school students did on the fifth grade math test.

Slightly more than half of all Asian American students, 55 percent, and white students, 51 percent, scored proficient or advanced on the eighth grade math test, compared with 73 percent of Asian American and 70 percent of white elementary school students who performed at this same level.

Only about half as many American Indian, black and Hispanic middle school students performed at the proficient or advanced level compared with elementary school students from each race.

The poor performance of all students and, in particular, the extremely poor performance by certain minority students, on the math assessment raises significant concern about the academic performance of Colorado students in math.

## II. Colorado's Achievement Gap by Race

### 1. Comparing Students with Each Other

Table 3 – Achievement Gap in 2004 CSAP eighth grade reading and mathematics results, by race\*  
(Difference in percent of students scoring proficient or advanced)

Group Comparison*	8th Grade Reading Gap	8th Grade Math Gap
White-Black	31	35
White-Hispanic	39	33
Black-Hispanic	8	-2
White-Asian American	7	-4
White-American Indian	26	27

\*These are the racial/ethnic categories used by the Colorado Department of Education to report CSAP results.

Table 4 – Percent of students scoring proficient or advanced on the eighth grade CSAP reading and math tests, by race

Racial Group*	8 <sup>th</sup> Grade Reading Test	8 <sup>th</sup> Grade Math Test
American Indian	49	24
Asian American	68	55
Black	44	16
Hispanic	36	18
White	75	51

\*These are the racial/ethnic categories used by the Colorado Department of Education to report CSAP results.

Figure 3 – 2004 eighth grade CSAP reading scores, by race

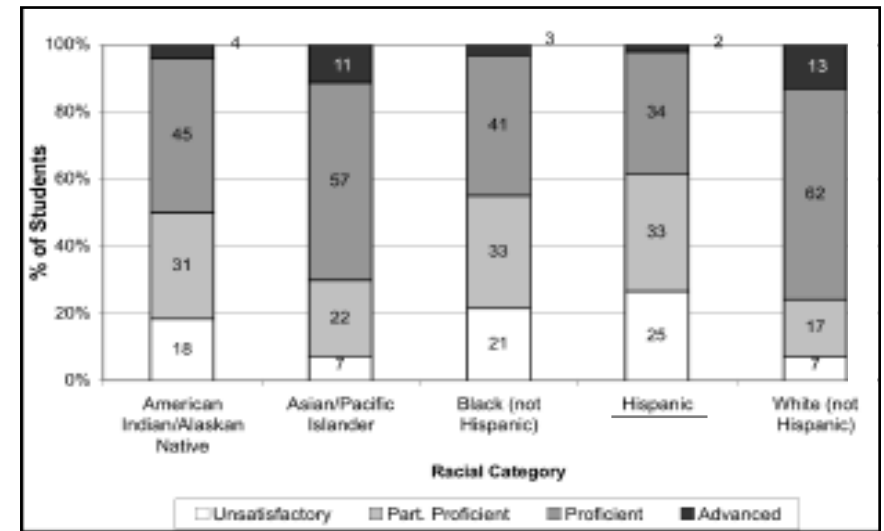
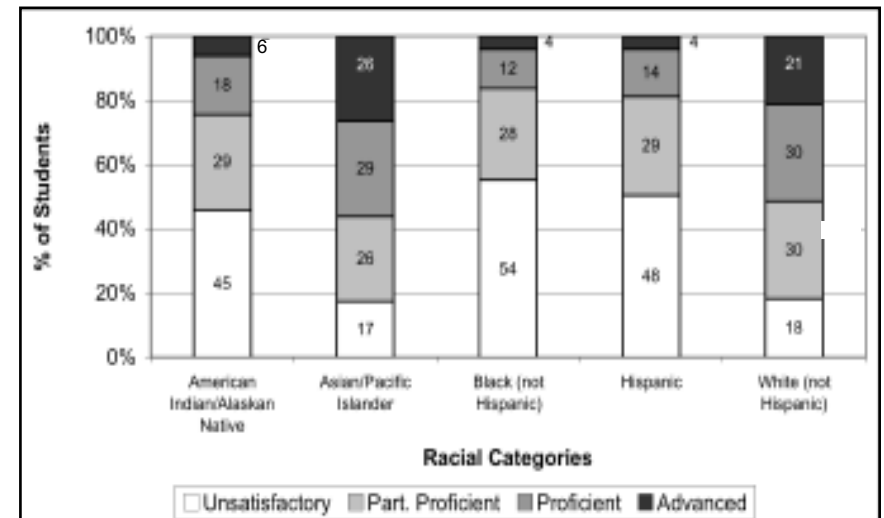


Figure 4 – 2004 eighth grade CSAP math scores, by race



## High School

- We found an achievement gap not only in CSAP scores, but also in college entrance exams, advanced placement courses and graduation rates.
- Students from all racial and ethnic groups scored so poorly on the 10th grade math test that it should raise serious questions about Colorado students' academic performance in math.

## CSAP Analysis

### Reading Scores

On the 2004 9th grade reading assessment, almost twice as many white students scored proficient or advanced than did Hispanic students. Furthermore, only 47 percent of black students scored proficient or advanced on the test.

The gap between white student performance and Hispanic student performance on the high school reading assessment was one of the largest found. The achievement gaps in reading at the high school level, like at the middle and elementary school levels, are disappointingly high.

### Math Scores

Overall, all groups performed poorly on the 10th grade CSAP test. Fewer than 10 percent of black and Hispanic students, and only 16 percent of American Indians, scored proficient or advanced. Only 33 percent of white and 35 percent of Asian American students scored proficient or advanced on the test.

The high school math CSAP test shows a dramatic decrease from middle school in the gap between white students and Hispanic, black, and American Indian students. However, these decreases can be attributed to an overall decline in student performance on the 2004 10th grade math assessment, rather than any improvement.

These results raise serious concerns about Colorado students' academic performance in math.

Table 5 – Achievement Gap on 2004 CSAP in 9th grade reading and 10th grade mathematics results, by race\*  
(Difference in percent of students scoring proficient or advanced)

Group Comparison*	9th Grade Reading Gap	10th Grade Math Gap
White-Black	31	27
White-Hispanic	38	24
Black-Hispanic	7	-3
White-Asian American	8	-2
White-American Indian	24	17

\*These are the racial/ethnic categories used by the Colorado Department of Education to report CSAP results.

Table 6 – Percent of students scoring proficient or advanced on the 2004 9th grade CSAP reading and 10th grade CSAP math tests, by race

Racial Group*	9 <sup>th</sup> Grade Reading Test	10 <sup>th</sup> Grade Math Test
American Indian	54	16
Asian American	70	35
Black	47	6
Hispanic	40	9
White	78	33

\*These are the racial/ethnic categories used by the Colorado Department of Education to report CSAP results.

Figure 5 – 2004 9th grade CSAP reading scores, by race

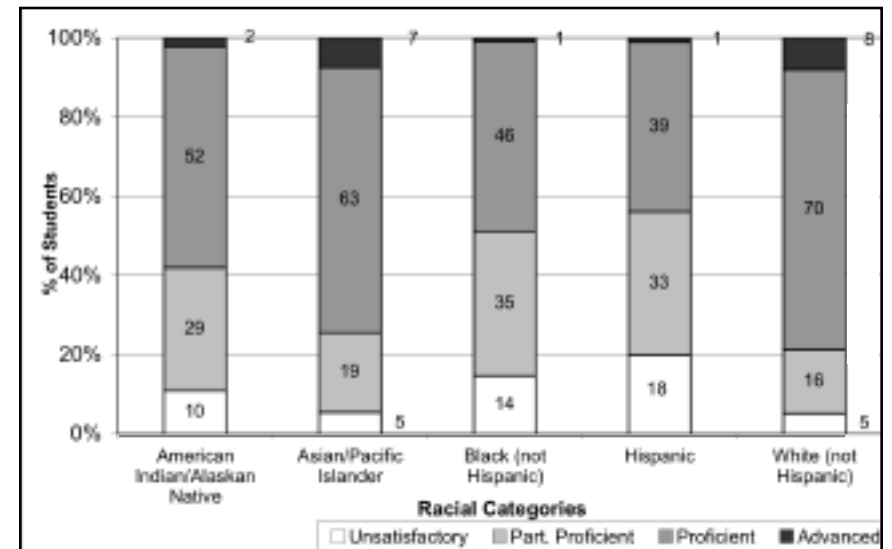
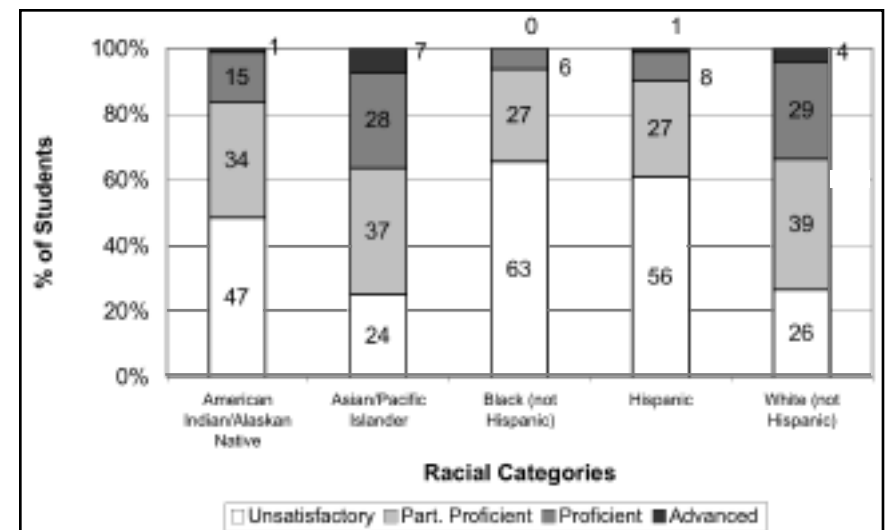


Figure 6 – 2004 10th grade CSAP math scores, by race



American College Testing Program (ACT) Analysis

Colorado law requires that every public school student in the 11th grade take a curriculum-based college entrance examination.<sup>5</sup> In conjunction with the Colorado Department of Education, the State Board of Education chose the American College Testing Program (ACT), first administered to students statewide in spring 2001.

The ACT is a college entrance exam created to assess students' ability to succeed in college. It has a possible scoring range from a low of 1 to a high of 36.

Because this test is administered to all 11th graders enrolled in Colorado public schools, regardless of whether they intend to go to college, its results are different from the ACT scores reported for Colorado's graduating classes of 2003 and 2004. The results are also different from the ACT scores reported by other states and the national average ACT score.

However, this test measures the academic performance of all 11th graders in public school on their readiness for college level work. Based on research carried out by ACT, students with test scores between 17 and 20 are typically eligible to attend only those colleges that have an open admission policy, meaning they accept all high school graduates who apply.<sup>6</sup> Students with test scores less than 17 are not believed to be prepared for college-level work.

As Table 7 shows, the average 2004 ACT composite score for American Indian, black, Mexican American and Hispanic 11th graders in Colorado is less than 17.

As Table 8 shows, the largest gaps in 2004 on the ACT occurred between white and Mexican American, white and black, white and American Indian and white and Hispanic students, totaling more than four points.

Table 7 – 2003 and 2004 average 11th grade ACT scores, by race

Racial Group*	Average ACT Score 2003	Average ACT Score 2004
White	20.5	20.6
Hispanic	16.3	16.3
Mexican American	14.8	14.7
Black	15.4	15.3
American Indian	16.8	16.3
Asian American	19.3	19.6

\*Categories reported by the ACT.

Table 8 – Gap on the 2003 and 2004 ACT tests, by race

Racial Group*	ACT 2003 Gap	ACT 2004 Gap
White – Black	5.1	5.3
White – Hispanic	4.2	4.3
White – Mexican American	5.7	5.9
Black - Hispanic	-0.9	-1.0
Black – Mexican American	.6	.6
White – Asian American	1.2	1.0
White – American Indian	3.7	4.3

\*Categories reported by the ACT.

### Advanced Placement (AP) Analysis

High school students can take a set of college-level advanced placement courses. As part of the coursework, students can take an exam at the conclusion of the course. The exams are scored on a five-point scale, with 5 being the highest and 1 the lowest. Most colleges and universities give college credit for scores of 3 or higher.

Data related to AP courses provide information on Colorado students' access to a rigorous curriculum and their success in mastering the subject matter.

We analyzed scores on the 2003 AP exams in English literature and composition and in the calculus AB test, the two most widely given exams in Colorado.<sup>7</sup>

First, very few Colorado high school students take AP courses or the AP exam. The highest rate was 6 percent of Asian American students taking the English literature exam.

While the overall numbers are low, there is still a sizeable gap in the participation rate among racial groups and the percentage that received a score of 3 or higher.

For example, fewer than 1 percent of all black 11th and 12th graders took the calculus exam (35 individuals). Only 34 percent of those students (12 individuals) scored 3 or higher, to earn college credit for the course. On the other hand, 4.3 percent of Asian Americans took the same exam (139 students), and 61 percent of those students (85 individuals) scored a 3 or higher.

### Graduation Rates Analysis

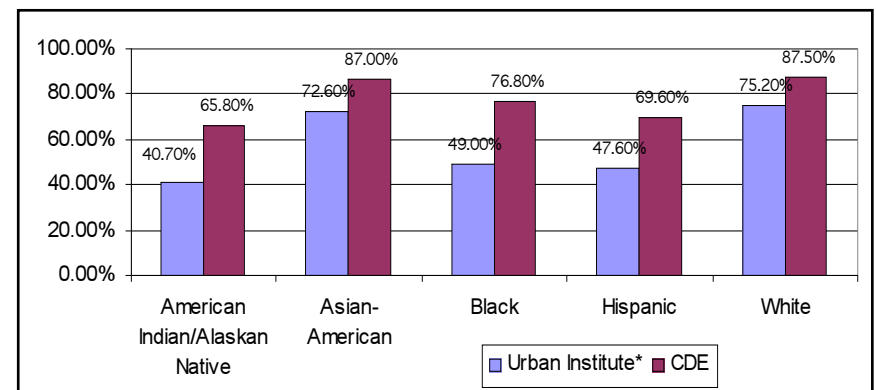
Graduation rates are included in our analysis because we believe that graduating from high school has both personal and social benefits.

In 2003, the mean average annual earnings nationally for workers between the ages of 18 and 64 without a high school diploma was about \$19,000. This compares to those who have a high school diploma, but no further education, who earned a mean average of \$28,250 per year. Furthermore, a high school diploma means a student is more likely to attend college.<sup>8</sup>

We included graduation rates calculated using two different methods reported by the Urban Institute and the Colorado Department of Education.

According to the Urban Institute data, black, Hispanic, and American Indian students are less likely to graduate from high school than white or Asian American students. The largest gap in graduation rates — 34 percent — is between white and American Indian students. While 75.2 percent of whites graduate, only 40.7 percent of American Indian students do so. Figure 7 presents data on high school graduation rates by race.<sup>9</sup>

Figure 7 – 2003 Colorado high school graduation rates



## 2. Comparing Students to 100 percent Proficiency

In 2001, Congress reauthorized the Elementary and Secondary Education Act, widely known as the No Child Left Behind Act (NCLB). It calls for 100 percent of students of all races, languages and abilities to be proficient on statewide assessments by the 2013-14 school year.

To show progress toward meeting the goal of 100 percent proficiency, the law requires each state to set specific yearly achievement targets, known as Annual Yearly Progress or AYP.

Flexibility in the law allows each state to define proficiency.

The Colorado Department of Education defines proficiency as students who score partially proficient, proficient, or advanced on the CSAP tests. This definition differs from the definition used in previous sections of this report because it considers "partially proficient" students to be proficient.

As a result, more students are considered proficient under the federal guidelines than under state guidelines. This makes it difficult to determine the success of Colorado students and can result in confusion, because some students may meet one standard of success but not the other.

This section presents data by race that includes:

- The targets for annual yearly progress under the NCLB act for meeting the goal of 100 percent proficiency; and,
- Average test scores on the 2004 CSAP's.

The data show the extent of improvement students need to make to meet the goals for progress towards 100 percent proficiency.

For example, the 2004 target for reading at the 4th grade level was 76.92 percent, meaning more than three of four students were expected to be proficient in reading.

Students from each racial group in Colorado met this goal except for Hispanic students, whose scores fell less than 1 percent below the goal.

A negative score on the following tables indicates the degree to which a specific group of students fell short of the annual target set for progressing toward proficiency.

Elementary School

- Hispanic students barely missed the 2004 reading target.
- Black students missed the 2004 math target by less than 2 percentage points.

**Reading**

White, black, American Indian and Asian American students exceeded the reading target for 2004. Hispanic students missed meeting the target by less than 1 percent. However, if future fourth grade students post similar scores, then only white and Asian American students will meet the 2008 target.

Colorado will have to increase the percentage of Hispanic students considered proficient to 88.46 percent from the 76 percent that scored proficient in 2004. An additional 7 percent of black students will need to score proficient to meet the 2008 target.

**Math**

Black students were the only group not to reach the 2004 target in math. Students at the fifth grade level preformed the best in mathematics of those grade levels that we examined.

Still, if future fifth graders have similar scores, only white and Asian American students will meet the 2008 target of 87.94 percent. To achieve the 2008 benchmarks, an additional 13.9 percent of black students, 11.9 percent of Hispanic students and 5.9 percent of American Indian students need to score proficient.

Table 9 – Elementary school adequate yearly progress

Years	Reading	Math
2004	76.92	75.86
2008	88.46	87.94
2011	94.23	93.98
2014	100	100

Table 10 – Elementary school 2004 CSAP scores results, by race \*

(Percentage of students partially proficient, proficient, or advanced)

Racial Category	4th Grade Reading	Over/Under '04 Target	5 <sup>th</sup> Grade Math	Over/Under '04 Target
White	94	17.08	94	18.14
Hispanic	76	- 0.92	76	.14
Black	81	4.08	74	-1.86
American Indian	80	3.08	82	6.14
Asian American	91	14.08	92	16.14

\*These are the racial/ethnic categories used by the Colorado Department of Education to report CSAP results.

Middle School

- Hispanic students as a whole are lagging behind others in reading, and black students are lagging behind others in math.
- Hispanic, black and Native American students will need to make significant progress to meet the 2008 targets for math.

**Reading**

Only Hispanic students did not meet the 2004 achievement target for eighth grade reading. The data in Table 10 (previous page) and Table 12 show Hispanic students are not performing as well as students from other racial groups in elementary and middle school.

An additional 17.8 percent of Hispanic students, 9.8 percent of black students and 6.8 percent of American Indian students will need to score proficient to meet the 2008 benchmark for reading.

**Math**

Only white and Asian American students met the 2004 achievement target for eighth grade math.

As a whole, black students missed the target by almost 16 percentage points, the largest gap among all racial categories.

The smallest gap among students on the math test is at the elementary school level and it widens in middle school. Significant improvement is needed for students to meet the 2008 benchmark.

An additional 35.7 percent of black students, 32.7 percent of Hispanic students and 26.7 percent of American Indian students will need to score proficient to meet the 2008 target for math.

Table 11 – Middle school adequate yearly progress

Years	Reading	Math
2004	73.61	59.51
2008	86.81	79.75
2011	93.41	89.88
2014	100	100

Table 12 – Middle school 2004 CSAP scores results, by race\*

(Percentage of students partially proficient, proficient, or advanced)

Racial Category	8th Grade Reading	Over/Under '04 Target	8th Grade Math	Over/Under '04 Target
White	92	18.39	81	21.49
Hispanic	69	-4.61	47	-12.51
Black	77	3.39	44	-15.51
American Indian	80	6.39	53	-6.51
Asian American	90	16.39	81	21.49

\*These are the racial/ethnic categories used by the Colorado Department of Education to report CSAP results.

High School

- Hispanic students continue to lag behind the other groups in reading and Black students continue to lag behind the other groups in math.
- Extraordinary improvements will have to be made to meet the 2008 targets for math.

**Reading**

Only Hispanic students did not meet the 2004 target for ninth grade reading.

However, if future students post similar scores, only white students will meet the 2008 target. An additional 16.8 percent of Hispanic, 7.8 percent of black, 6.8 percent of American Indian, and .8 percent of Asian American students will need to score proficient to meet the 2008 target.

**Math**

Overall, all student groups performed poorly on the 10th grade math test. Hispanic and black students did not meet the 2004 achievement targets.

And significant progress must be made by students in all racial groups to meet the 2008 target. An additional 1.5 percent of white, 37.5 percent of Hispanic, 40.5 percent of black, 23.5 percent of American Indian and 1.5 percent of Asian American students must score proficient to meet the 2008 target for math.

Table 13 – High school adequate yearly progress

Years	Reading	Math
2004	79.65	47
2008	89.83	73.5
2011	94.92	86.75
2014	100	100

Table 14 – High school 2004 CSAP scores results, by race\*

(Percentage of students partially proficient, proficient, or advanced)

Racial Category	9 <sup>th</sup> Grade Reading	Over/Under '04 Target	10 <sup>th</sup> Grade Math	Over/Under '04 Target
White	94	14.35	72	25
Hispanic	73	-6.65	36	-11
Black	82	2.35	33	-14
American Indian	83	3.35	50	3
Asian American	89	9.35	72	25

\*These are the racial/ethnic categories used by the Colorado Department of Education to report CSAP results.

### 3. Comparing Student Performance on National and State Assessments

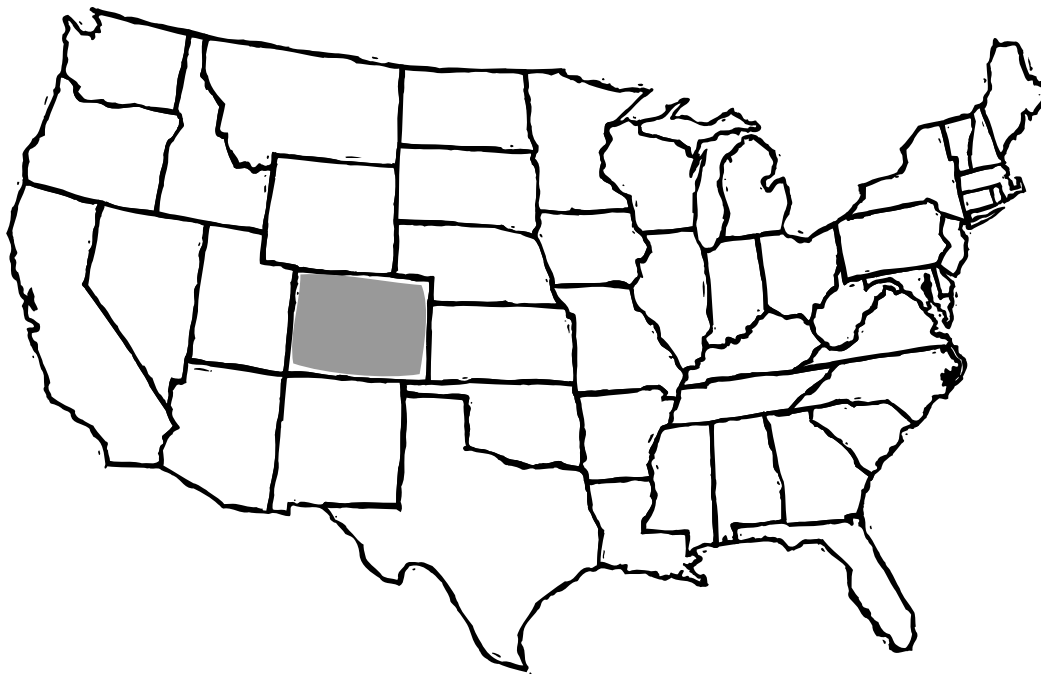
CSAPs are only one measure of student performance relative to a set of academic standards. Another tool that measures student achievement is the National Assessment of Educational Progress (NAEP). This test is taken by school-age children nationally, and can be used to gauge how Colorado students compare to students in other states.

To see how Colorado students performed on these tests that measure similar academic skills and knowledge, we compared the NAEP results to the CSAP results. We wanted to see if the achievement gap persisted in the same manner, or if the type of assessment affected the magnitude or characteristic of the gap.

NAEP is only given to students in the fourth grade and eighth grades. To have a valid comparison, we compared the scores on the fourth grade reading NAEP test to the fourth grade reading CSAP test.

Currently, Colorado does not have a fourth grade math CSAP test, so we were unable to compare scores on the elementary school math test. However, we included both the reading and math tests at the eighth grade level in our analysis.

The NAEP defines success as scoring at or above proficient. To ensure an appropriate comparison, we used the state's standard of success, which is a score of proficient or advanced, as opposed to the standard used for the No Child Left Behind analysis, which includes partially proficient scores.



Elementary School

- Students performed better on the CSAP tests than the NAEP.
- The achievement gap is smaller on the NAEP than the CSAP

Interestingly, the NAEP results are considerably lower than the CSAP results. The differences for the groups of students on the two tests range from a 29 point difference for white students to a 32 point difference for Asian American students.

Clearly, the NAEP uses a higher performance standard to measure proficiency than does the CSAP.

The percentage of students scoring proficient on the two tests is very different and so is the achievement gap. The magnitude of the achievement gap is actually lower on the NAEP assessment than on the CSAP assessment.

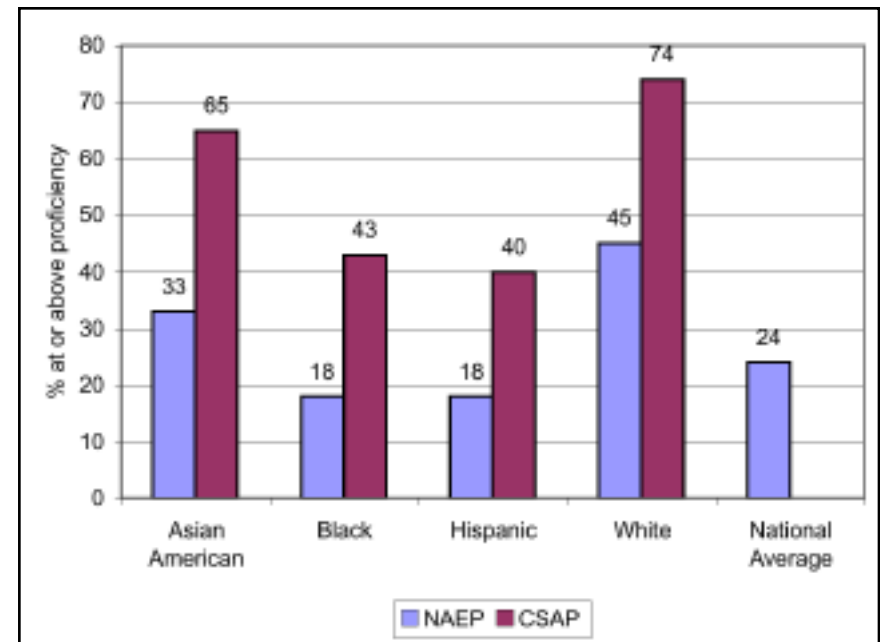
As Table 15 shows, the gap between white and Hispanic students on the fourth grade reading was 34 percent on the CSAP and 27 percent on the NAEP.

This is true for all other comparison groups except white and Asian American students. We were unable to compare white and American Indian students because the NAEP lacked data on American Indian students.

Table 15 – Comparison of gaps on 4th grade reading on the NAEP and CSAP tests

Racial Category	NAEP Gap	CSAP Gap
White – Black	27	31
White – Hispanic	27	34
Black – Hispanic	0	3
White – Asian American	12	9

Figure 8 – 2003 4th grade reading: Colorado NAEP results vs. Colorado CSAP results, by race



## Middle School

- The achievement gap in reading is smaller using the NAEP results.
- The variations in math scores between the NAEP and CSAP result in different achievement gaps.

### Reading

The NAEP results for eighth grade reading are significantly lower than CSAP results. The differences for the groups of students on the two tests range from a 24-point difference for Asian American students to a 34-point difference for white students.

As Table 16 shows, the achievement gap between the different groups using NEAP scores is generally lower than the gap measured on the CSAP.

In fact, the gap between white and Hispanic students narrows by almost 10 percentage points when using the NAEP results. The gap between black and Hispanic students also narrowed on the NAEP test. Asian American students did better on the NAEP than the CSAP and reversed the gap with white students.

### Math

The NAEP results for eighth grade math showed the greatest variation in the achievement gap of the three national assessments analyzed.

As Table 16 shows, the gap between white and black students was exactly the same on both NAEP and CSAP — 34 percentage points. The gap decreased when comparing white to Hispanic students, and then increased when comparing black to Hispanic students and white to Asian American students.

However, overall scores for all students are disturbingly low. While the scores of white and Asian American students exceed the national average, the NAEP scores point to poor math performance among Colorado students, particularly blacks and Hispanics.

Table 16 – Comparison of gaps in 8th grade reading and math on the NAEP and CSAP tests

Racial Category	NAEP Reading Gap	CSAP Reading Gap	NAEP Math Gap	CSAP Math Gap
White to Black	27	28	34	34
White to Hispanic	29	38	31	33
Black to Hispanic	2	10	-3	-1
White to Asian American	-4	7	5	-4

Figure 9 – 2003 8th grade reading: Colorado NAEP results vs. Colorado CSAP results, by race

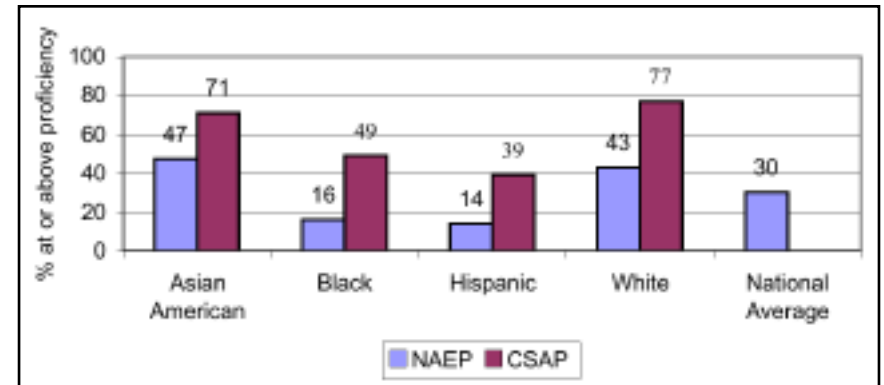
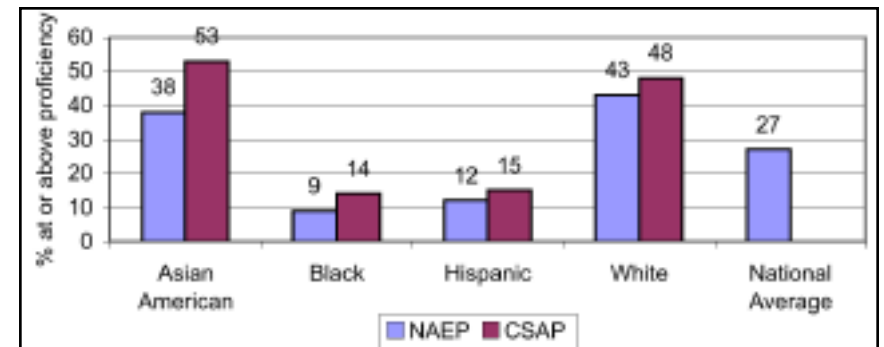


Figure 10 – 2003 8th grade math: Colorado NAEP results vs. Colorado CSAP results, by race



#### 4. National Comparison

Using NAEP results, the U.S. Department of Education calculated achievement gaps based on race for each state. We used these calculations to compare Colorado's achievement gaps to those found in the other 49 states.

In an effort to make fair comparisons, we used six peer states: Arizona, Illinois, Minnesota, Oregon, Tennessee, and Texas. These six peer states were chosen for two reasons. First, they had similar population characteristics. Second, they have been used as peer states by other organizations in Colorado, including the Colorado Commission on Higher Education.<sup>10</sup>

In addition, we include data for states with the largest and smallest achievement gaps.

#### Elementary School

##### Reading

On the fourth grade NAEP reading test, Colorado has a larger achievement gap than most of the other peer states.

For example, when comparing white students with black and Hispanic students, only two other peer states have a larger gap.

Oregon and Washington have the smallest gap between white and black students at 15, and Connecticut has the largest gap at 42. Colorado has the 27th highest gap between white and black students out of the 41 states with reported data.

Tennessee has the smallest gap between white and Hispanic students at 5, and Connecticut has the largest at 36. Colorado's is the 33rd largest gap between white and Hispanic students out of the 40 states with reported data.

##### Math

Colorado has a wider gap between white and black students than all but two peer states — Illinois and Texas — on the fourth grade NAEP math test. West Virginia has the smallest gap at 11 and Connecticut the largest at 43. Colorado's gap ranks 21st out of 41 states reporting data.

Only Illinois and Minnesota have a wider gap than Colorado between white and Hispanic students among the peer states. Montana has the smallest gap at 9, and Connecticut has the largest at 38. Colorado's gap between white and Hispanic students on the fourth grade math NAEP ranks 35th among the 42 states reporting data.

Figure 11 – 4th grade reading NEAP results: gap between white and black students' scores

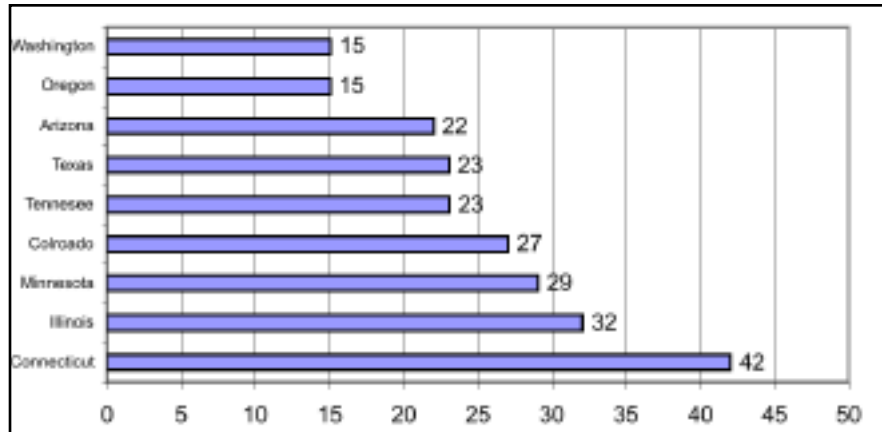


Figure 12 – 4th grade reading NEAP results: gap between white and Hispanic students' scores

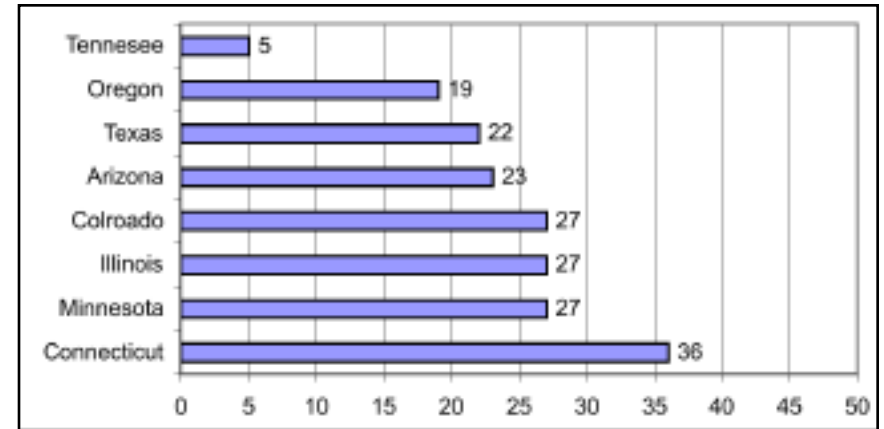


Figure 13 – 4th grade math NEAP results: gap between white and black students' scores

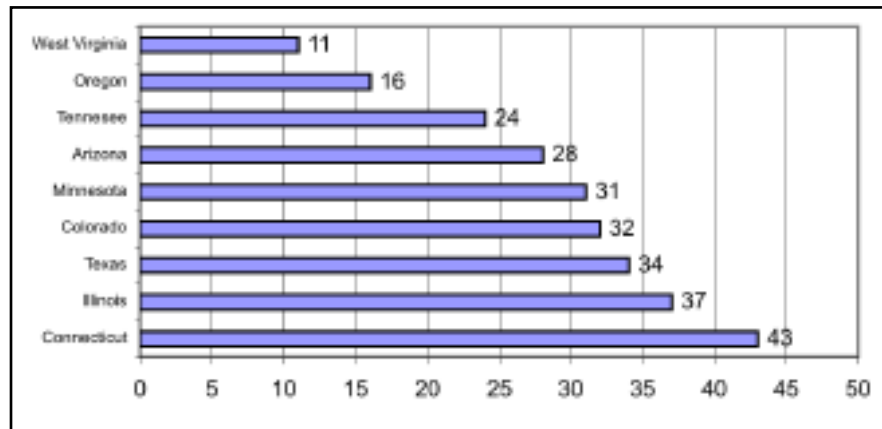
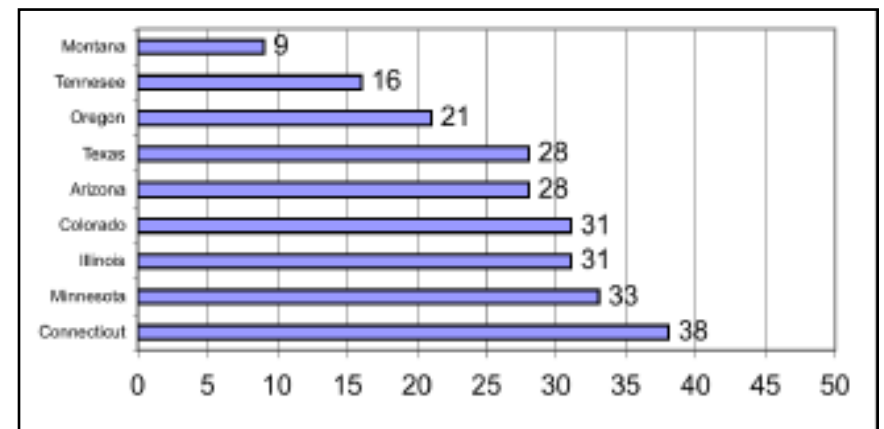


Figure 14 – 4th grade math NEAP results: gap between white and Hispanic students' scores



## Middle School

### Reading

Compared with peer states on the eighth grade NAEP reading assessment, Colorado has a large achievement gap based on race and ethnicity.

As Figure 15 indicates, Illinois and Minnesota are the only peer states with higher achievement gaps between white and black students. West Virginia has the smallest gap in the nation at 12, and New York the largest at 34. Of the 40 states reporting data, Colorado has the 24th largest gap between white and black students.

As Figure 16 indicates, Colorado and Illinois have the largest gaps between white and Hispanic students among the peer states. Ohio has the smallest gap nationally at 2, and Massachusetts the largest at 35. Colorado, Illinois and New Jersey all have the 31st largest gaps between white and Hispanic students among the 36 states reporting data.

### Math

On the eighth grade NAEP math assessment, only Minnesota has a larger gap between white and Hispanic students and white and black students among the peer states.

Oregon's gap of 18 between white and black students is the smallest nationally, and Minnesota's gap of 40 is the largest. Of the 40 states with reported data, Colorado tied with Illinois, Massachusetts and New York for the 33rd largest gap between white and black students.

Hawaii has the smallest gap in the nation between white and Hispanic students with 9, and Massachusetts has the largest at 35. Colorado is tied with Illinois for the 32nd largest gap between white and Hispanic students among the 36 states reporting data.

Figure 15 – 8th grade reading NEAP results: gap between white and black students' scores

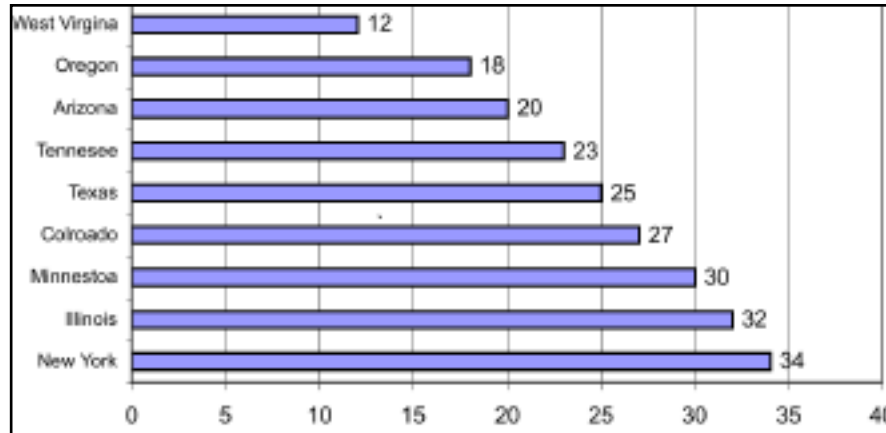


Figure 16 – 8th grade reading NEAP results: gap between white and Hispanic students' scores

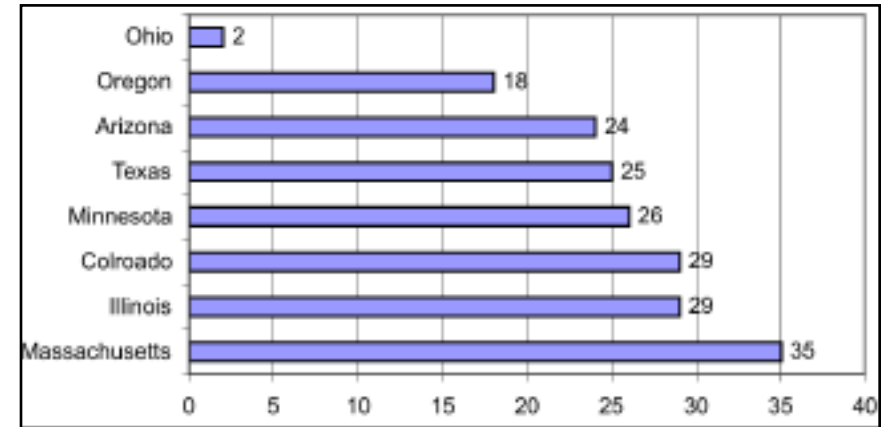


Figure 17 – 8th grade math NEAP results: gap between white and black students' scores

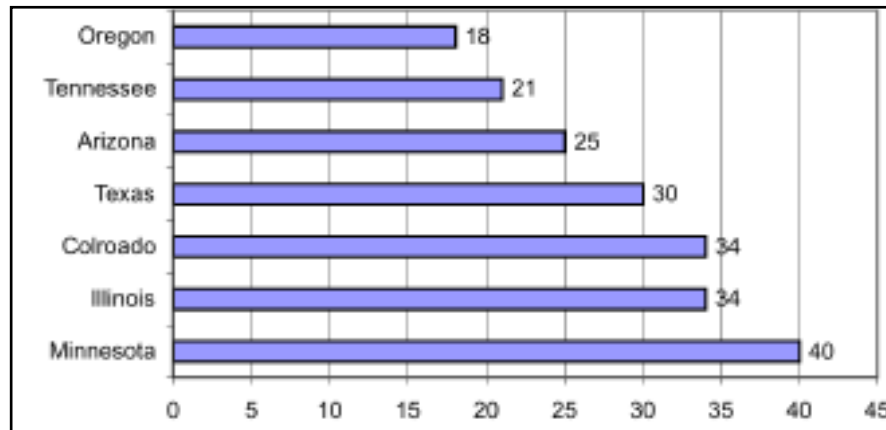
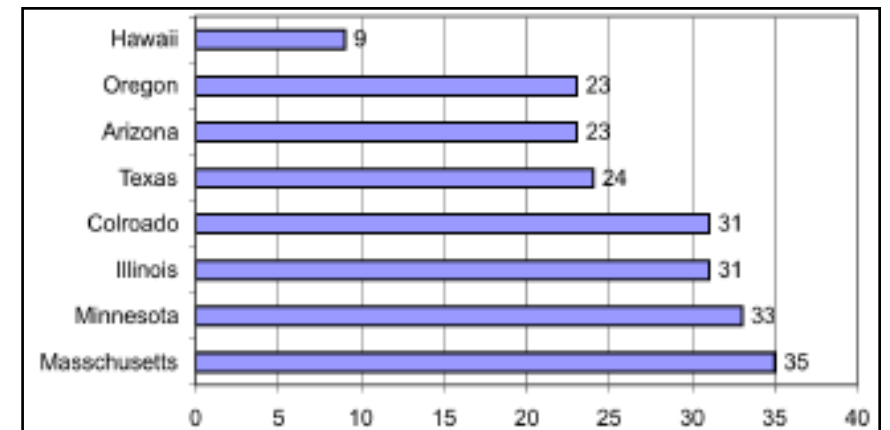


Figure 18 – 8th grade math NEAP results: gap between white and Hispanic students' scores



### III. Colorado's Achievement Gap by Income

In addition to comparing the performance of students from different racial backgrounds, we assessed the performance of students based on income. We found that students from low-income families score lower on academic achievement tests than students from middle-and high-income families.

#### Analysis of Performance Criteria

To assess the extent of the achievement gap based on income we analyzed:

- How students compare with each other;
- How students perform on national assessments versus state assessments; and
- How Colorado students compare with their counterparts in other states.

We did not compare performance against the goal of attaining 100 percent proficiency by 2014, because there is no data relative to income.

We used the U.S. Department of Agriculture's eligibility definition for the free and reduced school lunch program to measure family income. To be eligible for the reduced lunch program, a family of four's annual household income must be below \$34,873. To be eligible for the free lunch program, a family of four's annual household income must be below \$24,505.<sup>11</sup>

We consider students who are eligible for either free or reduced lunch programs to be from low-income families and students who do not qualify for the programs to be from middle- to high-income families.

#### 1. How Students Compare with Each Other

Using 2004 CSAP data, we analyzed how students performed on the reading and math assessments. We gathered data on the percentage of students who scored proficient or advanced on the CSAP, Colorado's definition of successful student achievement.

At the high school level, in addition to the CSAP results, we also measured the gap on the ACT, a college entrance exam. Again, we were unable to look at advanced placement results or graduation rates because of the lack of data on the students' family income.

Table 17 shows the extent of the gap between low income and middle and high income students on the 2004 CSAP tests.

Interestingly, the extent of the gap based on income is almost equal to that found between white and black students. This can be explained partly by the difference between the races in median family income. Data from the 2000 Census shows the median family income for white Coloradans was 43 percent higher than that for black Coloradans.

### Elementary School

Starting in elementary school, it is obvious that income is an important factor in the performance of Colorado students.

On the 2004 fourth grade reading CSAP, 74 percent of students from middle- to high-income families scored proficient or above, compared to 42 percent of students from low-income families. The gap based on income is 32 percent in reading and 32 percent in math.

### Middle School

In middle school, students from middle- to high-income families continue to outperform students from low-income families on both reading and math tests. We found the largest gap on the eighth grade reading test, a difference of more than 35 percent.

And like the math results based on racial categories, the performance of students from families at all income levels decreased dramatically on the eighth grade math test. But a 32 percent gap remains between students from low-income families and those from middle-to-high-income families.

### High School

The story does not change in high school, where students from middle- to high-income families continue to outperform students from low-income families.

The gap on the ninth grade reading test is 32 percent, with almost twice as many students from middle- to high-income families scoring proficient and advanced as students from low-income families.

However, it is important to note again that overall student achievement on the 10th grade math test decreased significantly for both groups of students. On the 10th grade math test, only 31 percent of students from middle- to high-income families scored proficient or advanced. Yet this was three times the rate for students from low-income families.

The high school achievement gap in reading remains consistent with the elementary and middle school gaps, while the gap on the 10th grade math test decreased. The math gap narrows because all students performed so poorly on this test.

Table 17 – Achievement Gap on 2004 CSAP tests, by income (percent based on proficient and advanced scores)

Tests	Low- Income	Middle- to High- Income	Achievement Gap
4 <sup>th</sup> Grade Reading	42	74	32
5 <sup>th</sup> Grade Math	38	70	32
8 <sup>th</sup> Grade Reading	39	74	35
8 <sup>th</sup> Grade Math	18	50	32
9 <sup>th</sup> Grade Reading	42	74	32
10 <sup>th</sup> Grade Math	10	31	21

## 2. Comparing Students on National Assessments and State Assessments

CSAPs are only one measure of student performance. The National Assessment of Educational Progress (NAEP) is given to school age children throughout the United States and can be used to compare Colorado students with those in other states.

We compared the state NAEP assessment with the CSAP assessment to see how students performed on different tests that measure similar academic skills and knowledge.

Furthermore, we wanted to see if the achievement gap persisted in the same manner or if the type of assessment affected the magnitude or form of the gap.

It is important to note that NAEP is only given to students in fourth and eighth grades. We compared the fourth grade reading NAEP to the fourth grade reading CSAP. Since Colorado does not currently have a fourth grade math CSAP, we could not compare math scores. However, we compared eighth grade reading and math CSAP scores to scores on the eighth grade NAEP tests.

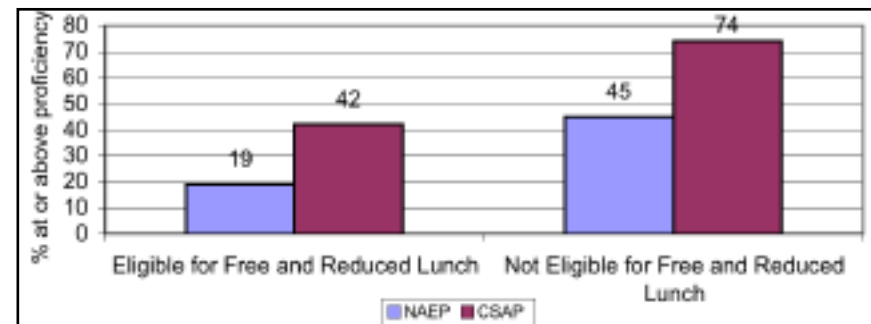
## Elementary School

When using income as our lens for analysis, we again see that overall student performance is lower on the NAEP assessment than on the CSAP assessment.

In fact, 29 percent fewer students from middle- to high-income families scored proficient or above on the fourth grade NAEP reading test than on the CSAP. The difference for students from low-income families between the NAEP and CSAP scores is 23 percent, but this may be attributed to the low scores on both tests.

Only 42 percent of students from low-income families scored proficient and above on the CSAP and 19 percent scored proficient on the NAEP. Similar to the achievement gaps based on race, the achievement gap between students from middle- and high-income families and students from low-income families was 26 percent on the NAEP, smaller than the 32 percent on the CSAP.

Figure 19 – 2003 Colorado 4th grade reading results: NAEP scores vs. CSAP scores



Middle School

Overall student achievement on the eighth grade NAEP assessment was lower compared with the CSAP for both reading and math.

Similar to the comparisons using race, the achievement gap based on income narrows when using the results from the NAEP assessments rather than the CSAP test.

For example, the gap in reading is 26 percent on the NAEP compared to 35 percent on the CSAP.

The gap in math is 30 percent on the NAEP and 33 percent on the CSAP. Again, less than half of the students from middle to high income families scored proficient on the eighth grade NAEP math test.

Figure 20 – 2003 8th grade reading results: NAEP scores vs. CSAP scores

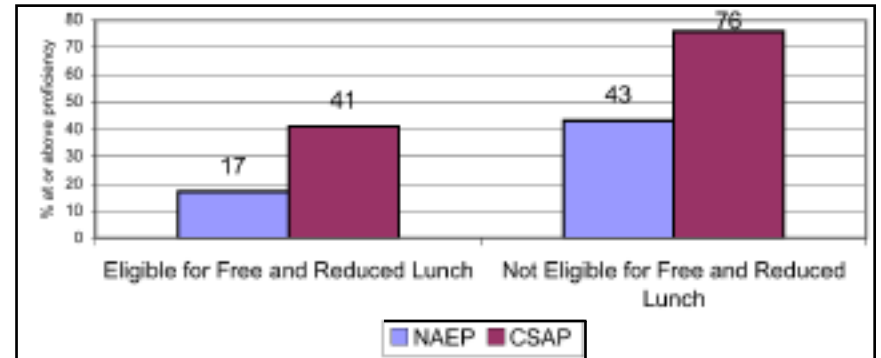
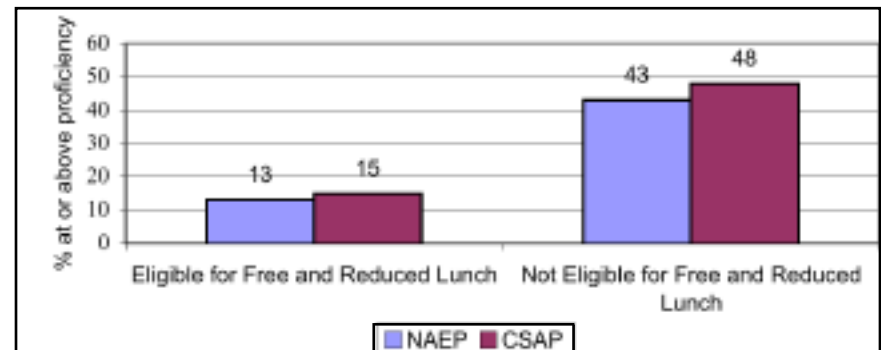


Figure 21 – 2003 8th grade math results: NAEP scores vs. CSAP scores



### 3. National Comparison

Using NAEP results, the U.S. Department of Education calculated achievement gaps based on income for each state.

In an effort to make fair comparisons, we used the six peer states we used to compare the gap based on race: Arizona, Illinois, Minnesota, Oregon, Tennessee, and Texas.

We also include data on the states with the largest and smallest gaps. All 50 states reported data on NAEP results relative to income of the students' family.

#### Elementary School

##### Reading

Comparing Colorado with the six peer states on the fourth grade reading NAEP assessment, only Illinois has a higher achievement gap based on income than Colorado.

Colorado's reading gap is 26, the 37th largest gap of all 50 states. That compares with Hawaii, which has the smallest gap at 16, and Connecticut with the largest at 35.

##### Math

Only two peer states, Minnesota and Illinois, had larger gaps on the fourth grade math NAEP assessment than Colorado.

West Virginia and Utah had the smallest gaps at 17, and Connecticut had the largest at 42. Colorado's gap of 29 was the tied for the 34th largest in the nation.

Figure 22 – 4th grade reading NAEP results: gap between middle- to high-income and low-income student achievement

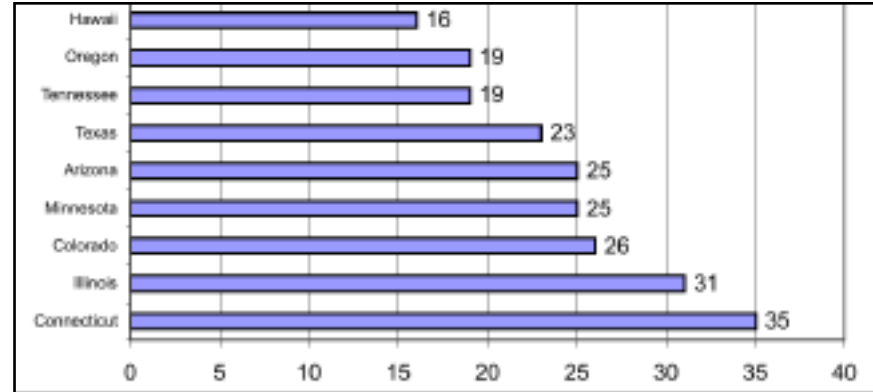
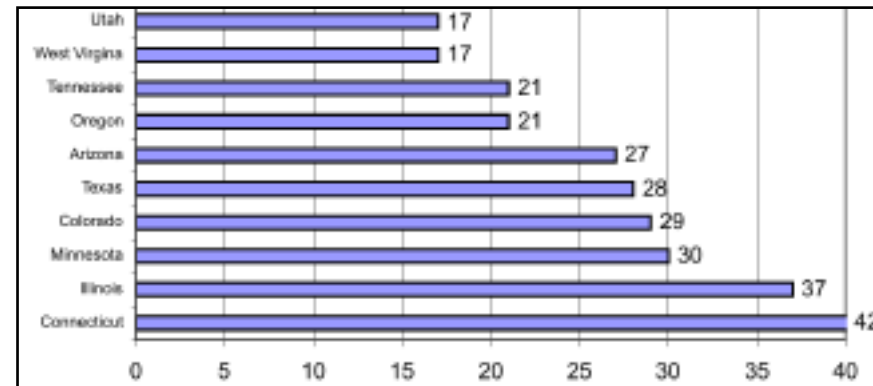


Figure 23 – 4th grade math NAEP results: gap between middle- to high-income and low-income student achievement



Middle School

**Reading**

Illinois is the only peer state to have a larger achievement gap on the eighth grade reading NAEP assessment. Colorado's gap is 26, compared with 12 in Nevada, the smallest nationally, and 32 in Massachusetts, which is the largest.

Colorado is tied with Minnesota, Virginia and Vermont for the 42nd largest gap in the nation.

**Math**

Illinois is the only peer state with a larger gap on the eighth grade math NAEP assessment. Arkansas has the smallest gap at 13 and Massachusetts has the largest at 33. Colorado's gap of 30 between students from low-income and middle- to high-income families is the 45th largest in the country.

Figure 24 – 8th grade reading NAEP results: gap between middle- to high-income and low-income student achievement

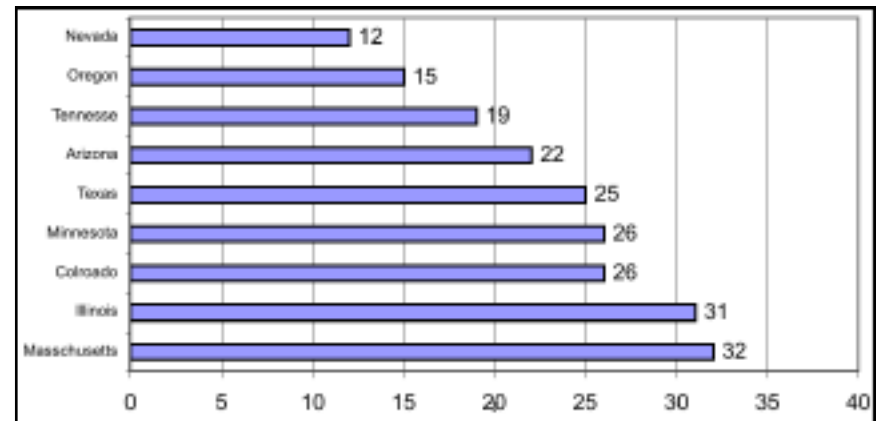
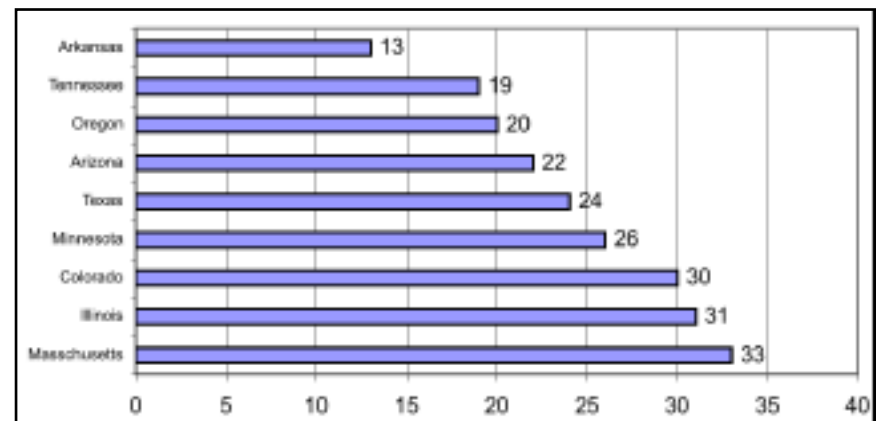


Figure 25 – 8th grade math NAEP results: gap between middle- to high-income and low-income student achievement



## IV. Research and Case Study Findings on Closing the Achievement Gap

### Research Findings

A significant amount of research has been conducted on the causes for the achievement gap. Recommendations for closing the achievement gap can be grouped into two broad categories — reforming schools and education policy or changing the economic and social well being of students.

#### 1. Reforming Schools

The first approach focuses solely on changing the school environment as a means to close the achievement gap. In *No Excuses: Closing the Racial Achievement Gap*, Abigail and Steve Thernstrom emphasize changes in the school environment such as hiring and retaining high quality teachers, restructuring the school day and setting high expectations for all students.

They recommend adapting teacher training to the changing background of students and encouraging people from other professions to become teachers. Setting rigorous academic standards and testing achievement relative to these standards will encourage teachers and students to become more disciplined.

Once an accountability system is in place, school districts, superintendents and principals have to hold students, teachers and schools accountable for meeting the standards and should impose penalties for not reducing the achievement gap.

School choice is important so students and parents can change schools if they do not believe their current school is meeting their needs. Not all students can succeed in the same

environment and allowing different types of schools — traditional, charter and magnet schools — increases the likelihood that students will find a setting that works for them.

#### 2. Improving Students' Economic and Social Well-Being

While Abigail and Stephen Thernstrom focus solely on reforming schools to close the achievement gap, Richard Rothstein takes a broader view of the problem. In *Class and Schools: Using Social, Economic and Educational Reforms to Close the Black-White Achievement Gap*, Rothstein writes that although school reform plays a part, the social environment in which students are raised directly affects how they perform in school.



He argues that the students' environment — school, home, culture, health, social class and society as whole — play a role in the achievement gap, and by only reforming the schools, as the Thernstroms suggest, the gap may not close.

For example, Rothstein states that low-income students face a gap from the time they are born because housing, health care and nutrition, all of which influence learning, vary based on family income. Low income families tend to move more frequently and live in substandard housing, lack health coverage, do not get treatment for illnesses that affect learning and cannot afford adequate nutrition vital to the development of children.

He argues that we need to take a broader approach to solve the achievement gap, such as increasing school integration,

creating stable housing, establishing community health clinics in the schools, and increasing access to before-school, after-school and summer school programs for students from low-income families.

Creating more diverse schools, racially and intellectually, will help kids learn from one another in ways that teachers are unable to teach. A stable home environment helps students learn without the worry of changing schools and communities.

Access to health care means students can be diagnosed and treated for illnesses, and health problems such as poor eyesight and hearing, that impede their ability to learn.

Before- and after-school programs increase the likelihood that students from low-income families will receive the one-on-one attention required to help them read and write better at a young age.

### 3. Combination Approaches

In *Parsing the Achievement Gap: Baselines for Tracking Progress*, Paul Barton reviews the research on the achievement gap and on how school and social reforms can help close it. He urges schools to develop more rigorous curriculum to challenge students, improve teacher training, reduce teacher-to-student ratios and improve school safety.

Barton also examines home and social factors, and finds increasing parental participation in the education process at school and at home, improving housing, addressing health issues such as hunger and lead poisoning, and reducing television time all positively affect the achievement gap.

He recommends establishing national indicators to measure the achievement gap and evaluating them at regular intervals. He also recommends the federal government convene a panel of researchers to identify key achievement gap indicators and develop systematic, national changes to reduce the gap.

### 4. Colorado Research

The Colorado Commission on Closing the Achievement Gap presented its interim report in November 2004, recommending actions to close the achievement gap. Many of its findings reflect the views of researchers who study the achievement gap.

The recommendations focus mainly on educational reforms, and call for more parental and community involvement in the educational process. The recommendations include:

- Schools should gather data on performance disaggregated by race and income and make this information available to school administrators and teachers. Knowing how students are performing will help teachers craft strategies for improving performance.
- Schools should set high expectations and ensure that students meet them.
- Schools need to address cultural sensitivity and how school and external biases affect expectations.
- The education system, from pre-school through college, should be better coordinated and provide support that enables all students, particularly low-income and minority students, to attend and succeed in college.
- Schools should increase the number of minority teachers and administrators, improve teacher training, and offer incentives for the most capable teachers and administrators to work in the most challenged schools.
- Schools should encourage greater parental involvement.
- School districts should fund, collect and store research information on initiatives that successfully close the achievement gap.

## Case Study Findings

The achievement gap is a persistent problem that affects schools and students throughout the country. But some states, school districts and schools have created and implemented strategic plans and initiatives to address the gap in student achievement. The following examples illustrate potential approaches to closing the achievement gap.

### 1. North Carolina

North Carolina was recognized by the Education Commission of the States for demonstrating a strong commitment to closing the achievement gap through legislation and other initiatives.

Legislation adopted in 2001 requires the North Carolina Board of Education to modify the state's accountability model to include a component on closing the achievement gap. In addition, schools and school districts must measure and compare performance of each subgroup of students to ensure that all subgroups are meeting state standards.

Additional legislation requires local school districts to create task forces on closing the achievement gap, using guidelines developed by the state board of education. The local task forces work with the local board of education, local superintendent, central office administration and other school staff in closing the achievement gap.

In addition to the legislation, the North Carolina Department of Public Instruction established the Advisory Commission on Raising Achievement and Closing Gaps to advise the state board of education, state superintendent and local school systems on ways to close the achievement gap. The commission released its report in 2002. It contained 11 recommendations related to:

- Teacher preparation and support

- Underachieving students
- Home and community
- Legislation and policy
- Minority student participation and exclusion

The North Carolina Department of Public Instruction also established the Closing the Achievement Gap Section to help schools with:

- Curriculum and instruction
- Test analysis and data disaggregation
- School improvement plans, specifically gap-closing components
- Parental and community involvement
- Identification of local issues
- Staff development and training



### 2. Cherry Creek School District, Greenwood Village, Colo.

Cherry Creek School District has more than 44,000 students, roughly 75 percent white, 10 percent black, 8 percent Hispanic, 6 percent Asian American and 1 percent Native American. The district is one of the most highly regarded in Colorado, with more than three-fourths of its schools rated excellent or high by the Colorado Department of Education in 2004.

Dr. Monte Moses, district superintendent and the American Association of School Administrators' 2005 national superintendent of the year, says Cherry Creek is committed to every child.

“Our country’s standard now is universal achievement and proficiency for every student. Every student means not only the child who comes well prepared for school from a stable home.

“Every child is the child who comes speaking little or no English. Every student is the child who comes malnourished and neglected.

“Every student is the child that comes to us with physical, mental and emotional disabilities, of every race, creed, socio-economic status and national origin. We must meet their needs and help them fulfill their potential,” Dr. Moses said.

Cherry Creek School District created a task force to develop a plan for closing the achievement gap. The plan was adopted following a series of 19 public meetings involving more than 600 community members, teachers, administrators and business leaders. The school board appropriated \$1.4 million to implement it in 2002 through 2004. The plan has five goals, with implementation strategies, to remedy the achievement gap.

Goal 1: Raise academic achievement expectations for students in highly impacted schools such as Prairie Middle School and Overland High School. The seven implementation strategies include:

- Develop achievement goals based on disaggregated data.
- Create an immersion program at all schools to meet the needs of students whose families move frequently.

Goal 2: Support students in meeting increased academic core expectations by providing extended learning opportunities. The seven implementation strategies include:

- Increase student enrollment in summer school programs.
- Extend the school day at Prairie Middle School.
- Prepare for kindergarten in the north area elementary schools.

Goal 3: Provide opportunity for academic acceleration and meet the needs of diverse learners. The four strategies include:

- Provide additional academic support, such as tutoring, at Overland High School.
- Develop a process for helping kids transition from fifth to sixth grade and from eighth to ninth grade.

Goal 4: Improve achievement through professional development and support for all staff. The five implementation strategies include:

- Understand the impact of race and culture on learning.
- Consider providing daycare for staff members in north area schools.

Goal 5: Improve academic achievement in highly impacted schools through support to students and families. The 11 implementation strategies include:

- Increase mental health services to support all north area schools.
- Offer English classes for parents.
- Provide child care for all evening meetings.

In June 2004, Cherry Creek School District renewed its commitment to closing the achievement gap. Brooke Gregory, director of the Multicultural Department, said the district is still in the process of implementing many of the plan’s goals and strategies.

Two areas that show improvement are the achievement of English language learners and the focus on the needs of students and families in the north area of the district.

### 3. Cesar Chavez Academy, Pueblo, Colo.

The mission of the Cesar Chavez Academy, a charter school, is to prepare a diverse group of children for success as young scholars, citizens of the world and community leaders. Guided by the spirit of Cesar Chavez, a migrant farm worker who founded the United Farm Workers of America, the school focuses on scholarship, leadership and community involvement.

The school is recognized as one that addresses the achievement gap well. It prepares students to meet and exceed Colorado's high academic standards, and places a unique emphasis on the history, culture and native language of Latinos.

Teachers emphasize the importance of early education and academic support, and partner with students to help them achieve above grade level.

At Cesar Chavez Academy, more than 67 percent of the students are eligible for the free and reduced lunch program, and 71 percent of the students are Hispanic. The principal, Dr. Lawrence Hernandez, believes small class sizes, one-on-one tutoring and rigorous curriculum contribute to the school's academic success.

According to the 2002-03 School Accountability Report, more than 90 percent of the school's third graders scored proficient or above on the reading CSAP. By 2004, the school's proficiency score on third grade reading hit 100 percent, a feat matched by only five other Colorado schools.



### 4. Roy Moore Elementary School, Silt, Colo.

Roy Moore Elementary School, part of the Garfield Re-2 School District based in Rifle, has a diverse student population. More than 30 percent are Hispanic, including many Spanish-speakers, and 22 percent are eligible for the free and reduced lunch program.

Roy Moore Elementary has made marked improvements in the achievement of all students. In 2003, 76 percent of all students scored proficient or advanced on the third grade reading CSAP. By 2004, that number increased to 98 percent.

The school is committed to implementing research-based, instructionally sound practices as part of a district-wide school improvement initiative.

Re-2 Superintendent Gary Pack reports the principal and staff at Roy Moore are committed to high expectations and developing a community of learners. Principal Mark McHale invested heavily in instructional programs such as balanced literacy and Everyday Mathematics. He also dedicated time and resources for extensive professional development and training for teachers.

Some of the school's success can be credited to the support of a district-wide academic coach. But most of the success comes from the hard work and dedication of the school community.

The school has done a particularly good job on the assessment and support of English language learners and developing relationships with parents and the community. On a typical school day, Roy Moore has 10 to 20 parent volunteers working in the classrooms and offices.

## V. Recommendations for Closing Colorado's Achievement Gap

As described in previous chapters, Colorado has a large, persistent achievement gap that exists between students of different racial and economic backgrounds.

This report has illustrated the depth of the gap in a variety of ways. It summarized research on causes of the gap and identified practices that have been used by other states and schools to successfully address the achievement gap.

Using this data, we developed the following recommendations for actions Colorado can take to close the achievement gap. The list is not meant to be exhaustive. Rather, these recommendations build on important research and programs that already exist in our state.

1. Modify Colorado's School Accountability Report to make closing the achievement gap and continuous academic growth the benchmarks against which schools, school districts and the state are judged.

When it comes to accountability, you measure what you value. Despite all the talk, Colorado's accountability system does not look at whether a school or district is closing the achievement gap in judging its performance.

Accreditation requirements include measures on closing the achievement gap, but the School Accountability Report does not.

The state Board of Education and the state Legislature should work with educators, parents, and others to modify the

Accountability Report so it drives action to raise student learning and close the gap.

The Colorado Board of Education should focus on academic achievement over time and gather longitudinal data to measure student performance over the long term.

2. Make quality preschool education available to all low-income families that choose to participate. Make sure preschool programs are designed and operated to prepare children for success in school.

Colorado already has in place an excellent vehicle for making this recommendation a reality, the Colorado Preschool Program. But it is not reaching all the children who could benefit from it.

Budget cuts in 2003-04 forced the Colorado Department of Education to reduce the number of children served to 9,000 from 11,000.

In the 2005 School Finance Act, the Legislature appropriated funds for 3,300 additional preschool slots. This restores the cuts made in 2003-04 and reduces the waiting list, caused by the remaining funding shortfall, to 3,000.

The Legislature should provide sufficient funding to serve all eligible children.



## V. Recommendations

**3. Ensure that pre-kindergarten through third grade classrooms have fewer than 18 students. Ensure small classes have appropriate services and technologies to benefit students.**

According to the Schools and Staffing Survey of 2000, Colorado's elementary schools averaged a student/teacher ratio of 23.2:1, among the highest in the nation.<sup>12</sup>

Educational research has shown that students in classes with fewer than 18 students in the primary grades consistently outperformed students in classes with 22 or more students. The most notable student gains came from low-achieving students in the lower socioeconomic classes.

However, small classes are not an end to a means but a means to an end.

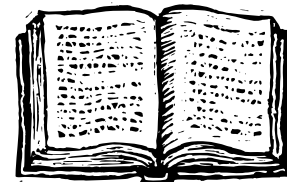
Schools and teachers still need access to quality professional development and appropriate classroom materials and technologies. Furthermore, sufficient classroom space is necessary.

**4. Make 100 percent proficiency in reading by fourth grade a statewide priority. Provide the teacher training, materials and other resources to make it happen.**

Again, Colorado has the programs and policies in place to make significant progress towards this goal, but they have not been implemented on a scale that meets the need.

Gov. Owens spearheaded creation of Read to Achieve, a program that identifies first and second grade students with reading difficulties and gives them extra support until they are reading at grade level.

In addition, Colorado receives federal dollars through the Reading First program, which brings the best research on reading instruction into classrooms serving low-income students.



We should ensure both programs are at work in every classroom where children are struggling to read and a reading gap exists.

**5. Recruit, retain and reward high quality educators, especially in schools that serve high percentages of low-income students.**

In November, Denver voters will be asked to approve a proposed pay-for-performance salary schedule for Denver Public Schools teachers. It will link teacher pay to student achievement and provide incentives for teachers to improve their practice through formal education and professional development.

Douglas County, Eagle County and Commerce City schools have also instituted various forms of pay-for-performance.

Colorado is already a leader in recruiting, retaining and rewarding high quality educators. Local school districts and the state of Colorado should continue to pursue and use effective policies and incentives to recruit high-quality teachers to work in low-performing schools.

In addition to rewarding teachers for their work, it is important to support them in the classroom. Research shows on-going professional development for all teachers is necessary. Therefore, the state should adopt the standards and guidelines for professional development set by the Colorado Staff Development Council, a statewide network of educators.

## V. Recommendations

### 6. Change the structure of school finance to send resources to schools and students that need them most.

Money does matter, especially for students with special needs. In 2002, the Colorado School Finance Project commissioned a school finance adequacy study. The study found that district size and type of students served in a district are important to the amount of resources needed to provide an adequate education.

The state should fund school districts and schools sufficiently to meet the needs of the students in the schools.

### 7. Launch a statewide effort targeted at raising math achievement in middle and high school.

From looking at the results of the math CSAP tests in middle and high school, it's obvious this is a major academic problem in our schools.

It is especially troubling given the research that finds math performance at these grade levels predicts college success.

Just as the governor, state Board of Education, and others have made early reading success a goal, Colorado needs to make a parallel effort to raise math performance for all students.

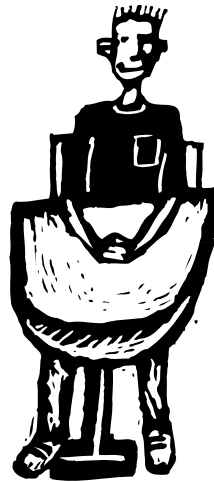
The state Board of Education is currently reviewing math standards and the Colorado Department of Education recently released a report summarizing how math is taught in the state's high schools. *The State's Prime Numbers: A Report on the Performance of our State's Math Standards and Recommendations for Stronger Math Achievement* can be found

online at [http://www.cde.state.co.us/coloradomath/documents/The\\_States\\_Prime\\_Number\\_report\\_2.pdf](http://www.cde.state.co.us/coloradomath/documents/The_States_Prime_Number_report_2.pdf)

### 8. Assess why Colorado high school students are performing so poorly. Based on this assessment, implement reform plans such as creating smaller high schools and providing challenging course content.

Colorado's high school students are not staying in school long enough or learning enough, yet too little attention is paid to this problem. Fortunately, the non-profit Colorado Children's Campaign is dedicated to this issue and recently issued a report, *Raising the Bar: Policy Recommendations for High School Reform*. Its recommendations include:

- Standardize the calculation of high school graduation rates statewide.
- Require all high school students to apply to a postsecondary institution.
- Take a P-16 (pre-school through college graduation) approach to education.
- Revise eligibility requirements for in-state tuition and state financial aid to better serve Colorado's high school graduates who are undocumented immigrants.
- Empower parents and students to make school choices.
- Enhance school level flexibility.
- Improve the data used to assess the performance of high schools.
- Establish a student identifier to track student progress from middle school to high school to post-secondary education.<sup>13</sup>



## V. Recommendations

Other organizations are taking a close look at the achievement gap with an eye toward finding workable solutions.

The National Governor's Association is leading a national effort to improve high school performance.

The Denver Public Schools recently released a study aimed at improving the performance of high schools in the district. *Not a Moment to Lose: A Call to Action for Transforming Denver's High Schools* can be found online at [http://www.dpsk12.org/pdf/secondary\\_reform.pdf](http://www.dpsk12.org/pdf/secondary_reform.pdf)

In addition, the Colorado Legislature passed SB05-091 in the 2005 session to standardize the methods for calculating high school graduation rates statewide. It will provide policy makers with better data to measure the extent and nature of the problem.

We encourage the Legislature and the governor to seriously consider the findings and recommendations resulting from these studies.



## Appendix 1. Frequently Asked Questions about the Achievement Gap

### Q. What is the “achievement gap”?

In general terms, the achievement gap is defined as the gap that exists in standardized test scores between African-American, Hispanic, Native American and low-income students and their white, Asian and economically advantaged peers.

For the purposes of this report, the achievement gap is defined by the percentage differences in average scores for members of each group.

### Q. What is CSAP?

CSAP is an acronym for Colorado Student Assessment Program. Implemented in 1997, the test is designed to measure student achievement in relationship to the Colorado Model Content Standards. These standards articulate what a student is expected to know and be able to do at each grade level.

CSAP tests are given each spring to students in grades 3-10 in reading, writing, math and science. To limit our scope, this report focused on 2003 and 2004 CSAP test results in grades 4, 8 and 9 on reading, and grades 5, 8 and 10 on math.

### Q. How are CSAP scores used to rate schools under Colorado’s accountability system?

Based on how well students perform on the CSAP, schools are given a rating of unsatisfactory, partially proficient, proficient or advanced. The performance of subgroups of students within the school does not affect these ratings.

### Q. Are there consequences and rewards attached to the CSAP assessment?

Yes. The CSAP test results are used for the Colorado School Accountability Reports. According to Colorado law, if a school remains unsatisfactory for five years in a row, sanctions are imposed, ranging from state support and supervision over a school to complete conversion to a charter school. The law also provides monetary rewards for high achieving schools, when the money is available.

### Q. What is No Child Left Behind (NCLB)?

NCLB act is a federal law passed in 2001. It is the reauthorization of the Elementary and Secondary Education Act of 1965. This new law requires states to hold schools and school districts accountable for all student performance. States are required to assess students yearly in grades 3 to 8 and once in grades 10 to 12 in math and reading.

### Q. How does NCLB assess student performance?

NCLB uses state assessments to measure school and school district progress. Using adequate yearly progress as a yardstick for student performance, NCLB requires schools and school districts to have positive student growth yearly.

The growth is measured for several different subgroups of students: students of color, students in poverty, students with disabilities, and students in English language acquisition programs. All students in each subgroup are expected to be proficient in reading and math by the school year 2013-14.

(More FAQs, next page.)

**Q. How does adequate yearly progress work?**

Adequate yearly progress is the guiding principle of No Child Left Behind. With 2002-03 as the baseline year of performance, states use a formula to calculate an appropriate level of student performance growth, with benchmarks occurring in 2005-06, 2008-09, 2011-12, and 2013-14. If a school or school district does not meet yearly AYP goals, the Colorado Department of Education steps in to provide additional support to the school and choice options to the parents of students.

**Q. What are the major differences in the ways that CSAP scores are used for the Colorado School Accountability Reports and the Federal No Child Left Behind Act?**

One, the School Accountability Reports only rate schools based on the average CSAP scores of their students. No Child Left Behind requires schools and school districts to be rated on achievement of students in subgroups, including race, socioeconomic status, English language proficiency and disability.

Two, CSAP tests have four performance categories: unsatisfactory, partially proficient, proficient and advanced. Colorado's implementation of No Child Left Behind has only three categories: unsatisfactory, proficient and advanced. Students who scored partially proficient and proficient on the CSAP are included in the proficient category for No Child Left Behind.



**Q. What is the National Assessment of Educational Progress (NAEP)?**

The National Assessment of Educational Progress (NAEP) is also known as the nation's report card. It represents the on-going assessment of what America's students know and can do in various subject areas. The assessment has been conducted since 1969.

**Q. Why is NAEP an important assessment to include in this report?**

The NAEP is an important comparison tool. It uses a different measuring stick to show how students in Colorado are performing and allows us to compare their performance to students in other states.

**Q. Are the CSAP and NAEP scored on the same scale?**

No. The CSAP assessment is intended to illustrate what students know and can do in relation to the Colorado Model Content Standards. NAEP measures how students are performing based on national standards.

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Andy Hartman, Senior Fellow, Policy and Research  
Evan Enarson-Hering, Fellow 2004-05  
Angela Frye, Fellow 2005  
Daniel Spivey, Fellow, 2005-06  
Ari Stiller-Shulman, Summer Fellow, 2005



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