

SPOTLIGHT ON CALIFORNIA HIGH SCHOOL PERFORMANCE

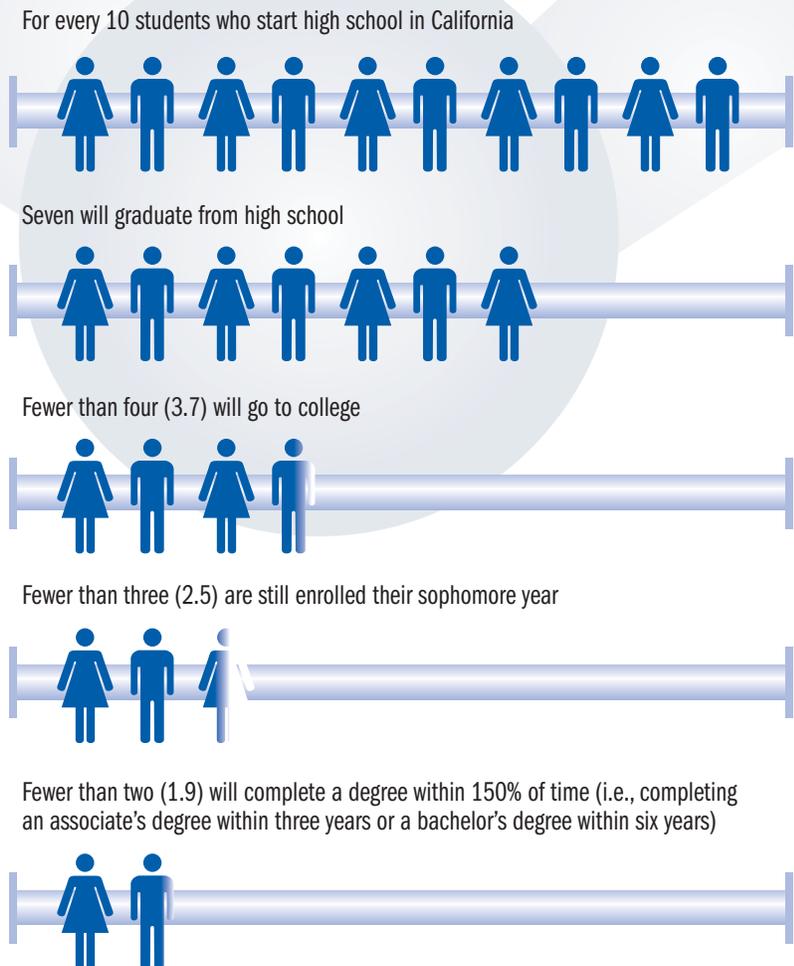
In many ways, the typical high school has not changed significantly over the past 50 years. Faculty members are segregated into departments based on their subject, and students rush from one 50-minute class to another throughout the seven-hour day. Reform efforts, however,

are growing both nationally and in California. Reformers say that high school students are bored and do not see the relevance of their coursework to their future lives. Advocates for change are suggesting that high schools focus on a new set of three R's—rigor, relevance, and relationships.

Policymakers are beginning to listen as they grapple with the need for a well-trained workforce, the cost of high remediation rates for students entering college, and a national dropout rate that hovers around 30%. In 2005 President George W. Bush, the National Governors' Association, and California Gov. Arnold Schwarzenegger put high school improvement on their education policy agendas. State Superintendent of Public Instruction Jack O'Connell held a summit on high schools in the fall of 2004 and recently appointed a council on preschool-through-university education, asking the council members to start with high school policy issues.

This report looks at not only how well California high school students are performing, but also at what opportunities the state's students have to take more rigorous coursework. It delves into the graduation/dropout rates and achievement gaps based on socioeconomic, language, and ethnicity factors. Finally it considers issues that may be preventing some high schools from being successful, such as their curricula, teacher preparation, student-to-staff ratios, structure, and funding levels.

figure 1 | The educational pipeline in California leaves many students behind



DATA: *The Education Pipeline: Big Investment, Big Returns*, APRIL 2004, THE NATIONAL CENTER FOR PUBLIC POLICY AND HIGHER EDUCATION (BASED ON 2001-02 DATA FROM THE NATIONAL CENTER FOR EDUCATION STATISTICS AND OTHER NATIONAL SOURCES) EdSource 6/05

High school dropouts represent big numbers that are hard to count

The first challenge high schools face is the number of ninth graders who do not graduate. That “leak in the education pipeline” is a big one, according to a number of researchers, who say close to one in three students drops out of high school. (See Figure I.) The United States, which used to be first in the world in high school graduation rates, has slipped to

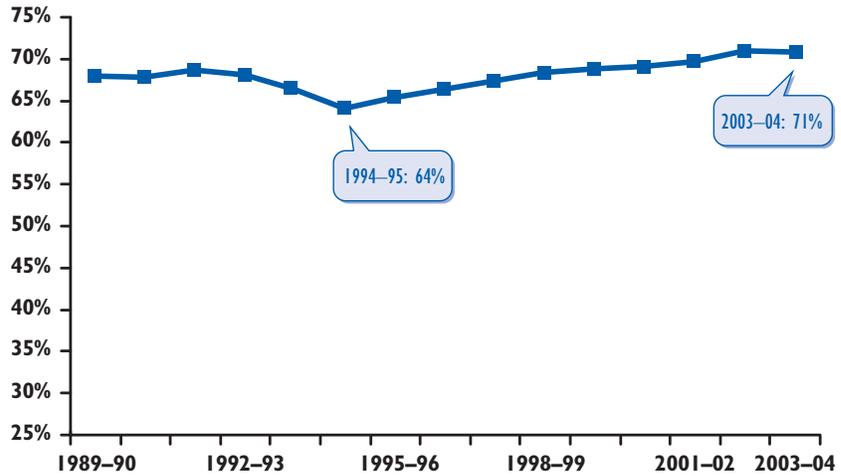
10th, says Paul Barton of the Educational Testing Service's Policy Information Center in a February 2005 report, *One-Third of a Nation: Rising Dropout Rates and Declining Opportunities*.

Barton summarizes socioeconomic factors that play a role in students' dropping out—factors that often begin in the earliest grades. Some relate to the family, such as students who are living in low-income families, in single-parent households, or with less educated parents. Others involve an individual's experience at school and include low grades, absenteeism, disciplinary problems, frequent changing of schools, and being retained for two or more grades.

How many California students drop out?

The California Department of Education (CDE) defines a dropout as a grade 7–12 student who left school prior to completing the school year and had not returned by Information Day (a day in

figure 2 | California's graduation rate has improved over the past decade



Note: California's traditional approach to calculating graduation rates is to divide the number of graduates by the ninth grade enrollment four years prior.

DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

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October when students throughout the state are counted and enrollment is determined). Students are not considered dropouts if they receive a General Education Development (GED) or California High School Proficiency Examination (CHSPE) certificate, transfer to another high school or to a college, move out of the United States, are suspended or sick that day, or will be enrolling late.

California's official graduation and dropout rates are only estimates. The state lacks a system of tracking individual students over time, depending instead on local reporting from schools that may be unable or reluctant to accurately report their dropout rates. (A high dropout rate can prompt sanctions under federal accountability measures.)

In this, California is not alone. The Urban Institute in an August 2004 report, *The Real Truth About Low Graduation Rates, An Evidence-Based Commentary*, points out that Americans generally have not "spent much time or effort trying to measure in a careful and uniform way" how many students do not complete high school.

Under the federal No Child Left Behind Act (NCLB), the graduation rate is determined by dividing the number of graduates by the number of graduates plus the number of reported dropouts from each of the previous four years. Using this method, in 2003–04 California's graduation rate was 85.1%, a figure most analysts agree is inflated.

Traditionally California has calculated graduation rates by dividing the number of graduates by the ninth grade enrollment four years prior. There are also problems with this method, such as the double counting of ninth graders who are retained. Based on this approach, the graduation rate was 70.7% in 2003–04, according to the CDE. (See Figure 2.)

California's traditional approach is validated by two recent studies:

- The Urban Institute puts the California graduation rate at 71.3% in 2001–02, which is 1.7 percentage points higher than the CDE for that year.
- In *One-Third of a Nation*, Barton estimates a graduation rate of 68.8% for California in 2000, which is consistent with CDE data for the same year.

A Profile of California's High Schools

STATEWIDE DATA: 2003–04 School Year (most current)

Total number of public comprehensive high school students: 1.7 million. There are an additional 150,000 high school students who are served in alternate settings (collectively called alternative high schools), including community day schools, alternative schools, continuation high schools, juvenile hall/court, county community, opportunity, California Youth Authority, Special Education, and state special schools.

Total number of public comprehensive high schools: 1,059. In addition, there are approximately 800 alternative high schools.

Most common configuration: four-year, grades 9–12 (serves more than 93% of comprehensive high school students).

Average school size for comprehensive high schools: 1,805 students in a grade 9–12 configuration. This masks vast differences, from seven students at Bear Valley High in Alpine County Unified School District to 5,299 at Belmont Senior High in Los Angeles Unified School District.

Average High School Size by Community Type (including alternative and comprehensive high schools)

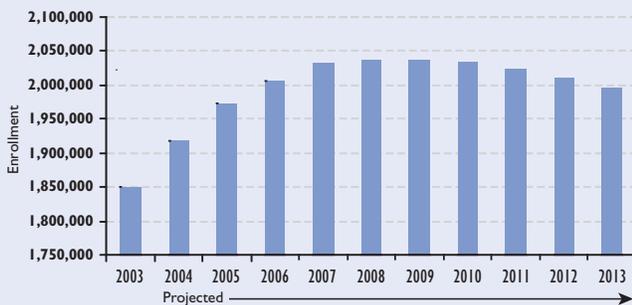


High schools offering advanced placement (AP) courses: 90%.

THE STUDENTS THEY SERVE: 2003–04 School Year

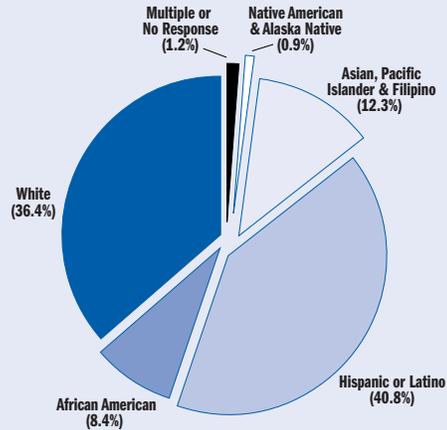
High school enrollment growth increased 13 percentage points between 1998–99 and 2003–04, compared to a four percentage point increase in K–8.

High School Population Projected Through 2013*



*Includes students in alternative high schools.

Ethnicity of California's High School Students (grades 9–12)



High school students designated as limited English proficient (LEP) in 2002–03: 16%.

Some Special Situations

In addition to students who attend comprehensive high schools, a small number are in alternate settings. In 2003–04, a little less than 9% of all high school students—about 150,000—attended these schools, including the 3,306 young people who were in the custody of the California Youth Authority or assigned to county-run juvenile halls/community schools.

In 2003–04, 72 high schools were on year-round calendars.

Of California's 454 active charter schools in 2003–04, 115 served high school-age students, but just 41 served exclusively grades 9–12.

213 private high schools served grades 9–12 in 2003–04. Private school students in grades 9–12 total 149,331 or about 8% of all California high school students. The proportion of children attending private schools is higher in grades K–8, with kindergarten being the highest.

High School-only Districts: An Unusual Configuration

About 33% of California's high school students attend schools in districts that serve grades 9–12 only. The state has 94 such districts, which operate about 570 schools (including alternative schools).

DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CBEDS, DATAQUEST, AND PUBLIC SCHOOL DIRECTORY), MAY 2005

DATA ON ENROLLMENT PROJECTIONS: CALIFORNIA DEPARTMENT OF FINANCE, *California Public K–12 Enrollment and High School Graduate Projections by County—2004 Series*. AVAILABLE ONLINE: www.dof.ca.gov/HTML/DEMOGRAP/K12Grads04.xls

figure 3 | California graduation rates follow ethnic lines

California Graduation Rates By Race and Gender in 2001–02			
	% All Students	% Female	% Male
California report under NCLB	86.9%		
California Students CPI*	71.3%	74.7%	66.8%
CPI disaggregated by:			
African American	56.6%	60.2%	50.2%
Asian/Pacific Islander	83.5%	86.8%	79.6%
Latino	60.3%	64.9%	54.4%
Native American	52.2%	n/a	n/a
White	77.8%	80.2%	74.6%

*CPI stands for Cumulative Promotion Index, a method for computing graduation rates developed by the Urban Institute.

DATA: CHRISTOPHER SWANSON, URBAN INSTITUTE

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Based on this traditional graduation rate calculation, a larger percentage of California high school students are staying in school than was true a decade ago. As Figure 2 on page 2 shows, the rate has improved gradually since a low point in 1994–95.

Who drops out?

Graduation rates follow academic performance rates fairly closely, according to researchers. “The life and school experiences that help to create differences in students’ school achievement will likely also be those that resulted in the differences in completing school,” Barton said. “Students performing poorly are candidates for becoming noncompleters.”

In a May 2005 report, *Improving High School: A Strategic Approach*, the Legislative Analyst’s Office (LAO) found a correlation between the 2002–03 non-completion rate of about 29% and the percentage of students who performed below basic on California Standards Tests (CSTs). Student results on CSTs are reported as meeting one of five performance levels: advanced, proficient, basic, below basic, and far below basic. Some researchers say that scoring far below basic is equivalent to random guessing.

Graduation and dropout rates also often follow ethnic and socioeconomic lines. The Urban Institute estimates that about 52% of Native American, 57% of African American, and 60% of Latino students in California graduated in 2001–02. That compares to about 78% of white and 84% of Asian (including Pacific Islander) students. (See Figure 3.)

The Civil Rights Project at Harvard University in its March 2005 report, *Confronting the Graduation Rate Crisis in California*, provides somewhat different numbers. The report says that nationally only about 68% of all students who enter ninth grade will graduate on time with regular diplomas in 12th grade. The project reports the graduation rate for white students at 75%, with only about half of African American, Latino, and Native American students earning regular diplomas. Graduation rates are even lower for male students in those ethnic groups.

California statistics from 2002 are similar, according to the report, which took a close look at the state’s 10 largest school districts. (See Figure 4 on page 5.)

All but one of those districts were predominantly minority. The district

with mostly white students had by far the highest graduation rate, according to the report. Los Angeles and Oakland unified school districts, which are predominantly minority, graduate less than half their high school students on time, the authors said. And six of the state’s 10 largest school districts graduate less than half of their Latino students. Santa Ana was the best of the 10 districts and still graduated only about 73% of its Latino students. However, the report did point to 15 high schools, mostly from smaller districts, that were beating the odds by graduating a higher than expected percentage of their students. (A list of those schools can be found at: www.edsource.org)

What happens to dropouts?

Barton sums up the impact that one-third of the nation dropping out of school has on both individual students and society as a whole:

“These lost youth will wander without a map on the edges of the economy and could be at risk of falling prey to alternatives to earning a living in the regular economy. Without alternatives that will change their course, they are likely to father and mother children ill-equipped to do better, thus perpetuating a downward cycle of economic or social failure.”

In his comments at a March 2005 EdSource Forum, Paul Warren, a principal analyst in the K–12 Division of the LAO, cited Bureau of Labor Statistics data that bolster Barton’s view. The October 2003 data show that six months after graduation, college students are the most likely to be employed, followed by high school graduates, and then by dropouts.

Barton says that about 60% of 16- to 19-year-old dropouts are unemployed. For 20- to 24-year-old high school dropouts, prospects improve moderately. But still more than 40% are unemployed, and many are not even looking for work, according to Barton. Some are single parents who are being supported by welfare, and others have found alternative sources of income in a sublegal economy,

figure 4 | Six of the state's 10 largest school districts graduated less than half of their Latino students in 2002

District	Enrollment	Demographics			CPI Graduation Rates					
		Largest Ethnic Group	% Minority	% Free and Reduced-priced Meals	Total	% African American	% Asian/Pacific Islander (PI)	% Latino	% Native American	% White
San Juan USD	51,383	White	26.1%	27.2%	93.9%	—	—	—	—	97.9%
Santa Ana USD	61,909	Latino	96.3%	73.4%	72.5%	70.5%	79.8%	72.6%	68.6%	65.8%
San Francisco USD	58,566	Asian/PI	89.5%	54.5%	70.9%	47.1%	82.4%	55.9%	—	74.3%
Long Beach USD	96,488	Latino	82.7%	66.9%	69.1%	59.4%	82.7%	62.6%	61.1%	78.7%
San Diego City USD	141,599	Latino	73.4%	61.4%	63.8%	52.0%	81.2%	49.2%	60.0%	77.5%
Fresno USD	81,058	Latino	80.8%	73.7%	56.9%	46.3%	76.6%	47.4%	59.0%	66.1%
Sacramento City USD	53,418	Latino	76.6%	63.1%	52.6%	38.2%	73.5%	41.3%	48.3%	55.0%
San Bernardino City USD	54,166	Latino	81.1%	78.2%	50.6%	49.4%	82.4%	48.5%	42.2%	51.8%
Oakland USD	53,545	Afri. Amer.	94.3%	51.5%	47.8%	42.0%	67.5%	42.8%	33.8%	52.1%
Los Angeles USD	735,058	Latino	90.4%	72.8%	45.3%	46.5%	76.7%	39.1%	39.7%	66.7%

DATA: *Confronting the Graduation Rate Crisis in California*, THE CIVIL RIGHTS PROJECT, HARVARD UNIVERSITY, MARCH 24, 2005

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he said. “A steadily expanding young prison population will be drawing disproportionately from this population and will be returning similarly undereducated young people back to society, where they will face the additional employment handicap of having been in prison.”

The employment experience of African American youths, Barton says, is particularly grim: 57% of white youth and 61% of Latino youth between the ages of 16 and 24 are employed compared to only 35% of African American youth. In addition, 45% of African Americans in this age group say they are not only unemployed, but are also not looking for work. These rates have changed little since 1990, he said.

Dropouts generally earn less

Nationally, earning power for all young adults has dropped over the past 30 years, according to Barton, but salaries for dropouts are declining the most. The economic status of dropouts “has been in a free fall since the late 1970s,” he said. With the advent of the service economy, earnings for male dropouts plummeted

almost 35% between 1971 and 2002. Female dropouts’ salaries also fell, but not as dramatically.

In 2002 dropouts between the ages of 25 and 34 who were succeeding were earning, on average, \$22,903 if they were men and \$17,114 for women—just above poverty level in terms of supporting a family. “Most dropouts will not reach that level,” Barton added.

The Civil Rights Project report quotes U.S. Census estimates that high school dropouts will earn \$270,000 less than high school graduates over their working lives. The report also relies on estimates by Professor Russell Rumberger of the University of California at Santa Barbara, who says that the 66,657 students that the state reported as dropouts from California public schools in the 2002–03 school year will cost California \$14 billion in lost wages. Other state costs associated with dropouts include increased public welfare, more dependence on public health care, and higher incarceration rates. Rumberger estimates that 1,225 of those 2002–03 dropouts will end up in

prison, costing the state \$73 million in additional incarceration expenditures.

Test scores raise the alarm

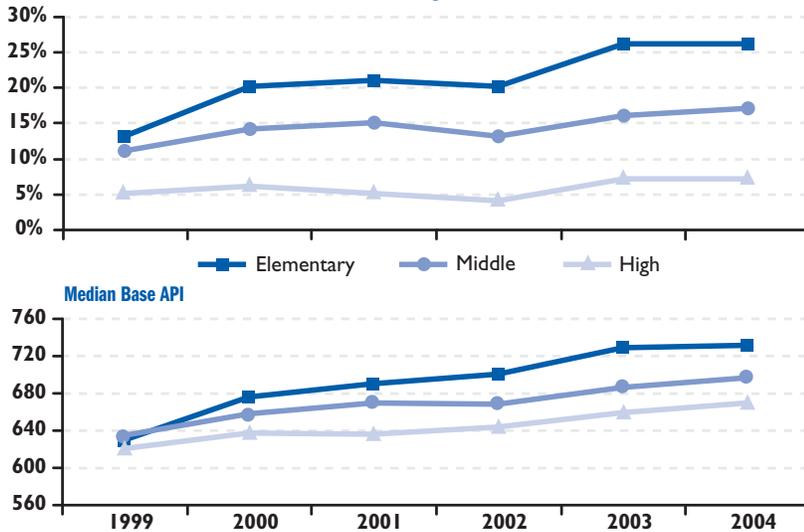
For the seven out of 10 students who manage to stay in school, how well are their high schools serving them? The standards reform movement appears to have had some success transforming elementary schools in California, but what effect has it had on the local high school?

Unlike elementary and middle schools in California, high schools are more independent from the state’s efforts to enforce its academic content standards. School districts choose their own high school textbooks, and districts determine their own graduation standards as long as they meet state requirements that are relatively minimal. (See the box on page 16.) And because of the lack of reliable statistics, high schools have not been held accountable for their dropouts.

Both the state and federal governments have made efforts over the past few years to increase accountability. The state introduced the California High School

figure 5 High schools have made the least improvement, compared to elementary and middle schools, on the API

Performance on the Academic Performance Index (API) by School Type
Percent of Schools At or Above the Performance Target of 800



DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

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Lack of individual student data limits analyses

The class of 2005 looked different in eighth grade than they did in 11th grade due to student mobility, such as students dropping out or moving to another state. If California had a system of tracking students by assigning them numbers—called unique student identifiers—then cohort evaluations, such as the class of 2005, would be an accurate way to examine the impact of their schooling and other policies on the same set of students over time. But without such an identifier, the results are less reliable.

The state expects all school districts to have unique student identifiers for all their students by June 30, 2005. The goal is for these numbers to be used on all statewide assessments beginning with spring 2006 tests so student progress over time can start to be accurately reported.

Exit Exam (CAHSEE), but it only covers math through Algebra I and English through 10th grade. The federal No Child Left Behind Act (NCLB) requires high schools to show “Adequate Yearly Progress” (AYP) toward having all students proficient in English and math by 2013–14, based on scores from the same exit exam.

High schools do poorly on the API compared to schools serving the lower grades

Of the three types of schools—elementary, middle, and high—high schools have made the least improvement on the state’s Academic Performance Index (API) since it was introduced in 1999 as a way of ranking schools and holding them accountable. This comparatively poor performance is one of the main reasons the spotlight is now on high schools in California.

Schools receive a Base API score plus a growth target based on how well their students scored on California Standards Tests (CSTs). (For 2003–04 and earlier,

the API also included scores on the nationally norm-referenced CAT/6 survey test.) For high schools, test results from 10th graders on the California High School Exit Exam (CAHSEE)—which assesses mastery of standards in English and math—are also included. Schools are expected to reach a Base API score of 800 or above.

As Figure 5 shows, from 1999 through 2004 high schools have had the lowest Base API scores and the smallest percentage of schools reaching the 800 goal. Compared to middle and, in particular, elementary schools, high school performance (schoolwide) has been relatively flat.

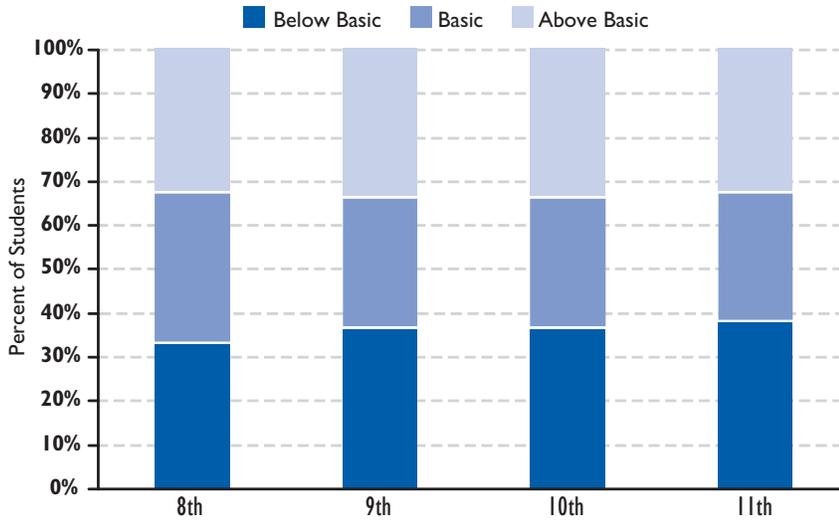
Although the differences appear significant and have raised concern across the state, some observers say these results reflect the fact that older students are less likely to take seriously tests that have little or no impact on their grades or their future. The CST results are not listed on students’ transcripts. Only this year has the California State University (CSU) system begun using the results in lieu of placement tests. The only test component that may be meaningful to many high school students is the exit exam which, starting with the class of 2006, students must pass to graduate.

Test scores over time for the class of 2005 show little progress

English language arts is the only subject easily compared across all grades. Performance results for students in the class of 2005 on the English CST when they were in eighth grade—in 2000–01—were similar to, or slightly better than, their 11th grade results in 2003–04, according to the LAO report.

As Figure 6 shows, this means that after three years of high school, more than a third of students remain below a basic level of performance. Furthermore, it is likely that many of the lowest-performing eighth graders dropped out before spring of their 11th-grade year

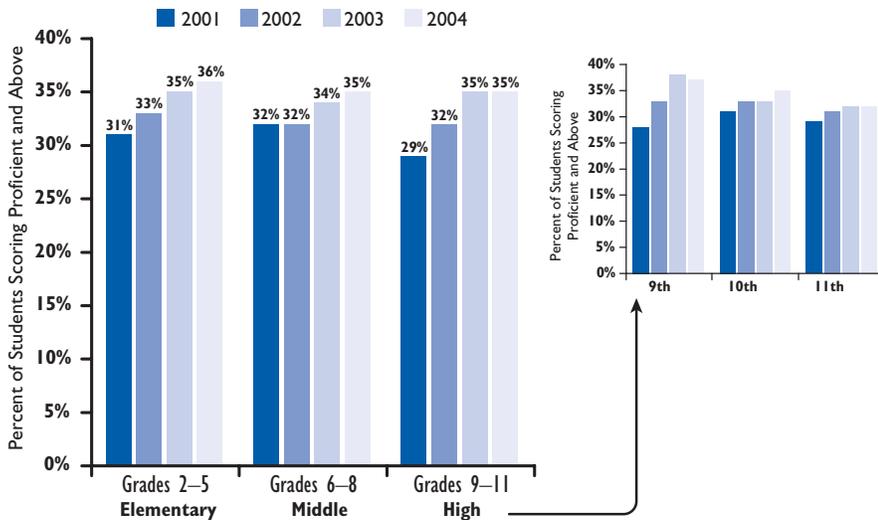
figure 6 No value added: The performance of students in English CSTs in the class of 2005 changes little between eighth and 11th grade



DATA: LEGISLATIVE ANALYST'S OFFICE (LAO)

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figure 7 Led by ninth graders, high schools have caught up with elementary and middle schools in their performance on English standards tests



DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

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and that some of the remaining eighth graders who scored at the basic level then lost ground and moved into the below basic levels. (See the box on page 6 for some of the problems associated with this cohort analysis.)

High schools inherit some problems

However, before judging high school performance, it is important to take a step back and assess how well prepared students are when they enter ninth grade. One indication of high school readiness

is the ability to read and write well. Results from standardized testing in English language arts indicate that many eighth graders enter high school without those basic skills.

Since the standards tests were first administered in 2001, about one-third of California eighth graders have scored proficient and advanced; another third have scored basic; and the remaining third have scored below basic and far below basic. The state's goal is for every student to test proficient or advanced. Even assuming that the basic level of performance in English is enough for students to be able to succeed in their high school classes, that still leaves a third of those entering high school who are not up to this minimal level.

Thus high schools start with a challenging task. If students entering high schools are not literate, it is difficult for them to succeed not only in their English classes, but also in most of their other courses.

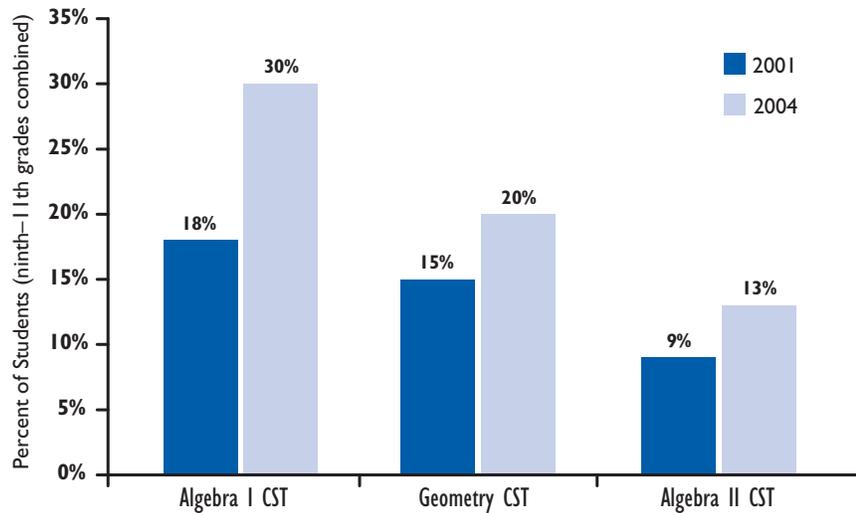
A closer look at the California Standards Tests (CSTs) offers some positive news

To some degree, California high schools are responding to this challenge. English CST results show that high schools are improving when it comes to developing literate graduates. CST data also show that more high school students are taking rigorous math and science courses and that some progress is being made toward addressing the achievement gap between historically underperforming groups of students and other students. But the test results also show that the state has a long way to go to meet its goal of bringing all high school students to proficient levels.

English test scores show some improvement

As Figure 7 shows, high schools have caught up with elementary and middle schools in performance on English language arts CSTs. In 2004, 36% of

figure 8 From 2001 to 2004, the percentage of ninth-to-11th graders taking higher-level math courses grew



DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

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figure 9 The percentage of students taking Algebra I earlier in high school grew from 2001 to 2004

Grade	Test	% Students Taking Tests		Percentage Point Change 2001–2004
		2001	2004	
9th*	Algebra I	28%	43%	15
	Geometry	12%	17%	5
10th	Algebra I	17%	29%	12
	Geometry	22%	27%	5
	Algebra II	11%	17%	6
11th	Algebra I	7%	16%	9
	Geometry	12%	17%	5
	Algebra II	16%	21%	5

*Less than 3% of ninth graders took the Algebra II CST in 2001 and 2004.

DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

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elementary school pupils scored proficient or advanced while 35% of students in middle and high school did so. High school students also improved faster. They gained six percentage points compared to five for elementary and only three for middle schools. However, high schools did not do as well as middle schools in decreasing the percentage of

students at the bottom rung of the performance scale—those scoring far below basic. Both elementary and high schools reduced this number by one percentage point compared to three points for middle schools.

On the other hand, high schools have an advantage because fewer of their students are learning English as a second

Performance data can be misleading

Because the number of students taking higher-level math and science courses is growing quickly, the fact that performance on these tests is decreasing over time may not be significant. It is true that the percentage of students scoring proficient and above has decreased. Yet because more students are taking these tests, the absolute numbers of students scoring proficient and above could be increasing.

For example, the percentage of 10th grade test-takers scoring proficient and above in the geometry CST dropped from 21% in 2002 to 15% in 2004. However, the number of students scoring proficient and above increased from 22,340 in 2002 to 38,645 in 2004. As a percent of 10th grade enrollment (which is more constant than the number of test-takers), the percentage of students scoring proficient and above actually increased from 5% in 2002 to 8% in 2004.

language. About one in six high school students is an English learner compared to one in five in the middle grades and one in three in grades 2–5.

In addition, most of the high school improvement occurred in ninth grade scores. Freshmen improved by nine percentage points, and their scores have a bigger impact on the total because there are more of them.

CSTs in math show more students are taking higher-level courses, but performance declines

Since 1999 California policymakers have promoted higher-level math courses as a key to student success in the work world. Their approach was supported by a Public Policy Institute of California study, *Math Matters: The Links Between High School Curriculum, College Graduation, and Earnings*. The July 2001 report found that the higher the level of math courses students take in high school, the greater chance those students

will attend and graduate from college and find better paying jobs in the future. In California, public universities require at least three years of higher-level high school math for admission. Even for those not planning to attend college, the study found that higher-level math helps students learn logic and reasoning skills, useful in many aspects of life.

In California, state law sets minimum graduation requirements. (See the box on page 16.) School districts are free to set their own graduation requirements above the state minimums, but many do not. California's minimum for math was two years (with no specific course required) until the law was changed beginning with the class of 2004. Now students must pass Algebra I to graduate. (The State Board of Education currently grants waivers of this graduation requirement to a very small number of Special Education students.)

In addition, the state's math standards set Algebra I as the expected eighth grade curriculum, and the state's four-year universities require that students complete the Algebra I-geometry-Algebra II college-prep sequence to be admitted. (Students can also take Integrated Math I, II, and III, but because only about 2% of California students did so in 2004, those students are not included in the following analysis.)

From 2001 to 2004, the percentage of students taking Algebra I, geometry, and Algebra II across all grade levels grew. (See Figure 8 on page 8.) However, about a quarter of 10th and 11th graders annually take no CST in math, indicating that a significant number of sophomores and juniors are either taking math courses that are not part of the college-prep sequence or have quit math altogether.

When it comes to math courses, a crucial question to ask is "when?"

In high school math, *when* a student takes an exam is also important. A student may pass the Algebra I standards test with flying colors but, if he is a high school

Most California high schools meet basic NCLB performance goals

Under the No Child Left Behind Act (NCLB), the state's goal is for all students to score proficient or advanced on the California Standards Tests (CSTs) in English and math. Each year schools must show that a specific percentage of their students are scoring proficient or above on these tests to meet federal performance targets, which are called annual measurable objectives (AMOs). Through these AMOs, the federal government puts pressure on schools to pay attention to students in historically underperforming groups. An AMO is a set performance target that schools must meet for each significant subgroup of students based on ethnicity, poverty, first language, and disability. High school AMOs are determined solely by the test results of 10th graders on the exit exam. In 2003-04 high schools needed to show that at least 11.2% of their students in each subgroup were proficient in English and that 9.6% were proficient in math in order to make their AMOs. (The score for proficiency is higher than for simply passing the exam.)

In 2003-04, 93% of high schools made their AMOs. But AMOs are only part of what is measured to determine Adequate Yearly Progress (AYP) toward the proficiency goals under NCLB. Schools must also test 95% of their students in each significant subgroup, and there are "additional indicators." In 2003-04 high schools had to (1) score at least 560 on the API or improve by one point, and (2) achieve a graduation rate of at least 82.8% or show improvement under one of two formulas.

With those added requirements, 51% of high schools made AYP. One of the reasons fewer high schools meet the goal for both participation rates and these additional indicators is the preponderance of alternative high schools, such as continuation and community schools, which often do not meet the required participation rates, API scores, or graduation rates.

junior, that represents a very different achievement from having learned algebra in eighth grade.

The state has established the goal that eighth graders should take Algebra I. Generally ninth graders would then take geometry and 10th graders would take Algebra II, though some schools reverse those two courses.

The percentage of students taking Algebra I earlier in high school grew from 2001 to 2004. As Figure 9 shows, the largest percentage increase in Algebra I test-taking occurred in ninth grade. However, the same trend does not occur in geometry and Algebra II.

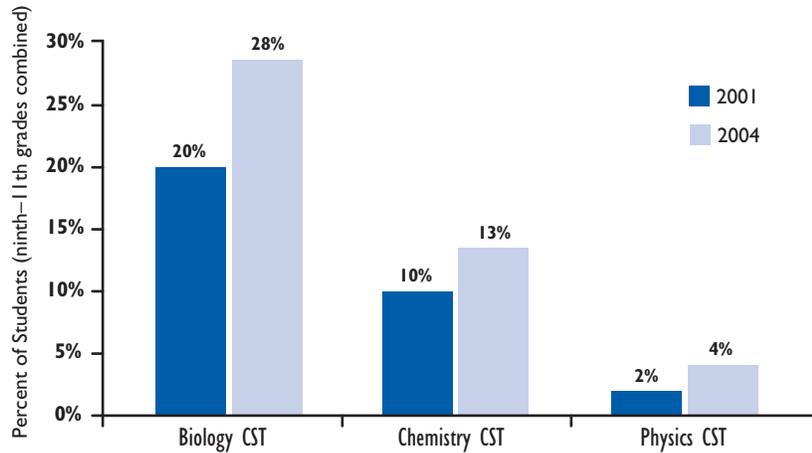
In addition, the percentage of students taking the General Math CST (which tests grade 6 and 7 standards) in ninth grade decreased by about five percentage points from 2002 to 2004, indicating that more students are taking Algebra I in either eighth or ninth grade.

High school students who have completed Algebra II or Integrated Math III the prior school year take the High School Math Summative CST each year through their junior year whether or not they are enrolled in a math class. This test covers Algebra I, geometry, and Algebra II plus a small section on probability and statistics. In 2004, 17% of high school juniors and 2% of sophomores took this CST compared to 12% of juniors in 2001. (The test was not offered to sophomores that year.)

Performance in math tests declines

While the increase in the number of students taking CSTs in math is encouraging, a smaller percentage of test-takers are performing at proficient or above. (The largest decline is in geometry: a six percentage point drop from 2001 to 2004. See the box on page 8 for a caveat about this data.)

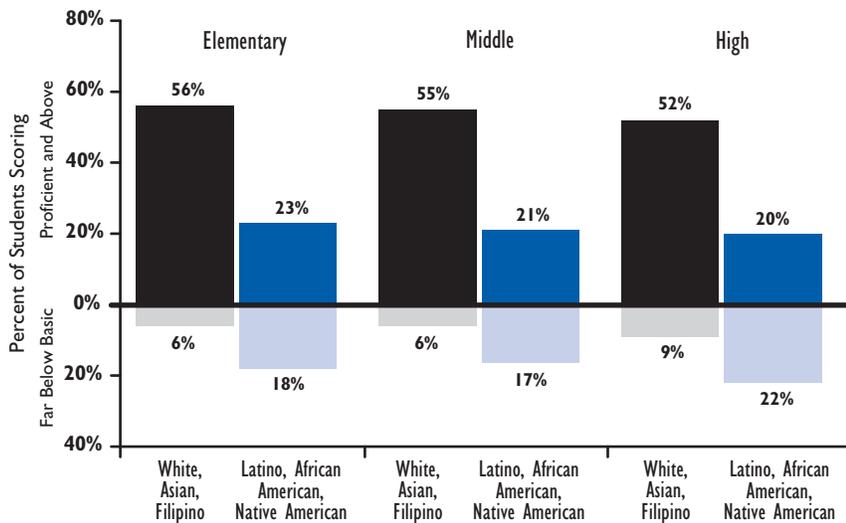
figure 10 More ninth-to-11th graders are taking higher-level science courses, particularly biology



DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

EdSource 6/05

figure 11 English CSTs in 2004 imply no improvement in achievement gaps as students move from elementary through high school



Note: Elementary includes grades 2–5; middle includes grades 6–8; and high school includes grades 9–11.

DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

EdSource 6/05

It is notable that the same decrease in performance was not repeated at the far below basic level. The percentage of students performing at the bottom level declined in all but two CSTs: General Math and Algebra II.

More students are taking science courses

As with math, the number of high school students taking science courses is growing. But unlike math, students are not expected to take a science course during a particular grade. For example, some schools encour-

age students to take biology in ninth grade, while others offer it in 10th grade. Students who plan to attend the University of California (UC) must take *at least* two laboratory science courses (though *three* is preferable) chosen from biology, chemistry, and physics. California State University (CSU) requires students to take two laboratory science courses—one biological and one physical (such as chemistry).

Most high schools offer science courses in the traditional disciplines of biology, chemistry, and physics. But many also have alternative courses, such as the integrated science series, as part of their curricula.

The state offers CSTs in the three traditional disciplines plus earth science and integrated science. Based on CST results in 2000–01, only 32% of ninth-to-11th grade students took biology, chemistry, or physics. By 2003–04 nearly half (45%) of freshmen, sophomores, and juniors were taking one of these three courses.

While the number of students taking chemistry and physics grew modestly, course-taking in biology jumped by eight percentage points. (See Figure 10.) As in math, the increase in test-taking in biology correlated with a dip in performance. (See the box on page 8 about a caveat on performance data when test-taking increases.)

Some progress has been made in addressing the achievement gap

Despite reforms, the vast assortment of tests administered in California and other states over the past 50 years are fairly consistent in one respect: they show that certain groups of students repeatedly score far below students in other groups. In terms of ethnicity, African American, Latino, and Native American students historically perform worse on these tests than other students. The same is true of English learners, students with disabilities, and students who live in low-income families and are thus classified as socio-

economically disadvantaged. (Generally students are considered socioeconomically disadvantaged if they receive free or reduced-priced meals.)

High schools are not alone when it comes to these achievement gaps. Figure II on page 10 shows the gaps in student performance on English CSTs are about the same in elementary, middle, and high school. This implies that the performance of students who enter elementary school—including those who have been at a disadvantage historically—does not improve over time.

Even considering that some students may enter California schools in their middle or high school years, the persistence of this gap throughout the grades is discouraging.

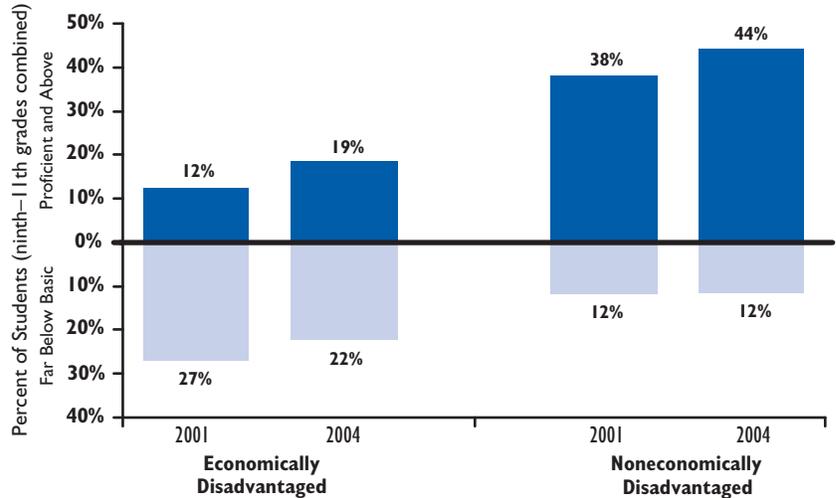
Another set of data related to this challenge is based on which students take higher-level math and science courses. In this area, California high schools have improved as indicated by more students from historically underperforming groups taking more rigorous courses.

Economically disadvantaged students show improvement in English

The percentage of economically disadvantaged students who scored proficient or above on English CSTs improved by seven percentage points between 2001 and 2004. Although there is still a substantial gap in performance between low-income students and others, the disadvantaged students have improved either just as much (in grades 9 and 10) or greater (grade 11) than their more advantaged counterparts. (See Figure 12.)

In addition, between 2001 and 2004, the number of low-income students in grades 9, 10, and 11 who scored far below basic on English CSTs decreased significantly. However, a large gap remains: in 2004, 22% of low-income students scored far below basic compared to only 12% of students classified as noneconomically disadvantaged.

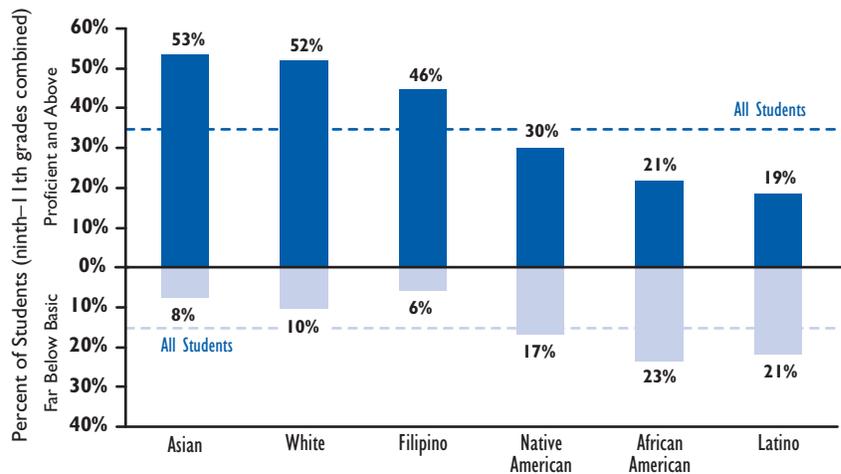
figure 12 Students who are economically disadvantaged are improving in English standards tests



DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

EDSOURCE 6/05

figure 13 English standards test results in 2004 show wide achievement gaps based on ethnicity



Note: Dashed lines represent performance for all students.

DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

EDSOURCE 6/05

Only two years of data are available for subgroups based on ethnicity

The California Department of Education did not provide CST data by ethnicity until 2003. In both 2003 and 2004, historical achievement gaps persist, with about one in

two white and Asian students scoring proficient or above in English compared to about one in five African American and Latino students. As Figure 13 shows, 23% of African American and 21% of Latino students also scored in the far below basic category.

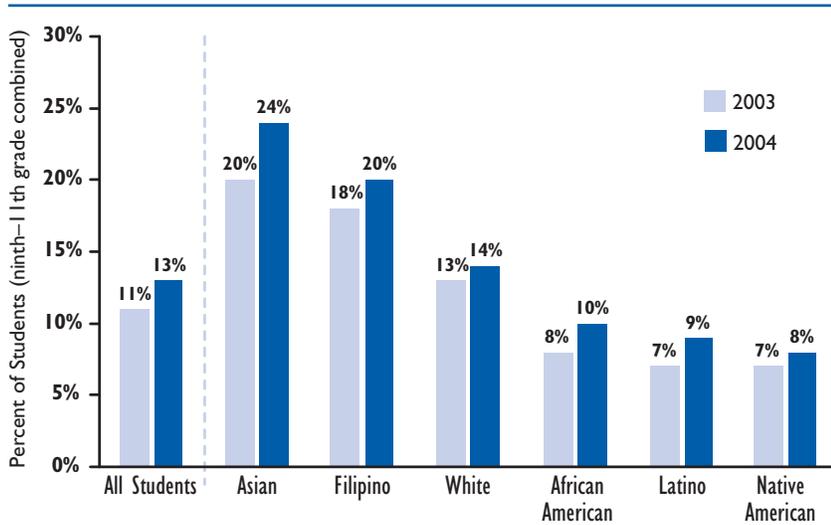
figure 14 | The number of students in historically underperforming groups taking Algebra I grew from 2003 to 2004

	Eighth Grade			Ninth Grade		
	% Taking Test		Percentage Point Change 2003–2004	% Taking Test		Percentage Point Change 2003–2004
	2003	2004		2003	2004	
All Students	32%	38%	6	37%	43%	6
African American	25%	32%	7	35%	45%	10
Asian	48%	52%	4	34%	36%	2
Filipino	45%	49%	4	42%	45%	3
Latino	26%	35%	9	35%	44%	9
Native American	23%	27%	4	33%	39%	6
White	37%	40%	3	38%	40%	2

DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

EdSource 6/05

figure 15 | Fewer students from historically underperforming groups take the chemistry CST



DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

EdSource 6/05

In math, the performance gap among ethnic subgroups appears at all three grade levels in 2004. In Algebra I, Asian students (26%) had the highest percentage scoring proficient and above, with white students (16%) next. Latino (6%) and African American (4%) students were at the bottom. The gaps—which are also seen in the far below basic level—are even more pronounced in higher-level math courses.

Another way to measure progress in math is by looking at student course-taking data. Based on only two years of CST test data, there appears to be some progress in closing the gap. A good example is Algebra I CST data from 2004. The biggest increases in test-taking occurred among African American ninth graders (10 percentage points) and Latino eighth and ninth graders (nine points each grade). (See Figure 14.)

More students from every ethnicity are taking science, but historical achievement gaps continue

While the number of 10th and 11th grade students taking biology, chemistry, or physics increased nearly equally across every subgroup, the ninth grade data reveal historical gaps between underperforming students and other groups.

In 2004, 40% of Filipino, 29% of Asian, and 27% of white ninth graders took the biology CST. This compares to less than 20% of African American, Latino, and Native American ninth graders. It appears that more students in these historically underperforming groups are starting on the college-prep science sequence at least a year later, if at all.

Another indication of this achievement gap is in chemistry and physics course-taking. In grades 9–11, more Filipino, Asian, and white students took chemistry and physics compared to students from the other ethnic groups. (See Figure 15.) Perhaps because students in historically underperforming groups begin taking college-prep science courses later, it is more difficult for them to complete as many higher-level courses. Or maybe they are meeting their graduation requirements in science with noncollege-prep courses, such as integrated science.

Performance results for English learners and students with disabilities are difficult to analyze

Federal law now requires that the state track the test performance of both English learners and students with disabilities. In both cases, however, students are identified for these groups based in part on low test performance, and so by definition the students in these groups change over time. That complicates any analysis of their performance.

English learners: Students are classified as English learners based on their performance on the California English

Language Development Test (CELDT). As students improve—evidenced in part by their performance on the CSTs in English—they are redesignated as fully English proficient and are no longer part of the English learner category. Thus the English learner group, by definition, is always made up of students who are less than proficient in English.

That said, a statistic with some significance is the number of English learners who are scoring far below basic on the CST in English. In 2004 about a third of English learners scored far below basic, but there was significant movement out of the bottom level, particularly in ninth grade. The number of ninth graders who scored far below basic decreased by 13 percentage points. (See the box about the California High School Exit Exam on this page for more data about the performance of English learners.)

Another positive sign is the growing number of English learners taking Algebra I in eighth and ninth grade. From 2003 to 2004, that number grew by eight percentage points for eighth graders and 11 points for ninth graders.

Students with disabilities: Test results are used to help determine whether a student is classified as having a disability. Thus it is not surprising that scores for this category of students are significantly lower than the general population. California allows some students with disabilities to use testing modifications (such as large-print versions) as specified in their Individual Education Programs (IEPs).

However, some students have such severe disabilities that they cannot take the California Standards Tests at all. Instead, they take the California Alternate Performance Assessment (CAPA), an open-ended test with teachers assisting in recording the answers. It covers only English and math. In 2004, 37,427 students (or .78% of total enrollment) took the CAPA.

California High School Exit Exam results are improving, but historical achievement gaps persist here too

Beginning with the class of 2006, public high school students must pass the California High School Exit Exam (CAHSEE) in order to receive a high school diploma. The test is based on California's academic content standards in English and math. The English language arts section tests state standards for grades 9 and 10 and includes one writing exercise. The math section covers standards for grades 6 and 7 and Algebra I. Students have multiple chances to take the test, but they take it for the first time in the spring of their sophomore year.

Scores on the exit exam rise for all groups of students

In spring 2004, 94% of public high school sophomores from the class of 2006 took the exam, and 64% passed both the English language arts and math sections. For English only, 73% passed; for math only, 72%. Taking into account changes in how the test was scored, the results showed a five percentage point improvement in math passing rates compared to the class of 2005 10th graders, but English results remained the same. The increase in performance in math was consistent for all demographic groups based on ethnicity, socioeconomic status, disability, and status as English learners. It occurred even though more English learners and students receiving Special Education services took the test in 2004.

The Human Resources Research Organization (HumRRO) surmised in its *CAHSEE Year 5 Evaluation Report* (Sept. 30, 2004) that "improvements in mathematics were related to the fact that slightly more students were taking or had taken algebra and higher-level mathematics courses."

The mathematics passing rates for students whose highest math course was Algebra I rose from 51% to 58%. "These increases in passing rates indicate that either the effectiveness of the algebra and higher-level courses had improved and/or that students were better prepared by their prior coursework to benefit from high school mathematics courses," HumRRO reported.

A particularly bright spot was the passing rates on both the math and English sections for English learners who had been redesignated as fully English proficient. Their rates were higher than the passing rates for students in general, according to HumRRO.

Yet historical achievement gaps remain, particularly for Special Education students

But despite the good news, historical achievement gaps remain. Only 45% of African American and 49% of Latino test-takers passed both sections of the exam in 2004. In addition, just 30% of English learners and 48% of students who were economically disadvantaged passed. And only 19% of students receiving Special Education services passed both sections.

The outcome is particularly bleak for students receiving Special Education services who are also African American or Latino. HumRRO reports that only 13% of African American and 19% of Latino Special Education students passed the math test compared to about 45% of Asian and white Special Education students. Results for the English test were similar.

Under the requirements of Senate Bill 964 (Burton, 2003), an independent consultant has developed recommendations for options and alternatives to CAHSEE for students with disabilities to be eligible for a diploma. The consultant, WestEd, worked with a 15-member advisory panel appointed by the state superintendent of public instruction. WestEd submitted the final report at the end of April 2005 to members of the advisory panel, the state Legislature, the Department of Finance, and the State Board of Education (SBE). For more information, including an electronic copy of the study, go to: www.cde.ca.gov/ta/tg/hs

For the most part, students leave high school testing at the same relative performance level on the CSTs as when they entered as freshmen. But as high schools are beginning to require more rigorous coursework, more students are being exposed to the higher-level courses they need to attend UC and CSU or better prepare for the work world.

Overall performance results are flat, but more students are taking higher-level courses

Taking into account small improvements in performance here and declines there, students, for the most part, leave high school testing at the same relative performance level on the CSTs as when they entered as freshmen. But as high schools are beginning to require more rigorous coursework, more students are being exposed to the higher-level courses they need to attend UC and CSU or better prepare for the work world.

This movement toward more rigorous coursework appears to be pulling with it students from historically underperforming groups. But California still faces the harsh reality of significant achievement gaps.

College, for many high school students, ends up as just a dream

Certainly having a high school diploma is better than dropping out, but analysts say it is not that much better. In October 2003 about a quarter of high school graduates who were not attending a postsecondary institution were not employed six months after graduation, according to the Bureau of Labor Statistics.

High school graduates do better than dropouts, but their earnings have also taken a beating. Salaries of male high school graduates between the ages of 25 and 34 plunged by almost 28% between 1971 and 2002, according to Paul

Barton in *One-Third of a Nation*. Earnings of female graduates fell by 7%.

Such statistics indicate that training beyond a high school diploma is important for success in the current economy, where “blue collar” as well as “white collar” jobs now require technical know-how. Many reformers believe that even students not intending to go to college should take college-prep courses because they help prepare all students for post-high school life.

A majority of California high school students are planning to go to college

Today’s youth may not have read these statistics, but according to a national opinion poll by Public Agenda entitled *Life after High School: Young People Talk about Their Hopes and Prospects*, the vast majority of young adults of every ethnicity believe strongly in the value of going to college after high school.

Public Agenda’s poll, which was conducted in August and September 2004, found that most of the 1,300-plus young adults questioned see higher education as a way to both earn society’s respect and ensure career advancement and financial security.

In addition, a survey of students who took the California exit exam in 2002–03 shows that a strong majority of high school students who are not enrolled in college-prep classes nevertheless expect to go to college. According to the LAO report, 71% of the 10th graders surveyed

wanted to enroll in college (41% in a four-year university and 30% in a community college or technical school). Only 12% planned to work or enter the military upon graduation. In addition, the 11th graders who failed the exit exam on the first try had similar aspirations, according to the LAO.

“Despite having failed at least one part of the CAHSEE, about one-third of the group hopes to enroll in a university,” the report stated. Another third plans on attending a community college. Only 18% expect to work after graduation.

Perhaps a better way than surveys to determine high school students’ interest in attending a four-year university is to look at their test-taking decisions.

About 40% of juniors take enhanced CSTs

For the first time in 2005, students could choose to take enhanced CSTs in English and math that might allow them to forego placement tests at California State University (CSU) campuses. Judging from those who opted to take these enhanced tests, at least 40% of the general student population (based on who took the English test) and an even higher percentage of those taking advanced math courses are thinking about college. (This percentage does not include students whose districts did not offer the test.)

Another way to measure student intention is to see how many take college admissions tests.

About half of California graduating seniors take the SAT admissions tests

Students who plan to go to a four-year public university must take the SAT or ACT admissions tests. In California, most students choose the SAT. (About 15% of high school graduates took the ACT.) In California, 49% of the class of 2004’s graduating seniors took the SAT at some point during their high school career.

figure 16 Most high school juniors who took the CSU Early Assessment for Readiness in College math test in 2004 were deemed not ready for college-level math

High school juniors who...	Algebra II Test-takers	High School Math Summative Test-takers
...took the readiness test	62,300 (70% of all juniors who took this CST)	53,462 (80% of all juniors who took this CST)
...are ready for college-level math	6%	19%
...are ready if they take math their senior year	21%	69%
...are not ready without an intervention	73%	13%

DATA: CALIFORNIA STATE UNIVERSITY (CSU)

EdSource 6/05

Many California high school graduates are not ready for college-level work

Based on the educational pipeline data noted at the beginning of this report, 3.7 California students out of 10 go to college, and only 2.5 are still enrolled their sophomore year. Fewer still—only 1.9—will complete an associate's degree in three years or a bachelor's degree in six years. Many of these students will likely have to take remedial courses when they enter college.

The more remedial work students need to do, the less likely they are to attain a degree, according to Clifford Adelman, a senior research analyst at the U.S. Department of Education, in a 1998 article, "The Kiss of Death," in *CrossTalk*, published by the National Center for Public Policy and Higher Education. He relies on National Center for Educational Statistics (NCES) data from the college transcripts of the national high school class of 1982, which researchers followed through higher education to 1993.

The type of remedial work matters even more, Adelman said. If students simply cannot read English well and are in remediation courses for longer than one year, the chances of their earning a degree drops dramatically, he said.

According to an NCES report, *The Condition of Education 2004*, 28% of the nation's entering college freshmen enrolled in remedial coursework in fall 2000. Out of that group, 22% took remedial courses in math, 14% in writing, and 11% in reading. The percentage is higher for public two-year colleges (called community colleges in California), with 42% of entering freshmen enrolled in remedial coursework in 2000, according to NCES.

At California State University (CSU) campuses, first-time freshmen must take proficiency exams in both English and math. For fall 2003, about 63% of the freshmen were proficient in math and almost 52% were proficient in English. The remaining first-time freshmen were placed in some form of remedial course. Remediation classes at CSU are fairly effective, according to David Spence, executive vice chancellor and chief academic officer. Of the regularly admitted, first-time freshmen enrolled in fall 2002 who needed remediation, 82% had gained full proficiency before the second year, he said.

The University of California (UC) system claims to not offer remedial instruction. However, if students fail the

university's writing test, they must enroll in a "Subject A" class. In 2004 about one-third of the entering freshmen were in a "Subject A" class.

CSU offers enhanced CSTs in English and math to determine college readiness

CSU has recently changed its approach to the remediation issue by using I Ith grade CSTs to determine college readiness and let students know what is expected in college. In 2004 CSU added questions to the CST in English, including essay questions, and to two CSTs in math. The CSU Early Assessment for Readiness in College tests are voluntary for districts to offer and students to take. If students pass, they are deemed ready for college-level work and can forego CSU placement tests.

The spring 2004 tests showed that very few of the juniors who took the enhanced tests were ready for college-level work. (See Figure 16.) About one in five of the test-takers were ready for college-level English. Combining the results of those who took the High School Math Summative and the Algebra II enhanced CSTs, about one in eight were ready for advanced math in college, though CSU said many more would be ready if they took a math course during their senior year. The results were particularly bleak for students who took the Algebra II CST. Only 6% were ready for college-level math, and almost three-quarters needed some intervention beyond a senior-year course to be ready for college math.

Less than a third of California's high school graduates are eligible to go to a four-year public university

Despite the high hopes indicated by the Public Agenda poll and by almost half of graduating seniors in California who took the SAT, only 28.8% of California's high school students met CSU admission requirements in 2003, according to a May 2004 report, *University Eligibility*

Graduation and college eligibility requirements differ

Courses required by the state to graduate from high school are different from those required for freshman admission to the University of California (UC) and the California State University (CSU) systems. Each public school district develops its own graduation requirements, which must include the minimum state requirements but do not necessarily need to encompass the UC/CSU college-prep courses.

UC/CSU “a–g” College-prep Courses Required for Admission	Minimum Courses Required by the State for High School Graduation
a) Two years of history/social science , including one year on the world and one year on the United States	Three years of social science , including both the United States and the world; a semester of American government and civics; and a semester of economics
b) Four years of English language arts	Three years of English language arts
c) Three years of math through at least Algebra II or Integrated Math III	Two years of math , including Algebra I
d) Two years of laboratory science in two disciplines (for UC, choose from biology, chemistry, or physics; for CSU, choose one biological and one physical)	Two years of science , typically one biological and one physical (such as chemistry or physics)
e) Two years of the same foreign language (American Sign Language accepted)	One year of visual or performing arts or foreign language (American Sign Language accepted)
f) One year of visual or performing arts	(See above)
g) One year of an elective from one of the above	Two years of physical education unless exempted

Study for the Class of 2003, published by the California Postsecondary Education Commission (CPEC). Fewer—14.4%—qualified for admission to UC. (CPEC used a random sample of 16,000 transcripts from 48 high schools throughout the state to develop the estimates, which are in the 95% confidence range. This means that the true eligibility rate for CSU probably lies between 25% and 32%.)

In addition, the number of graduates eligible for CSU and UC has increased substantially since 1996, according to CPEC. In 2003 California public high schools graduated 335,700 students, a 30% increase from 1996. Of these graduates, 96,700 were eligible for CSU (a 27% increase) and 48,300 were eligible for UC (a 70% increase). Because of the concurrent rise in the number of high

school graduates, the CSU eligibility rate remained about the same as in 1996 while UC eligibility rose 3.3 percentage points, according to CPEC.

However, these numbers come close to meeting the state’s goal of accepting into UC and CSU about a third of high school graduates, which is the planned capacity of the two university systems. An increase in the percentage of eligible students has historically prompted an equivalent raising of eligibility requirements.

The historical achievement gaps are narrowing but still prevail

To qualify for a four-year public university in California, students typically must first complete 15 one-year UC-approved courses. The California Department of Education (CDE) provides data that show how many students successfully

complete the so-called “a–g” courses each year, based on ethnicity. The historical achievement gap is clear. (See Figure I7.)

These CDE statistics show that Asian students are more than twice as likely as African American, Latino, and Native American students to successfully complete the “a–g” courses, at least according to the data school districts submit to the state. Further, course completion is just one facet of college eligibility. These data do not look at grade point averages (though students must earn at least a “C” to successfully complete courses) and college admission test scores, which also play a role in a student’s eligibility.

The CPEC study, on the other hand, examines the sample of transcripts to see if the pattern of courses, grades, and test scores would make the students eligible for admission. As the most selective institution, UC is of particular interest because it gives a picture of the state’s most academically successful students. The CPEC report shows that African American and Latino students are even more dramatically under-represented in the UC-eligible group than they are based on the CDE data.

Despite the significant gap, African American and Latino students did make some progress, according to CPEC. The UC eligibility rate for African Americans rose from 2.8% in 1996 to 6.2% in 2003; for Latinos the rate increased from 3.8% to 6.5%. (Only 150 Native Americans were included in the CPEC study. Their eligibility rates were low, the researchers said, but the sample was too small to be conclusive.)

What is holding back California high school students?

Many different factors can get in the way of a high school student’s success. Young people certainly face challenges and make choices that schools cannot control. However, a growing number of researchers

and educators believe that many high schools are not configured to support academic success for the majority of students. They point to specific issues that need to be addressed, including what is taught, how to help teachers deliver a different type of curriculum, and how to build personal connections with students.

While more is being demanded from high schools and the educational needs of today's youth are growing, little has been done to rethink the way the typical large, comprehensive high school operates. That process of rethinking—questioning many facets of the status quo and looking at what needs to happen for change to occur—is gaining momentum among policymakers, educators, and community leaders throughout the nation. But California—with a higher percentage of disadvantaged students than most states and a lower number of educators per student—faces particularly difficult challenges.

Many critics—including students—think the current high school curriculum is neither challenging nor motivating

As noted above, most high school students say they plan to go to college. Yet just a quarter of them even get admitted, and even fewer complete a program of study. Part of the problem appears to be what students are taught and what they are motivated to learn.

When asked, students are quite candid in their evaluation of their classwork in school. Public Agenda, in its 2005 report, *Life after High School*, found that many young adults admit that they could have paid more attention and worked harder in high school. But, the report says, substantial numbers who went on to college believe that high school teachers and classes should have done a lot more to prepare them for college-level work. One young man stated: “You don’t learn to study in high school. You learn to get by.”

The process of rethinking the way the typical, large, comprehensive high school operates is gaining momentum among policymakers, educators, and community leaders throughout the nation. But California—with a higher percentage of disadvantaged students than most states and a lower number of educators per student—faces particularly difficult challenges.

Yet it is becoming increasingly clear that students need to master a rigorous curriculum in high school no matter what path they take. “The skills required to go to college and the skills required to go to work are almost the same now,” said Richard Owen, an independent consultant. As an associate superintendent of Sacramento City Unified School District, Owen was responsible for spearheading the district’s high school reform effort, which included implementing the “a–g” college-prep curriculum for all students. (See the box on page 18.) A large proportion of students do not take courses that have the rigor Owen refers

to, and that is disproportionately the case for Latino, African American, and low-income students.

However, research and practice are increasingly pointing to the need to both increase the rigor of the classes offered and enhance their relevance to students. Such change is easier said than done. For instance, there appears to be little consensus about how to provide relevance. A further challenge is the strong conviction, particularly among educators, that the course of study that is right for one high school student is not right for all.

That conviction helps explain why California state policymakers have so far

figure 17 | The achievement gap widens for UC eligibility when grades and admission test scores are included

UC/CSU Eligibility Rates by Ethnic Group Based on “a–g” Course Completion for Seniors in 2003		UC Eligibility Rate Based on Grades, “a–g” Course Completion, and Admissions Test Scores for Seniors in 2003	
African American	24.3%	African American	6.2%
Asian	56.0%	Asian	31.4%
Filipino	43.7%	Latino	6.5%
Hispanic/Latino	21.5%	Native American*	6.6%
Native American/Alaskan Native	23.0%	White	16.2%
Pacific Islander	25.4%	Total Eligible Among All Students	14.4%
White	39.0%		
Multiple/No Response	24.1%		
All Students	33.5%		

*Only 150 Native American transcripts were included in the sample.

DATA: CALIFORNIA DEPARTMENT OF EDUCATION | EdSource 6/05

DATA: CALIFORNIA POSTSECONDARY EDUCATION COMMISSION (CPEC)

Some districts have adopted a more rigorous curriculum for all

Taking aim at the problem of too little rigor, some school districts and even some states, such as Texas, are implementing a college-prep curriculum for all students. Arkansas and Indiana are also pursuing the idea of a college-prep curriculum as a graduation requirement, according to an article in the April 20, 2005 edition of *Education Week*. However, all three states also offer a way for students to opt out if they and their parents choose to do so.

In California, San Jose and Sacramento City unified school districts are two places where every high school student is expected to complete the “a-g” curriculum required for admission to the state’s public four-year universities. (See the box on page 16.)

Others believe that greater flexibility is needed to increase relevance for individual students

Robert Schwartz—a faculty member at Harvard Graduate School of Education and former president of Achieve (a national nonprofit established to help states strengthen academic performance)—is among a number of experts who believe the high school curriculum should be more varied instead of less. Schwartz advocates more emphasis on the basics—reading, writing, and quantitative reasoning skills—and less emphasis on other college-prep courses for students who are not college bound. Instead, he said, those students should be given time during high school to learn a trade and experience the work world through internships.

“We ought to hold fast on reading and writing and mathematics, and if anything raise the bar in terms of our expectations,” he told an EdSource Forum audience in March 2005. “But for virtually everything else, I believe we ought to move toward a more flexible system, a system that allows many more curricular options and promotes a whole, diverse set of high school options for kids.”

New state standards aim at ensuring rigor in career/technical courses

In May 2005 the State Board of Education approved academic content standards for a comprehensive group of career and technical courses. (See: www.cde.ca.gov/ci/ct/sf/) The goal was to create a clear framework for ensuring the academic rigor of these courses. For more information about this and other facets of these programs in California, see the June 2005 EdSource publication, *The Evolution of Career and Technical Education in California* at www.edsource.org.

chosen not to adopt curriculum materials for the high school level. In contrast to K–8 schools—which use state-adopted textbooks aligned with California’s rigorous academic content standards—high schools are free to develop their own instructional programs based on the skills of their teachers and the needs of their students. However, districts are expected to certify that their materials are also aligned with state standards.

Similarly, the state sets rather general high school graduation requirements and leaves it to local districts to fill in the specifics.

On the other hand, state policymakers did assert more control with the adoption of Algebra I as a requirement for the class of 2004. This decision exemplified the growing concern that the hands-off approach is leaving too many students poorly educated even after 13 years in public school. Some people talk about the battle between rigor and relevance, while others stress that the high school curriculum must incorporate both if it is to engage today’s high school students and prepare them adequately for adult success.

Many teachers are less than fully qualified

It seems obvious that classroom teachers are the key to changing how students are taught in California’s high schools. Less obvious is what policymakers and educators can do to help teachers become more knowledgeable and more effective and thereby help students become more interested and better able to learn.

Professional development for the current high school teacher workforce could become a higher priority if the curriculum itself were to change as noted above. When state leaders in the mid-1990s agreed upon how to restructure elementary school instruction in reading and mathematics, California made a substantial investment in development activities for its elementary teaching force—focusing on reading instruction, in particular. But little has been

figure 18 | In most subjects, about one in five teachers was either teaching without a full credential or was teaching out of field in 2003–04

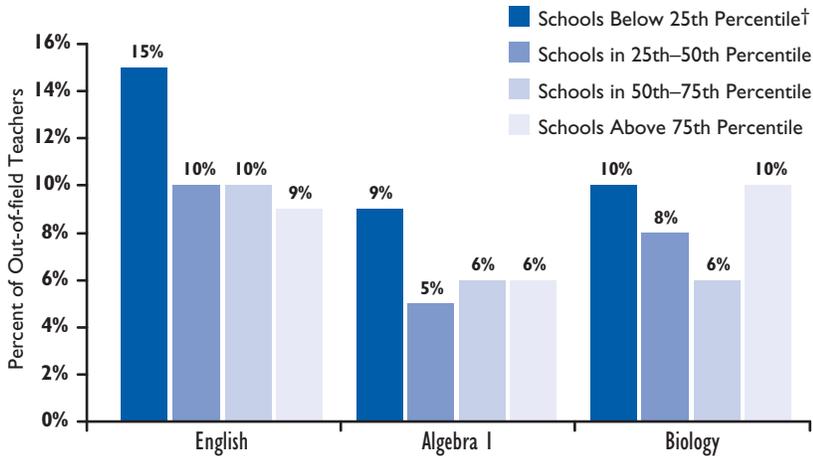
Assigned Subject	Fully Credentialed Out-of-field High School Teachers	Underprepared* High School Teachers	Total
English (N = 12,398)	1,449 (12%)	973 (8%)	2,422 (20%)
Mathematics (N = 9,091)	894 (10%)	1,037 (11%)	1,931 (21%)
Social Science (N = 8,711)	1,207 (14%)	517 (6%)	1,724 (20%)
Life Science (N = 3,257)	350 (11%)	292 (9%)	642 (20%)
Physical Science (N = 3,533)	824 (23%)	332 (9%)	1,156 (32%)

*Underprepared means the teachers are not fully credentialed.

DATA: CENTER FOR THE FUTURE OF TEACHING AND LEARNING (CFTL)

EdSource 6/05

figure 19 Lower California Standards Test (CST) scores in 2004 do not correlate with the percentage of out-of-field* teachers in Algebra I and biology like they do in English



†Percentiles for schools are based on the percentage of students scoring proficient and above on each CST.

*Out-of-field teachers are those who are fully credentialed but do not have a subject credential for the specific subject they are assigned to. These teachers are also full-time tenured or probationary. They do not simultaneously hold an emergency, intern, or waiver credential, and their authorized teaching area is for a secondary/subject-specific classroom.

DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

EdSource 6/05

done to support the training of the existing high school teaching force, perhaps reflecting the ambivalence about the curriculum as much as a lack of resources.

Many believe, however, that the shortage of fully qualified teachers is currently of greater concern and has the more substantial impact on instructional quality in high schools.

A lack of qualified teachers is a serious and immediate problem

A lack of fully qualified teachers, particularly in underperforming schools, has been a persistent problem for California. There simply are not enough fully prepared, appropriately credentialed teachers willing to take the high school teaching jobs that are available. In 2003–04 about 8% of English and 11% of math high school teachers in California were underprepared—lacking a California teaching credential appropriate for secondary school instruction, according to a December 2004 report—*California's Teaching Force 2004: Key Issues*

and Trends—by the Center for the Future of Teaching and Learning (CFTL). (See Figure I8 on page I8.) Further, state and federal policies call for high school teachers to not only be fully credentialed, but to also have substantive content knowledge in every core subject that they teach (English, math, science, social science, foreign language, and the arts). Credentialed high school teachers in California often teach subjects for which they do not hold single-subject credentials, according to CFTL. For example, among high school teachers assigned to teach at least one English class, almost 1,500 (12%) have a California teaching credential but do not have the single-subject credential in English. In other words, they are teaching out of field.

Teachers who teach out of field can get supplementary authorizations if they have taken 20 semester units in the subject they plan to teach. To obtain the full subject matter authorization so they are no longer considered out of field, they need to have taken 32 semester units.

Overall about one in five high school teachers in the major subject areas is either not fully credentialed or is teaching out of field, according to CFTL. For those teaching physical science, such as chemistry and physics, the number jumps to almost one out of three. CFTL found that the percent of secondary teachers not fully credentialed remained steady from 1999–2000 to 2002–03. In 2003–04 there was a three percentage point decrease, partly due to new, stricter requirements covering subject matter knowledge under the federal No Child Left Behind Act (NCLB).

Teacher credentialing and test scores are related

CFTL also looked at the relationship between teacher credentialing and California High School Exit Exam (CAHSEE) scores. Schools with the lowest passing rates on CAHSEE have, on average, far more teachers who are not fully credentialed, according to CFTL. Students in these schools are three times as likely to be taught by not fully credentialed (underprepared) teachers as are students in schools with the highest passing rates. The students in these schools are also more likely to be from low-income families. For many, English is their second language. Thus some of the most challenged students are in the lowest-performing schools and have the least prepared teachers.

An analysis by EdSource of teacher credentialing and CST test scores in English language arts, Algebra I, and biology shows a similar pattern.

Teaching out of field does not necessarily correlate with test scores

EdSource also looked at whether teaching out of field had a similar relationship to test scores. While the same correlation exists between the percentage of English teachers who are teaching out of field and lower CST performance, interestingly this was not the case for Algebra I and

figure 20 | California's staff-per-pupil ratios have improved over the past decade but still remain well below the national average

	1992-93			2002-03		
	California Rank in U.S.	California Average Pupils Per Staff	U.S. Average Pupils Per Staff	California Rank in U.S.	California Average Pupils Per Staff	U.S. Average Pupils Per Staff
School Staff	49	16	13	50	14	11
Principals and Assistant Principals	50	517	350	50	463	292
Teachers	50	24	17	50	20	16
Guidance Counselors	50	1,041	526	51	934	475
Librarians	51	5,442	847	51	4,499	885

Note: Washington D.C. is included with the 50 states.

DATA: NATIONAL CENTER FOR EDUCATION STATISTICS (NCES)

EdSource 6/05

biology teachers. Low CST performance in Algebra I and biology did not correlate with the percentage of math and biology teachers who were teaching out of field. (See Figure 19 on page 19.)

Such a lack of correlation raises a number of interesting questions. Educators generally decry the dearth of fully prepared math and science teachers. Does the EdSource CST analysis indicate that the problem of out-of-field biology and math teachers affects both high-performing and low-performing schools in a similar way? And does the opposite hold true for out-of-field English teachers who are more likely to be found in low-performing schools? Perhaps the data say more about the impact that teachers less than fully qualified in math and science have on student learning compared to out-of-field English teachers.

The research needed to address such questions is outside the scope of this report but would help California policymakers understand the extent to which out-of-field teaching does or does not represent an obstacle to student success.

Disengaged students can easily get lost in big, traditional high schools

"If high achievement for all students is the goal of reform, then personalization

is the key." With this statement in *Breaking Ranks II: Strategies for Leading High School Reform*, the National Association of Secondary School Principals (NASSP) makes the case that stronger relationships between high school students and adults are essential.

At the core of this recommendation is a critique of the large, comprehensive high school as an impersonal environment. This relates to the mission of comprehensive high schools that critics say is an attempt to "be all things to all people" and that requires the economies of scale found in large schools. Many students get lost in the shuffle, with no adult paying specific attention to their academic needs, much less any personal problems that may prevent school success. To some degree this lack of personal attention also emerges from a staffing structure that routinely expects teachers to interact with as many as 150 students per day—30 students in the average class and five daily class sessions.

In *What The Research Shows*, NASSP states: "Schools that, through size, organization, and scheduling, create barriers to the development of relationships between students and adults, promote a culture of elitism in which only a few are considered 'shining stars' and others remain anony-

mous." Conversely, NASSP says the research shows that schools that are able to develop supportive adult relationships for every student typically see improved student academic achievement and reduced behavior problems and absenteeism.

The challenges are even greater in California California has some of the largest high schools and some of the highest student/adult ratios in the nation. (See the profile of high schools on page 3.)

In 2003–04 the average California high school served 1,805 students in a grade 9–12 configuration, with urban high schools being the largest. The largest high school, Belmont Senior High in Los Angeles Unified School District, enrolled 5,299 students. While elementary enrollment is dropping, the number of high school students has been growing and is projected to increase through 2009. Since 1998–99 high school enrollment has increased by 13 percentage points, compared to four points in K–8.

At the same time, California has consistently ranked near the bottom in the nation when it comes to staffing ratios. The state has regularly ranked next-to-last in total school staff to students, in school principals and assistant principals per pupil, and in teachers and counselors per

While much of the work needed to address student performance issues in California's high schools must be done at the local level, the actions of state leaders could play a more substantial role in confronting the problem of high school dropouts.

pupil, according to NCES. For a decade, the state has ranked last in librarians per pupil. These data are for school staff at all grade levels, not for high schools specifically. (See Figure 20 on page 20.)

In California, high schools are getting a smaller share of the funding pie over time

When California first created its revenue limit system for providing general purpose funding to school districts, high schools were given an extra subsidy. That was based on the existing spending patterns that provided more money per student in high schools. In the intervening years, however, general purpose funding changes have favored elementary school districts.

As the data in Figure 21 below show, if the funding differences among the types of districts had remained constant, high school districts would have, on average, received \$1,800 more per pupil than they actually got in 2003–04, and unified districts would have received almost \$600 per pupil more. A full examination of the state's investment—or disinvestment—in high schools would require a similar

analysis of categorical programs. Given the number and breadth of those programs, that analysis is outside the scope of this report.

The implications for California's high schools and policymakers are becoming clear

The goals for California's high schools—at least the major goals—are relatively straightforward. More students need to be engaged in their own learning so that they stay in school. More students need to meet the state's high academic standards so that they have good options when they leave school, whether they want to enter the workforce immediately, get advanced training, or go to college. And more students, particularly those in historically underperforming groups, need to graduate fully prepared to enter community colleges or universities without doing remedial work.

Findings from this report provide a reality check

If California is serious about improving student performance, educators and

policymakers must start with an honest and clear-eyed assessment of the problems facing high schools. The findings in this report also provide some insight regarding the areas that most need to be addressed.

High school dropouts represent a huge, often ignored problem

Best estimates are that about 30% of the students who enter California high schools fail to finish with a diploma. A lack of clear data—combined with pressure on local schools to underestimate their dropouts—help obscure the magnitude of this problem. This has both human and economic costs. National data show that students who drop out of high school represent a seriously disadvantaged group of young people and a high potential cost for taxpayers.

Test score data show some recent progress for high schools but from a relatively bad starting point

Based on an absolute comparison of 2004 Base API scores, high schools continue to substantially underperform elementary and middle schools. In recent years, however, there has been some notable improvement on the California Standards Tests (CSTs) in English.

Results in math and science on the CSTs paint a less clear picture, but in many ways a more interesting one. Because high school students take these

figure 21 | Average revenue limits over time show a change in high school support

Type of District	Average Revenue Limit (per pupil) in 2003–04	Difference by District Type in 2003–04	Average Revenue Limit (per pupil) in 1977–78	Difference by District Type in 1977–78	Hypothetical 2003–04 Revenue Limits if 1977–78 Differences Still Existed
Elementary	\$4,645	100%	\$1,114	100%	\$4,645
Unified	\$4,843	104%	\$1,244	112%	\$5,420
High	\$5,585	120%	\$1,480	133%	\$7,427

DATA: CALIFORNIA DEPARTMENT OF EDUCATION (CDE)

EdSource 6/05

Federal support programs aimed at less successful students have deteriorated over the past few decades

In *One Third of a Nation*, Paul Barton looked at the reduction in federal resources allotted to vocational and what he calls “second chance” programs over the past few decades. He notes that the federal investment in second chance programs has dropped from \$15 billion in the late 1970s, at a time when school completion was peaking, to \$3 billion today. Ironically, the decrease in spending on these programs coincides with the decline of earning power for dropouts.

Barton says the federal programs that have survived have been successful and could be used as models to rebuild new programs. He points to the Job Corps, YouthBuild USA, the Youth Corps, and the Center for Employment Training (CET), which originated in San Jose, California.

State programs may be changing

Two California programs that focus on dropouts are due to be reauthorized in 2005. They are the \$16 million Pupil Motivation and Maintenance Program and the \$2 million Alternative Education Outreach Consultant Program. Both are currently part of the \$414 million Pupil Retention Block Grant the Legislature created in 2004.

The governor proposes funds aimed at helping students pass the exit exam

In another measure that could help prevent dropouts, Gov. Arnold Schwarzenegger in his “May Revision” budget proposes setting aside \$57.5 million for a one-time investment in a Supplemental Instruction–High School Exit Exam Initiative to provide additional instruction to pupils who have failed or are at risk of failing the exit exam. These funds are not intended to supplant existing Supplemental Instruction program funds. The administration also proposes evaluating the program to determine ongoing funding in future years.

The governor gives a nod to the “smaller learning environment” approach in his proposed budget

Schwarzenegger also proposes using \$1.6 million for the first year of a three-year, \$5 million effort to encourage high schools to establish smaller learning environments. Again, future funding decisions would be based on the perceived effectiveness of the program.

The governor proposes using funds owed by the state to school districts because of underfunding the state’s Proposition 98 guarantee to schools in the past. How much schools should receive to make up for underfunding in prior years is a hot topic of debate in Sacramento, making it difficult to predict whether either of these proposals will actually be part of the final budget.

tests based on their classes, the data reveal course-taking as well as performance. The data indicate that more students are taking higher-level math courses and that fewer students are scoring far below basic on most of the math CSTs. In addition, more students are taking higher-level science courses, particularly biology. However, in math and biology, the percentage of test-takers scoring proficient and advanced has also declined. (But, as noted in the box on page 8, this percentage needs to be seen in the context of the increase in test-takers.)

California’s high schools do little to improve the gaps in student performance that begin at the elementary level

Performance data consistently show the presence of the same achievement gaps between student groups across all subjects and grade levels. These achievement gaps also show up on the California High School Exit Exam. In English, positive results include a small improvement among low-income ninth graders on the 2004 CST and a strong showing on the exit exam among English learners who had been redesignated as fully English profi-

cient. Also notable are significant increases in the proportion of English learners and African American and Latino students taking Algebra I in eighth and ninth grade.

Most students say they plan to go to college, but the majority of them are not well prepared

Only about one out of three California high school graduates is actually eligible for admission to the state’s four-year universities. Of students admitted to UC and CSU, a large portion appears to be unprepared for college work. About half of CSU freshmen in 2003, for example, were required to take remedial coursework. High school graduates who go to community college also often find themselves needing to take basic skills courses before they are considered ready for many academic or career/technical courses.

Are Californians ready to take on the hard work of improving high schools?

It appears that California has plenty of work to do, and changing how high schools operate has proven difficult. In the early 1980s, high school reform first became a major topic of study and debate in response to the national study, *A Nation At Risk*. Now, more than 20 years later, the change in most high schools has been modest at best, particularly compared to the more dramatic transformations in many elementary and middle schools.

Perhaps, with the force of the standards movement behind it, the current effort will prove more fruitful. Public reporting of course-taking and test scores helps to shed light on a persistent achievement gap that undermines the state’s goal for all students to perform at a proficient level. In addition, much more has been learned regarding what changes in high school curriculum, operation, and structure are most effective with various groups of students. But perhaps the first problem California should confront relates to those students who do not even finish school.

Changes in state policy could help address the dropout question

While much of the work needed to address student performance issues in California's high schools must be done at the local level, the actions of state leaders could play a more substantial role in confronting the problem of high school dropouts. Better data, increased attention focused on the issue, and more support for struggling students are strategies within state leaders' control.

The lack of clear, reliable statistics is a substantial obstacle to creating a sense of urgency about California's dropout problem. The LAO suggests that the Legislature act now to require the California Department of Education to start collecting student-level data on graduation and dropout rates as soon as it is available. According to the LAO, the current plan is to compile that data starting in 2010. But the system of unique student identifiers that makes it possible is now in place, and the schedule could be accelerated. That would give the state the data it needs to better hold schools and districts accountable for improving graduation rates.

Better data could also help state policymakers evaluate other options, including giving schools more resources with which to support the most at-risk students and doing so in elementary and middle schools. That could help prevent the academic failure early in high school that contributes so strongly to the dropout problem.

California can learn from reformers with national experience

From the U.S. president to the National Governors' Association to private foundations, reformers are promoting strategies to help high schools improve. Many focus on restructuring large, comprehensive

To Learn More

For further information, see the following articles and reports cited in this publication:

A Call to Action: Transforming High School for All Youth, National High School Alliance, April 2005, www.hsalliance.org

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"Several States Making College-Prep Courses the Default Curriculum," *Education Week*, April 20, 2005, www.edweek.org

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"The Kiss of Death," Clifford Adelman, *CrossTalk*, National Center for Public Policy and Higher Education, 1998, www.highereducation.org/crosstalk/ct0798/voices0798-adelman.shtml

The Real Truth About Low Graduation Rates, An Evidence-Based Commentary, Urban Institute, August 2004, www.urban.org

University Eligibility Study for the Class of 2003, California Postsecondary Commission (CPEC), www.cpec.ca.gov

Related EdSource reports, available at: www.edsource.org

How Are California's Charter Schools Performing? EdSource, May 2005.

The Evolution of Career and Technical Education in California, EdSource, June 2005, download for free.

The Movement To Transform High School, EdSource, May 2005, download for free.

Four Q&As on community colleges and UC/CSU admission policies, April 2005, download for free.

high schools into more personalized learning environments with smaller adult-student ratios. Groups such as the National Association of Secondary School Principals (NASSP) get specific, saying that teachers should be responsible for "contact time with no more than 90 students" and that each student should have a personal plan and an adult advocate. High schools, NASSP says, should allow flexible scheduling and engage students' families as partners.

The National High School Alliance—which "represents the collective knowledge" of more than 40 national organizations—has developed a set of six overarching principles they say are necessary to create "deep and lasting change" in high schools. These include:

- Integrated systems of high standards, curriculum, instruction, assessments, and supports that communicate clear expectations for all students.

- Personalized learning environments, including the recommendation that high schools not have more than 400 students.
- Instruction that engages students academically.
- Educators that work collaboratively and continuously to improve their practice.
- Leaders—from the school to the state—who work together to articulate a shared vision.
- Active partnerships with the surrounding community.

Do high schools have the resources they need to help students succeed?

Smaller schools, more support for struggling students, improved linkages between schools and community, and a revamped curriculum with teachers trained to implement it are all credible ideas. But can California's high schools do these things within the funding levels they now receive? To what extent would the streamlining of current programs or reallocation of expenditures be enough to support such change?

Smaller schools are more expensive to operate because of the reduced ratio of administrators to students. Support services translate to more people, a difficult proposition in a system that currently is near the bottom in the country on staff-to-student ratios for teachers, counselors, and school principals. The development and nurturing of productive, educationally sound community partnerships takes personnel with time and expertise. The books and other materials of a new standards-based curriculum would cost money, but that is nominal compared to the professional development educators need to implement some of the instructional changes reformers support.

California is currently in a pitched debate about whether or not the state will simply maintain the status quo based on the Proposition 98 minimum

funding guarantee. The subject of what high school reform might cost or how to pay for it has not been a serious topic of discussion among state leaders.

The state superintendent is responding to the reform movement

In 2004 State Superintendent of Public Instruction Jack O'Connell put improving high schools at the top of his reform agenda. Along with recommending legislative reforms, he sponsored a fall gathering that attracted hundreds of educators from throughout the state who wanted to explore ways to improve high school operations and performance.

O'Connell has continued to emphasize high schools. For example, this spring he appointed a statewide P–I6 Council—covering preschool to higher education. Barry Munitz—president and chief executive officer of the J. Paul Getty Trust and former chancellor of the California State University—is heading the council. While the goals encompass public education generally, O'Connell's first charge to the group is to add rigor and relevance to the state's high schools in order to better prepare students for careers or college. In addition, he has called for another summit on high schools in October 2005.

The problems facing California high schools have been around for a long time. As the reform movement catches up to high schools, however, educators and policymakers are perhaps ready to rise to the challenge. In the process California could re-imagine its high schools as places where all students have access to an education that motivates them to excel and helps them develop the skills and knowledge they need to achieve their aspirations. A lot is at stake—certainly the quality of life for each of the state's six million students, but also the economic and social quality of life in the state of California. 



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