



Current Status of STEM Teaching and Learning in California

February 2, 2009

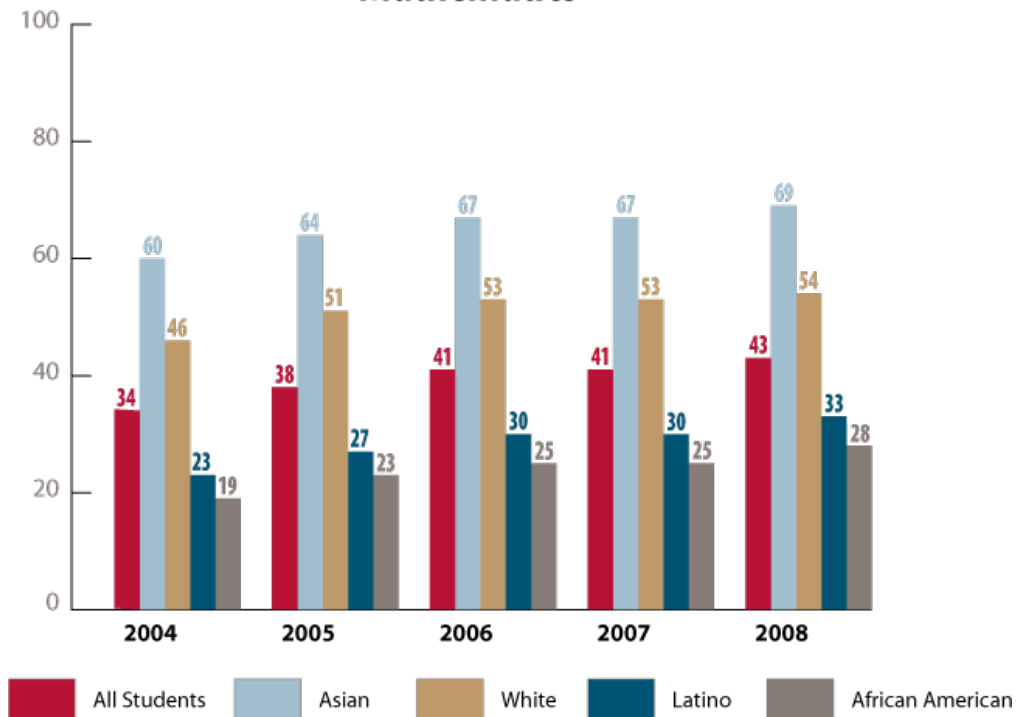
Center for the Future of Teaching and Learning

Student Achievement--Math

The Gap Persists:

67% of Latino students and 72% of African American students scored below proficient on the Math CST

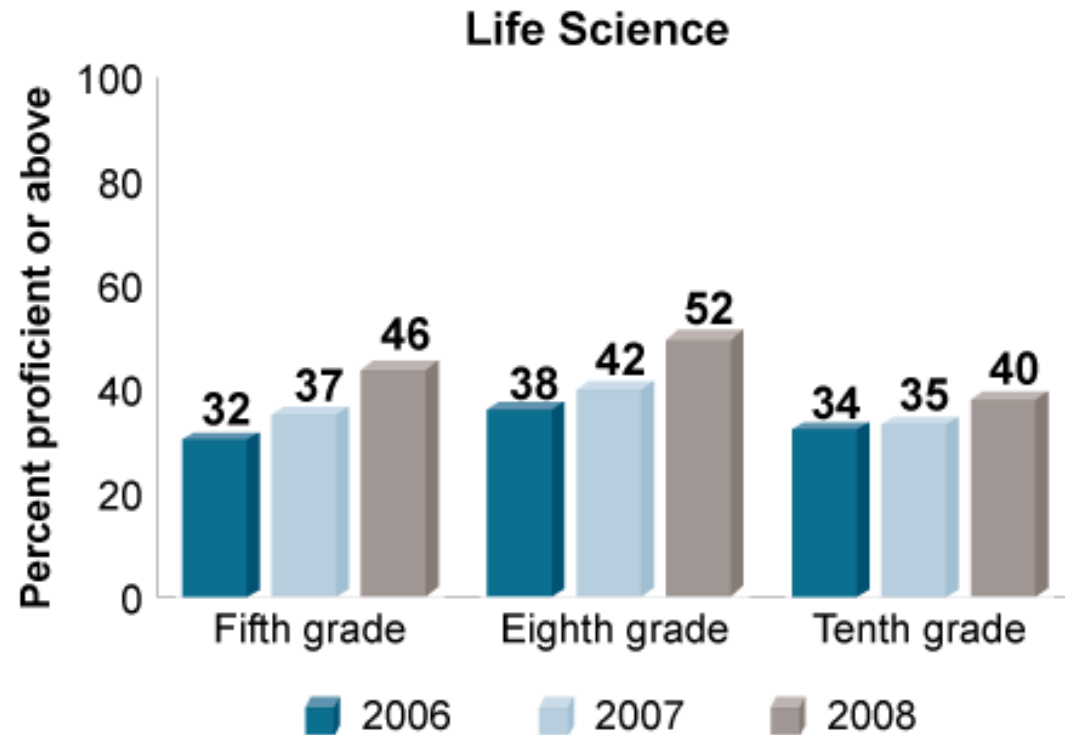
California Standards Test Results,
by Ethnicity, 2004-2008
Mathematics



Source: California Department of Education.

Student Achievement--Science

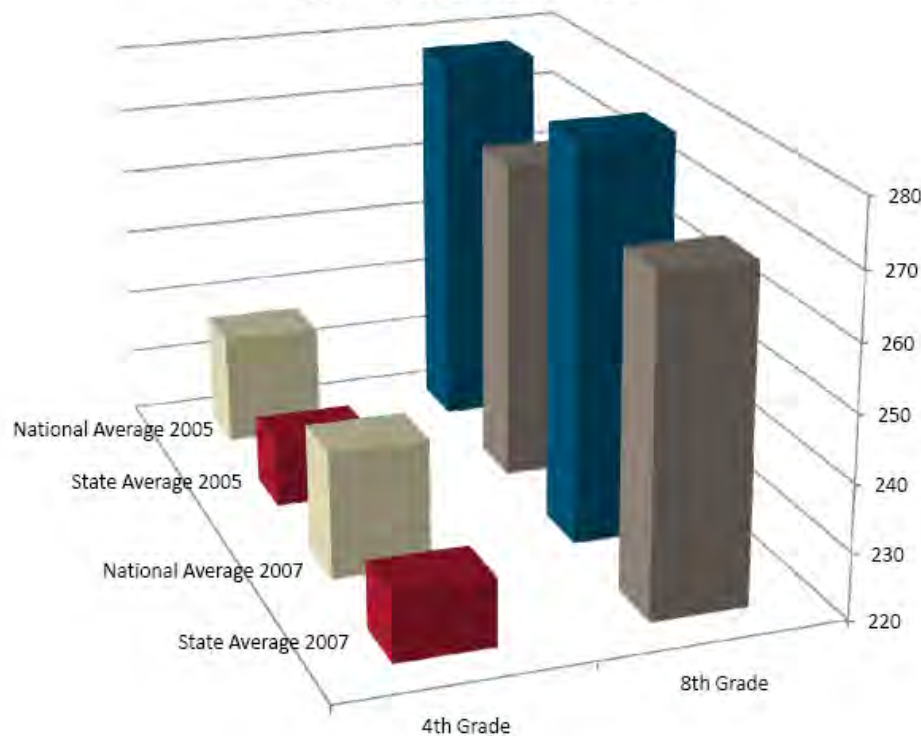
Slight improvement,
but a long way to go



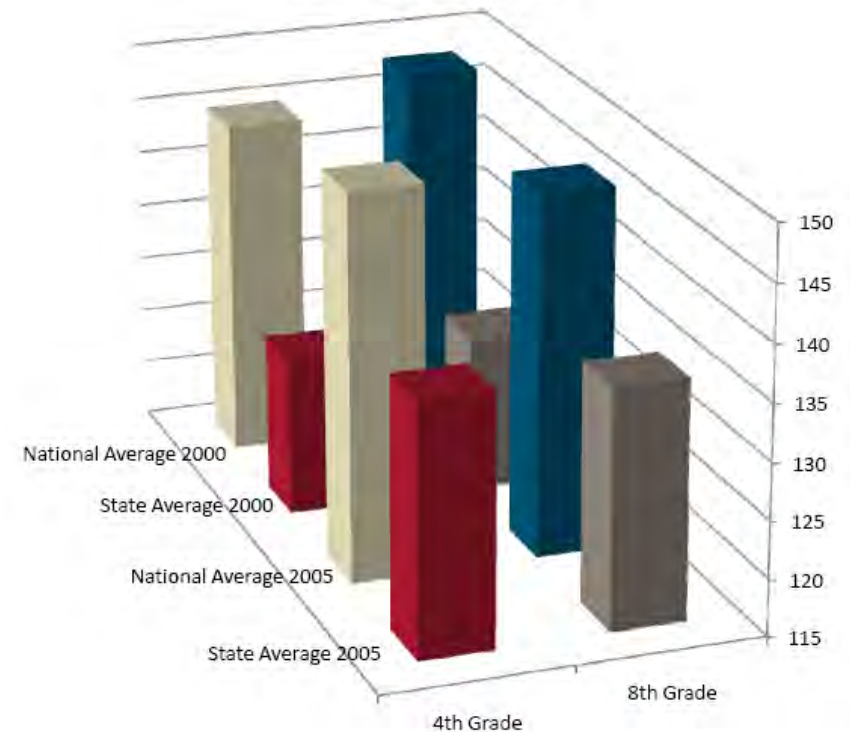
How California Compares

California consistently scores below the national average on the Math and Science National Assessment of Educational Progress (NAEP) in 4th and 8th grades.

NAEP Mathematics Scores



NAEP Science Scores

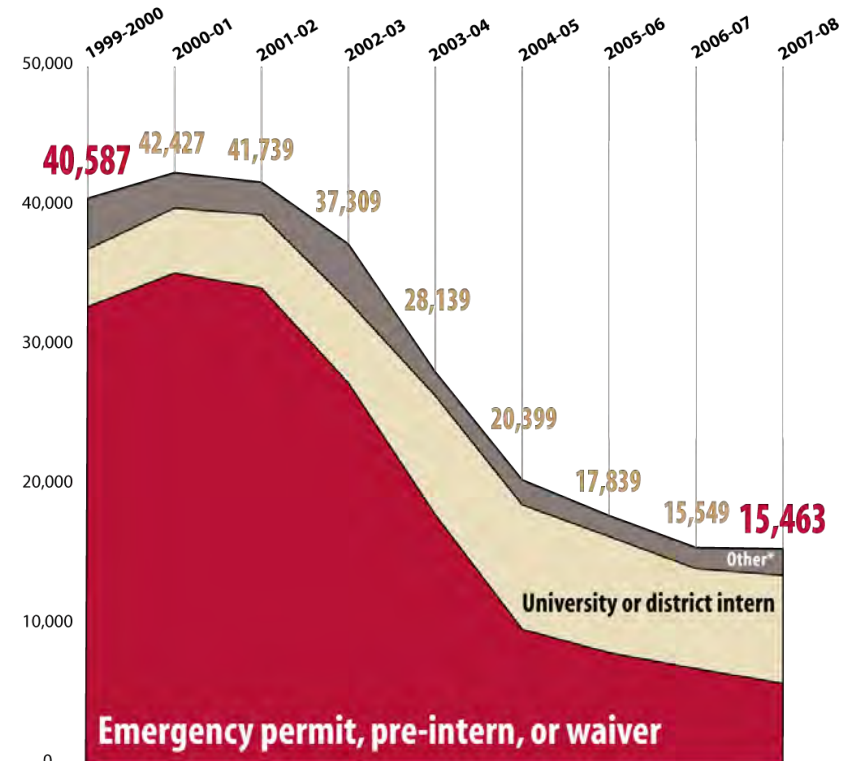


The Teacher Workforce

The number of underprepared teachers has declined, but 5% of the workforce still does not hold a preliminary teaching credential.

About half of these are interns.

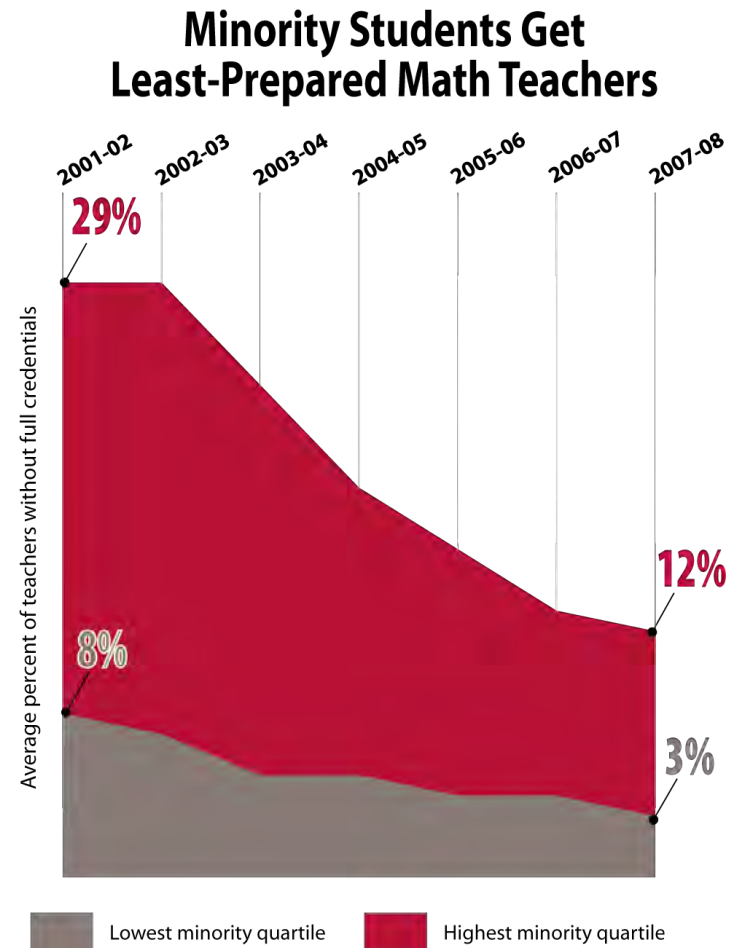
Number of Underprepared Teachers, by Credential Type 1999-2008



*includes more than one underprepared credential type or missing credential information

Inequitable Distribution

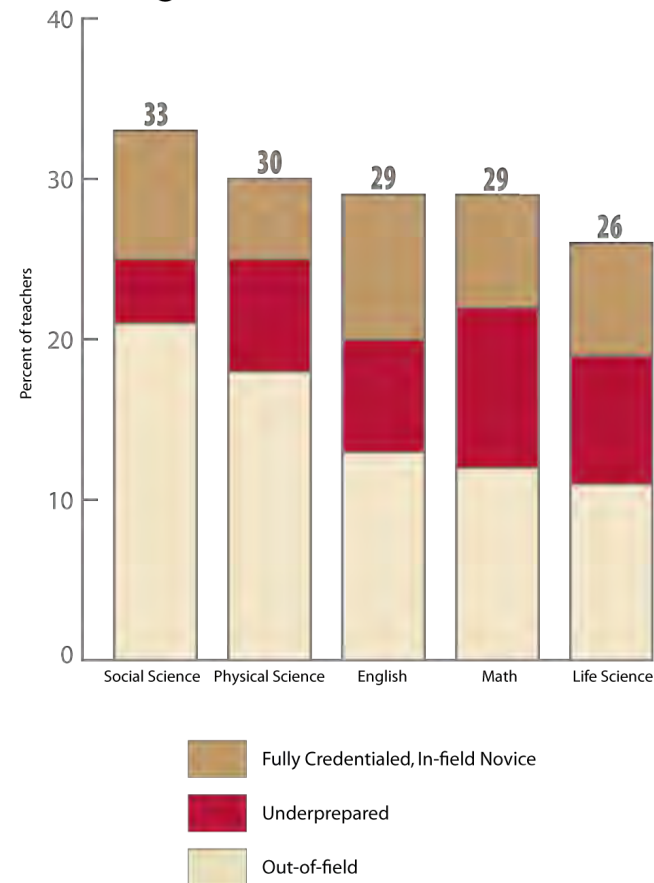
The state's highest minority schools have four times as many underprepared teachers as the lowest minority schools.



Shortages Across the Core Subject Areas

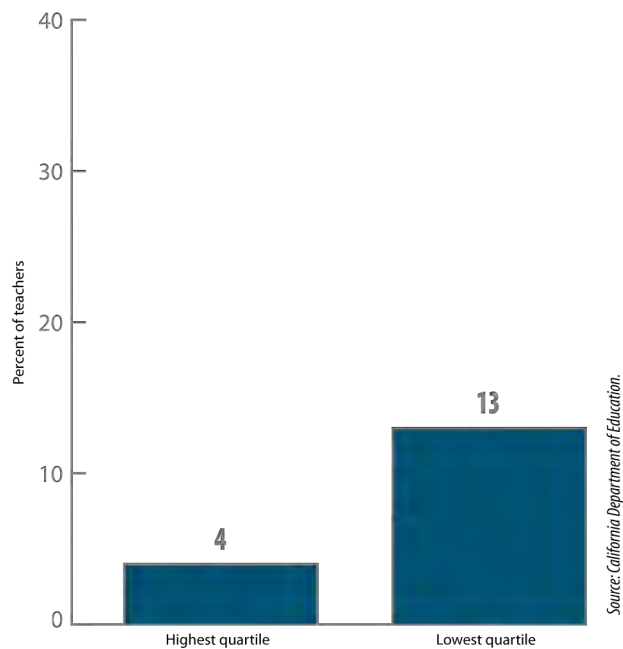
1/4 to 1/3 of high school core subject teachers are either underprepared, teaching out-of-field, or new to

Out-of-field, Underprepared and Novice High School Teachers, 2007-08

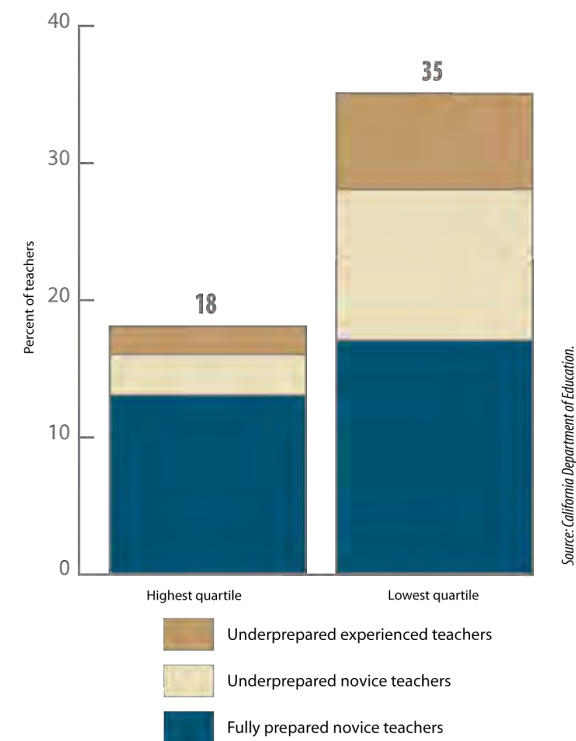


Underprepared Math Teachers and Student Achievement Don't Add Up

The Math of API
Underprepared Mathematics Teachers by API Achievement Quartiles, 2007-08



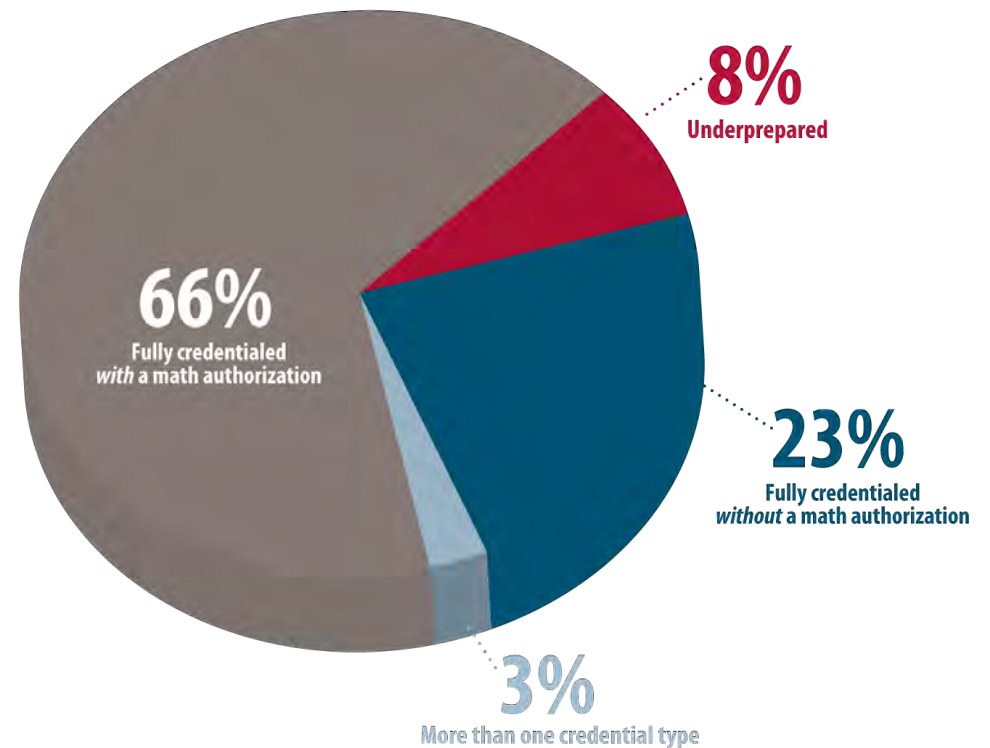
The Math of CAHSEE
Underprepared and Novice Teachers by Pass Rates on CAHSEE, 2007-08 Mathematics



A Focus on Algebra

Middle School Algebra Teachers, 2007-08

1/3 of all middle school algebra teachers do not hold a math authorization

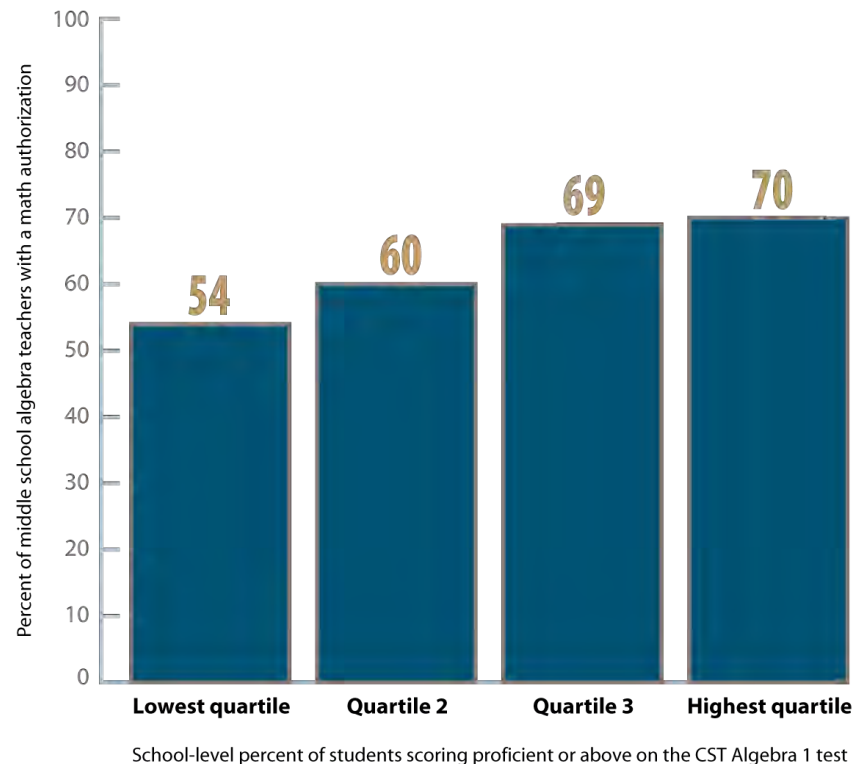


Source: California Department of Education.

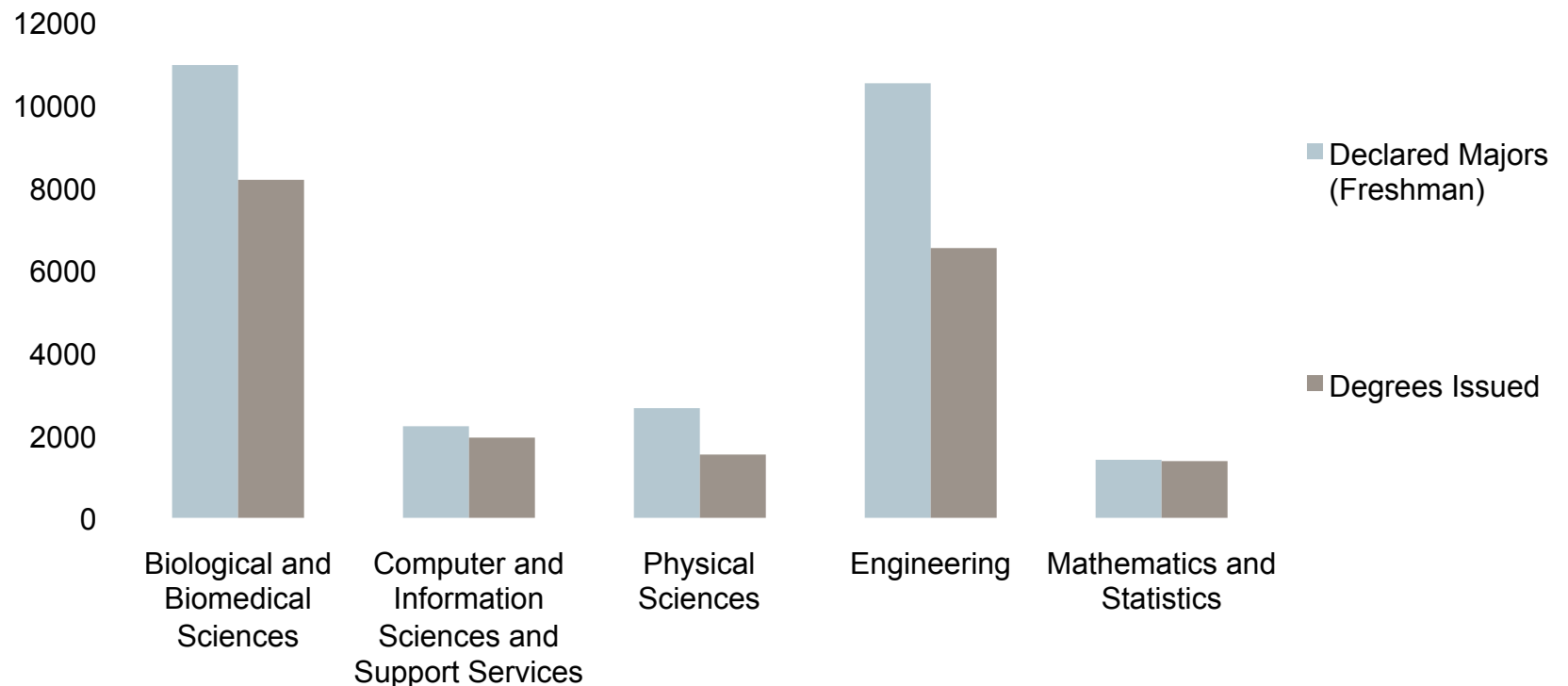
Math and Middle Schools: Teachers Matter

Middle schools with the lowest student achievement in Algebra I are less likely to have teachers with a mathematics authorization than schools with the highest proficiency rates.

Middle School Algebra Teachers with a Math Authorization by Algebra 1 CST Results



STEM Drop-off: Incoming Freshman vs. Bachelor Degrees Issued



CSU & UC, 2007

What we create vs. What we need

New credentials issued
(2006-07)

- Math: 1,800
- Physical Science: 524
- Life Science: 812

Estimated number of
teacher hires (2007-08)

- Math: 2,132
- Physical Science: 879
- Life Science: 1,050

A Decade of Data: Strengthening California's Teacher Workforce



California's Teaching Force

The Center for the Future of Teaching and Learning

Working to improve education for all students by strengthening the teaching profession

www.cftl.org

The Center for the Future of Teaching and Learning
The California State University Institute for Education Reform
Policy Analysis for California Education
The University of California, Office of the President
WestEd

Research conducted by SRI International