

# MATH EDUCATION IN WASHINGTON STATE:

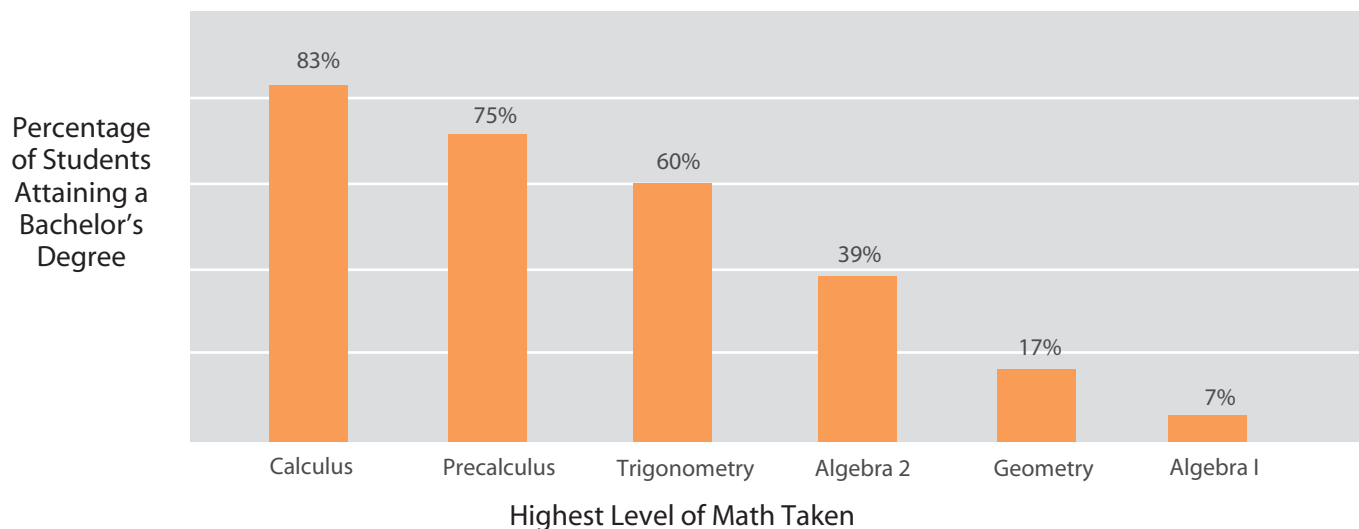
WHERE WE ARE AND WHERE WE NEED TO BE

**Understanding math is vital in today's world, whether students pursue college or enter the workforce directly after high school. Technical innovations and the global economy are changing the nature of work, as well as the skills young people need to be successful.**

Employers are requiring more algebra, geometry, trigonometry, physics and technical literacy from their workers. In 1950, 60% of jobs were "unskilled" and required a high school diploma or less. Today, less than 15% of all jobs are considered "unskilled" and roughly two-thirds of jobs require some amount of college education.

The two years of math currently required for high school graduation in Washington state inadequately prepare students for college or the workplace. Many states now require three to four years of math and a minimum of algebra 2. Systemic reforms in math education must be addressed for our schools to continue preparing students for success.

HIGHEST LEVEL OF MATH IN HIGH SCHOOL IS THE STRONGEST PREDICTOR OF B.A. ATTAINMENT, REGARDLESS OF RACE, FAMILY INCOME OR BACKGROUND



## THE FACTS

- Roughly 50% of Washington high school graduates who immediately enter community or technical college require remedial math classes. And, nearly two-thirds of students who take remedial math courses do not earn degrees.
- 49% of American educators teaching 7th- to 12th-grade math do not hold a degree or full certification in the field of mathematics.
- The math portion of the 10th-grade WASL exam covers material that is typically taught in 7th and 8th grades internationally.
- American 15-year olds perform below the international average in math literacy and problem-solving. And, almost half of American 17-year olds do not have the basic understanding of math needed to qualify for a production associate's job at a modern auto plant.
- The highest level of math taken by a student in high school is the single strongest predictor of his or her chances of attaining a bachelor's degree, regardless of race, background or family income.

## WHAT NEEDS TO BE DONE

- Increase high school graduation requirements to include four years of math and a minimum of algebra 2.
- Improve teacher credentialing in math, recruit qualified math teachers and reduce out-of-field placements.
- Approve a limited number of math curricula aligned to state standards and provide professional development for teachers.
- Make the Washington Math Placement Test available to all 11th-grade students as a tool for assessing progress and making more informed class-selection decisions.

## THE REPORTS

**High School Reform and Work:  
Facing Labor Market Realities**  
[www.ets.org/Media/Research/pdf/  
PICHSWORK.pdf](http://www.ets.org/Media/Research/pdf/PICHSWORK.pdf)

**Closing the Expectations Gap 2006:  
An Annual 50-State Progress Report on  
the Alignment of High School Policies  
with the Demands of College and Work**  
[http://www.achieve.org/files/  
50-statepub-06.pdf](http://www.achieve.org/files/50-statepub-06.pdf)

## MATH REQUIRED FOR GOOD JOBS

Algebra 1, Geometry & Algebra 2	Trigonometry, Precalculus or Statistics		Trigonometry, Precalculus or Calculus
<ul style="list-style-type: none"> <li>■ Arts, A/V Technology &amp; Communications</li> </ul>	<ul style="list-style-type: none"> <li>■ Architecture &amp; Construction</li> <li>■ Business Management &amp; Administration</li> <li>■ Finance</li> <li>■ Government &amp; Public Administration</li> <li>■ Hospitality &amp; Tourism</li> </ul>	<ul style="list-style-type: none"> <li>■ Human Services</li> <li>■ Information Technology</li> <li>■ Manufacturing</li> <li>■ Marketing, Sales &amp; Services</li> <li>■ Transportation, Distribution &amp; Logistics</li> </ul>	<ul style="list-style-type: none"> <li>■ Agriculture, Food &amp; Natural Resources</li> <li>■ Education &amp; Training</li> <li>■ Health Science</li> <li>■ Law, Public Safety, Corrections &amp; Security</li> <li>■ Science, Technology, Engineering &amp; Mathematics</li> </ul>

## THE WEBSITES

Achieve, Inc. <http://www.achieve.org>; American Diploma Project <http://www.achieve.org/node/604>; ACT, Inc. <http://www.act.org>; Programme for International Student Assessment <http://www.pisa.oecd.org>; Washington State Board of Education <http://www.sbe.wa.gov>

Sources: "Out of Field Teaching and the Limits of Teacher Policy," Center for the Study of Teaching and Policy and the Consortium for Policy Research in Education, Sept. 2003; National Center for Education Statistics Program for International Student Assessment; Achieve, Inc.; Clifford Adelman, U.S. Department of Education, *The Toolbox Revisited*, 2006.