

MATH *at* HOME



HELPING
YOUR CHILDREN
LEARN AND ENJOY
MATHEMATICS

UNDER- STANDING THE MATH STANDARDS

The California mathematics standards specify the math concepts your child is expected to learn in each grade. As your child progresses through school, you'll probably find it helpful to know a bit about the standards—or, if you're interested, to explore them in greater depth.

Because of our state standards, the study of mathematics is now more uniform from school to school. Students at the same grade level are learning similar math skills no matter what public school they attend. For parents, the standards provide an opportunity to know exactly what your child should be studying each year and what's required for advancement from one grade to the next.

The California mathematics standards are readily available to parents.

You'll find copies of them in schools, at your county office of education, or on the Internet (www.cde.ca.gov/be/st/ss). Grade-level standards with related examples of math problems are included in the *Mathematics Framework for California Public Schools*, which is available online at www.cde.ca.gov/ci/ma/cf.

While the standards are much too long to include in this booklet—there are hundreds, grouped by grade level—knowing a little about them will help you understand their importance to your child's

education. The standards are based on the belief that every student should:

1. Develop understanding of mathematical concepts and ideas;
2. Develop fluency in basic computational skills;
3. Become a mathematical problem solver;
4. Learn to communicate using mathematical language, symbols, and graphs;
5. Reason mathematically by gathering and analyzing data and information;
6. Connect mathematical ideas with ideas in other subjects.



Photo by Ross Hause

The standards require all students to study five mathematics topics—sometimes called “strands”—as they move from kindergarten through middle school. Each topic area, described below, is rich with learning opportunities. Students delve deeper into the strands as they advance through the grade levels, then concentrate on specialized areas of mathematics in high school.

- **NUMBER SENSE:** Students develop an understanding of numbers and how they are affected by computation. Adding, subtracting, multiplying, and dividing are examples of number sense skills.
- **GEOMETRY AND MEASUREMENT:** Learning concepts in two- and three-dimensional geometry and measurement helps students visualize and explain the world around them.
- **ALGEBRA AND FUNCTIONS:** Through algebra, students learn to translate concrete experiences into equations and formulas that can be broadly applied in science, business, and a wide variety of real-world situations.
- **STATISTICS AND PROBABILITY:** Statistics and probability are the mathematics of prediction, which enables students to interpret data and draw conclusions from it.
- **MATHEMATICAL REASONING:** Using mathematical reasoning, students bring together a variety of skills, strategies, and knowledge to solve new and unfamiliar problems in mathematics and other subject areas.

STANDARDS: MORE THAN ARITHMETIC

Recent national and international studies have shown that students need to learn more than paper-and-pencil arithmetic to thrive in our increasingly complex and technology-rich world. Learning to use and understand step-by-step procedures to solve a variety of problems is an important part of standards-based mathematics instruction today. It is also important for students to learn how to communicate with others about numbers.

These key ideas have changed the way mathematics looks in school—so if you don’t recognize the math your child is learning, don’t be surprised.

Arithmetic skills, although still critical, are no longer enough for students who will graduate into a world marked by advances in science and technology and by changing workplace expectations. So in addition to learning arithmetic in math class, your children will be asked to:

- Solve real-life problems;
- Explain their thinking to others;
- Identify and analyze trends from data;
- Create graphs, charts, and other representations of information;
- Use modern technology to solve mathematical problems.

Instead of math worksheets, your child may have homework that is related to real life—investigating salaries, charting life expectancy, or creating a fictional personal budget. This kind of learning is strongly tied to the six key ideas that frame the state’s mathematics standards. It builds on and develops student learning in the five strands that are outlined in the standards.