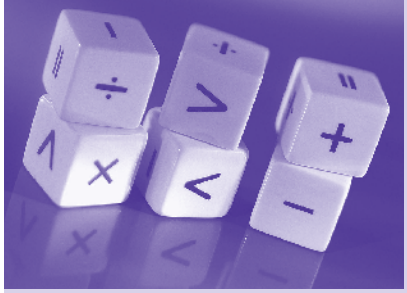

MATH at HOME

HELPING YOUR CHILDREN LEARN AND ENJOY MATHEMATICS

UNDERSTANDING THE COMMON CORE MATH STANDARDS

California has adopted new curriculum and instruction standards called the California Common Core Standards for Mathematics. They represent national agreement on the mathematics that students must understand at each grade level in order to be career- and college-ready when they graduate from high school. The Common Core also lists eight Standards for Mathematical Practice, highlighted below, that describe how mathematically proficient students are expected to use and apply their mathematical knowledge.

1. Make sense of problems

Good students try hard to make sense of a problem, find a way to begin a new problem, and keep working even when a problem is difficult. When they believe they have solved a problem, they think about whether an answer makes sense. If other students did the problem in a different way, they listen to their solutions and try to understand their reasoning.

Photo by Ross Hause

2. Reason abstractly

Good students use numbers in real and abstract ways. They use numbers, math symbols, and equations to represent mathematical relationships in abstract and actual situations. They consider the size and meaning of numbers in different situations, and apply this "number sense" in their thinking and problem solving. Good math students consider whether their answer makes sense and solves the problem.

3. Construct arguments

Good students use all the information they have, and all they the math they know, to find answers. They make intelligent guesses and apply logical thinking to explore and test their ideas. They are able to use math tools such as models, diagrams, calculations, and technology, along with sound mathematical thinking, to explain their answers. They ask good questions and listen carefully to other students' ideas and solutions.

4. Model with mathematics

Good students solve math problems they find in school, at home, and in their daily life. Using mathematical modeling, they work with numbers to find real-world solutions. They make drawings, create diagrams, and build physical and computer models of the problems they encounter. When possible, they write equations that model situations.

5. Use tools appropriately

Good students consider all the math tools available to them for every problem-solving situation, including objects, paper and pencil, calculators, models, spreadsheets, and statistical software. They carefully choose the best tools for any given mathematical situation, and use those tools in the right way to solve the problem.

6. Attend to precision

Good students calculate accurately and efficiently, and share mathematical ideas with others by using the best vocabulary and math notation they know. They take care to make sure the mathematics they do is correct. When they find an error, they redo their work to get the best possible answer for each problem.

7. Look for and use structure

Good students try to discover and observe patterns, logical order, and structure in math situations. They use the order and patterns they discover to help them solve problems. Good students can step back and view the whole picture, while at the same time paying careful attention to individual facts and numbers.

8. Look for repeated reasoning

Good students decide whether to apply a traditional method, use a creative approach, or employ a shortcut in solving a problem. Good students apply what they've learned in similar problems and continually check their progress as they work. They use their experience and observation of patterns to solve similar problems efficiently.

The full text of the *Common Core Standards for Mathematical Practices* can be found at www.corestandards.org/Math/Practice

STANDARDS: MORE THAN ARITHMETIC

Studies show that students need to learn more than paper-and-pencil arithmetic to thrive in our increasingly complex and technology-rich world. That's why mathematics instruction is changing with the Common Core Standards. These standards focus on preparing students for college and career, so they take real-world applications into account. With the new standards, mathematics learning goes beyond the use of step-by-step procedures and engages students in solving problems in both traditional and creative ways.

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 changing workplace expectations. In addition to learning arithmetic in math class, your children will now 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 children may have homework that is related to real life—investigating patterns, mapping their neighborhood, or creating a personal budget. This kind of learning builds a deeper understanding of mathematics and its uses in the world.