Everyday Mathematics in the Classroom

Background

- Developed by the University of Chicago School Mathematics Project
- Based on decades of research about how children learn and develop mathematical power
- Provides the broad mathematical background needed in the 21st century
- Succeeded for over 30 years in helping children all over the world develop mastery of mathematics

In *Everyday Mathematics* you can expect to see...

...a problem-solving approach based on everyday situations;

...an instructional approach that revisits concepts regularly;

...frequent practice of basic skills, often through games;

...lessons based on activities and discussion, not a textbook; and

...mathematical content that goes beyond basic arithmetic and is fully aligned with the Common Core State Standards.

Everyday Mathematics. How Children Learn.

Think about the master chefs you see on television—how do they acquire their knowledge and skills? No one starts out chopping onions at high speed, inventing their own dishes, or running a restaurant! Chefs develop their cooking expertise over time, starting with basic skills and easy recipes. Gradually, they practice these skills, learn important food science concepts, and gain experience by cooking in many different restaurants.

Similarly, *Everyday Mathematics* is based on the idea that children build understanding and develop skills as a result of many meaningful and connected learning experiences. Depth of knowledge and mastery of mathematics procedures, concepts, and applications comes with repeated exposures and practice over time, not after just one lesson. These repeated exposures enable children to make new connections and build on the mathematical content they already know while gradually learning more difficult and challenging content. This approach has been shown effective by decades of research.

To help children develop deep knowledge and enduring mastery of mathematics, *Everyday Mathematics* returns again and again to key grade-level content in different context across months or years, first with informal exposure and then through more formal and directed instruction. In this way, the program has a spiral design. For example, children will have many different hands-on experiences with subtraction—they will take items away from a set, count backwards on a number line, and make up number stories—and invent their own subtraction methods before they learn standard procedures for subtraction.

The spiral design of *Everyday Mathematics* allows your child to gain a deeper understanding of mathematical concepts, a much more solid mathematical foundation, and experience with content in a range of mathematical domains each year.

How can you help? Because homework is one way children revisit concepts, you can support your child by helping with Home Links and playing math games at home when they are assigned.

As your child progresses though this school year, watch for and talk about the ways in which he or she is making connections within and among mathematical topics and deepening his or her knowedge with each repeated return to procedures, concepts, and applications.

Content and Practices Emphasized in Grade 1

Mathematical Content Emphasized in Grade 1

In *Everyday Mathematics*, children learn and master procedures, concepts, and applications in these four Common Core State Standards content domains. The first-grade program emphasizes the following content.

Operations and Algebraic Thinking

Understanding addition, subtraction, and strategies for addition and subtraction within 20; representing and solving problems involving addition and subtraction; understanding and applying properties of operations and the relationship between addition and subtraction; adding and subtracting within 20; working with addition and subtraction equations

Number and Operations in Base Ten

Extending the counting sequence; understanding whole number relationships and place value, including grouping by tens and ones; using place-value understanding and properties of operations to add and subtract

Measurement and Data

Understanding linear measurement as repeating length units; measuring lengths indirectly and by repeating length units; telling and writing time; representing and interpreting data

Geometry

Reasoning with shapes and their attributes; composing and decomposing geometric shapes

Mathematical Practices Emphasized in Grade 1

Children also develop the following Common Core State Standards mathematical practices as they learn the first-grade content. Children begin developing these processes and habits of mind in *Kindergarten Everyday Mathematics* and continue to approach mathematical content in these same eight ways with increasing proficiency through *Sixth Grade Everyday Mathematics*.

Mathematical Practices

Make sense of problems and persevere in solving them.
Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.
Model with mathematics.
Use appropriate tools strategically.
Attend to precision.
Look for and make use of structure.
Look for and express regularity in repeated reasoning.

How to Help Your Child with Mathematics

Create a homework routine.
Familiar routines help work go smoothly at school *and* at home. With your child, decide on a time and place to do homework, create a storage area for sharp pencils and other homework supplies, and agree on a routine. A typical math homework routine might be as follows:

Come home, have a snack, and clear a space at the table. Then start math homework. Circle problems you want help with. After you complete your homework, put it in your school bag.

Read Family Letters and Home Links.
These pages describe what your child is learning so that you can help. They also suggest fun and easy math activities you can do at home. Consider keeping all of these pages in a special folder to refer to later.

Communicate with the teacher.
You are the link between your child and school, and it is your responsibility to share your thoughts and concerns with the teacher. Call or write a note if your child has had trouble with homework, ask questions if you or your child does not understand something, and share good news when you see progress.

Ask your child to explain.
Encourage your child to teach you the day's math lesson using the problems in the Home Link. Ask questions about the steps your child uses to solve a problem, such as *Why did you put that number there?* or *What does that zero mean?*

Use questions to help.
Although it is tempting to give children answers when they are confused, they learn more if you help them discover the answers for themselves. Try doing this with questions such as these:

- *Have you seen problems like this before? Is there an example anywhere that might help?*
- *What is the problem asking you to do or to find?*
- *What is one idea you have for finding an answer?*
- *Can you draw a picture of the problem? Can you use objects* (like coins, beans, and so forth) *to show the problem?*

Be accepting of mistakes.
Let your child know that every mistake is an opportunity to learn. When your child makes a mistake, ask him or her to explain how he or she arrived at the answer, give praise for the correct steps or thinking, and gently point out where the error occurred. Then have your child try a similar problem (you may have to make one up) to practice the new understanding.

Play math games.
Games that are included in the *Everyday Mathematics* program and commercial games that involve mathematical thinking will help your child master skills. Your child's teacher can give you a list of popular commercial games with mathematical components.

Observe a mathematics lesson in your child's classroom, or volunteer to help.
Visit your child's classroom—it's the best way to find out more about *Everyday Mathematics*. When you volunteer to help with activities, you also learn a great deal. Do not worry if you're not a math expert—teachers always appreciate an extra hand and will find ways to use your skills.

Read *My Reference Book* (for Grades 1 and 2) or the *Student Reference Book* (for Grade 3) with your child.
Many schools periodically send home this "math encyclopedia" for families and children to use together. Choose a page or section related to the day's Home Link, and read it together. Try the activities or questions at the end of the section with your child. You will also find directions to many of the math games that your child plays in school. You can also access a digital version of your child's reference book in the Student Learning Center.

Share real-life math situations.
Think about the ways you use math in your everyday life—at work, at the store, at the bank, in the kitchen, and so forth. Invite your child to observe or participate in these activities with you. Encourage your child to think mathematically about common activities, such as folding laundry or taking out the garbage—*How many socks in 12 pairs? About how many pounds does a bag of trash weigh?*

Give gifts that encourage mathematical exploration.
Children love special gadgets and tools, as well as games and activities that challenge their minds. Giving a gift related to math is a good way to reinforce and reward your child's accomplishments. Here are some ideas: a watch, a timer, an hour glass (egg timer), a calendar, a tape measure, a calculator, pattern blocks, books of brainteasers, 3-dimensional building kits, puzzles, maps, and a wide variety of games.