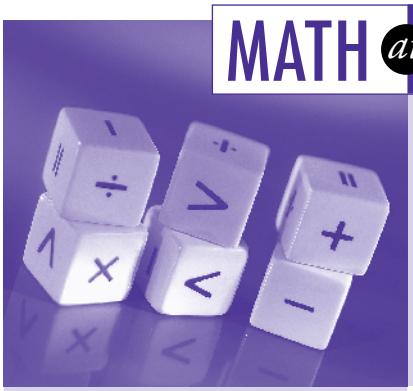

MATH at HOME

HELPING YOUR CHILDREN LEARN AND ENJOY MATHEMATICS

ENGAGING ENGLISH LEARNERS IN MATH

Teachers have discovered a number of techniques to supplement spoken and written math instruction in order to help English learners grasp mathematical concepts. These hands-on strategies work just as well at home as in the classroom and are great resources for parents looking to support their children's math learning. If you are the parent of English-language learners, encourage your children to use techniques like the ones described below. Remember, the more opportunities that your children have to hear, see, and respond to math situations and problems, the more likely they are to learn mathematics quickly and correctly.

DRAW PICTURES AND DIAGRAMS

Pictures and diagrams can build understanding while minimizing the language needed to communicate mathematical ideas. Many math concepts can be pictured clearly and easily in drawings that require few, if any, words. This makes using diagrams an excellent way for students with limited English to "see" math and share their mathematical thinking with others. Drawing diagrams also helps students organize their work and find solutions to math problems with greater ease.

Children don't automatically draw pictures to learn math, so it helps if adults suggest using this approach. You can also show them how to do this by drawing pictures yourself as you solve math problems. The concept of multiplication, for example, can be illustrated by drawing equal rows of circles. This drawing represents 4 x 6:

O O O O O O
O O O O O O
O O O O O O
O O O O O O

The number of rows (4) multiplied by the number of circles in each row (6) tells you the number of circles (24). Children can verify that 4 x 6 = 24 by actually counting all of the circles in the diagram.

PRACTICE WITH BLOCKS AND BEANS

Objects that children can handle and sort can create hand-to-eye-to-brain connections that make a positive difference in learning math. In the classroom, teachers often use small blocks and plastic counters (known as manipulatives) to show students how math concepts work. At home, your children can practice simple addition, subtraction, multiplication, and

division problems using similar objects. Something as simple as dried beans can help your children learn a math concept at the kitchen table, giving them the opportunity to see what they didn't quite grasp when it was explained in words. Other objects, shapes, and puzzles can help them learn more advanced concepts, like those in geometry.

Ask your children's teachers to suggest how objects found at home can be used to reinforce what's being taught in school. You may find that your children enjoy mathematics more, and learn more, if both their hands and minds are involved.

Build meaning in real situations

For many students, mathematics seems too abstract. When it can be related to things they see and do in everyday life, the concepts become real and meaningful.

The interplay of money and mathematics provides a great example. Thinking in terms of dollars, dimes, and pennies can help students learn addition, subtraction, and the base 10 system as they're used in the real world. Changing 10 pennies into a dime and 10 dimes into a dollar teaches children about "regrouping."

Learning about geometry by taking a walk around town and looking for geometric shapes is another real-world math lesson. After all, traffic signs, buildings, clocks, automobiles, and playing fields all have geometric shapes.

Talk and write about math

Putting math concepts into words is the most advanced math-learning strategy for students who are also learning English. Talking and writing about math may be difficult at first, but it can be rewarding! When students learn to express their mathematical ideas in words, it builds math and language skills at the same time.

Encourage your child to start slowly, then expand a little bit at a time. Here's one example, which can be done in English or your home language. Begin by asking your child draw a picture of a math situation or problem, such as "How many wheels do three tricycles have?" Then, ask your child to make up a title for the picture, like "3 Tricycles," and write it at the top of the page. If your child is young, start by simply talking about the drawing, doing the writing yourself, or taking turns writing. Gradually transition your child to doing all the explaining and writing him/herself.

Next, identify each part of the drawing and say or write a sentence to explain it: "My drawing shows that there are 9 wheels on 3 tricycles." (Make sure to use a complete sentence.) If you do activities like this regularly, your child will soon be talking and writing about every math situation!

The secret to putting math into words is that the more often children do it, the more comfortable they become in expressing their mathematical thinking. This is a very important skill for success in math throughout all grade levels.