A Parent's Guide to
Helping Your Child With Today's Math

This guide was developed to provide parents with information they can use to help their children with today's mathematics.

Math looks different these days.

When you visit your child's mathematics classroom, it may look different from what you remember. 2 apples + 2 apples still equals 4 apples, and 7 x 8 is still 56, but now you're likely to see students counting real apples instead of just seeing them in a book. The math hasn't changed, but how we look at it has.

We want ALL students to realize that math is more than adding, subtracting, multiplying and dividing. We want children to be able to connect math to their everyday lives. We know that every child is capable of achieving in math topics such as geometry, data and statistics, algebra, and measurement — topics we've traditionally thought of as only accessible to some.

My child's teacher says that the mathematics curriculum is problem-based. What does that mean?

Teachers are now designing mathematical tasks that ask students to think deeply about math and how that math is part of their real lives. The problems students encounter won't be the two problems at the end of the lesson page that we all remember, but they'll be "real" problems that use math in a "real" way. It may be a problem that takes the children an hour, or perhaps several, to solve. There may be multiple ways to solve the problem. (See sample problems.)

My child talks about working in pairs and groups in math. Is this helpful?

Research shows that students working together enhance learning. Working together provides time for students to talk about the math they understand and the math they don't understand. This also provides more opportunities for more students to talk and allows the teachers to hear more students' thoughts and ideas.

Many different materials seem to be used in math. I hear about pattern blocks and algebra tiles. How are they helping my child learn math?

Materials like pattern blocks and algebra tiles help students make sense of math. Psychologists believe that all students need to understand concepts at a concrete level before they move onto abstract ideas. Some materials inherently have math concepts connected to them and help students bridge their understanding of math concepts (sixth graders may fill a box with 1-inch cubes as they learn about volume, and fourth graders may make fraction kits to help them understand fractional parts).

My child's homework in so different from when I was in school. How do I help?

Today's homework is different, and the amount may be different too. Today's teachers know that practice is still important, and students will continue to do that. However, we also know from research that students need activities and tasks that ask them to delve deeper into the concepts and content of mathematics. Because of this, there may be fewer problems assigned, but these problems will require students to think more deeply

about math and make connections to math in their own lives. You can help your child by participating in a Family Math Night or helping your child collect real data at home for a statistics project.

I see fewer graded papers coming home than I remember bringing home to my parents. How is my child being evaluated?

Teachers continue to use traditional paper and pencil tests as well as district and statewide tests to help them make decisions about instruction and assessment. However, teachers are also using tried and true methods of "kid watching." Watching students while they work in pairs and alone provides teachers with valuable information about your child's progress. Students are asked to communicate their understanding in a variety of ways. They may be asked to keep a math journal and write about the math they are learning. For example, after learning a concept your child may be asked to write and describe how he would teach that concept to a younger child. Teachers can learn a great deal about a student's understanding this way.

What resources are available to help me support my child's interest in math?

Web Sites
> *NEA's mathematics topic area* - www.nea.org/math/
> *The National Council of Teachers of Mathematics* - www.nctm.org/
> *FigureThis!* - www.figurethis.org/
> *The Math Forum at Drexel University* - www.mathforum.org/parents.citizens.html

Books
> *Beyond Facts & Flashcards; Exploring Math With Your Kids* by Jan Mokros
> *50 Simple Things You Can Do To Raise a Child Who Loves Math* by Kathy A. Zahler
> *Math Power: How to Help Your Child Love Math, Even If You Don't.* by Patricia Clark Kenschaft
> *Math: Facing an American Phobia* by Marilyn Burns

Sample Problems:

> Students in second grade may be asked to solve 13 + 39. Some students may answer it using a traditional algorithm (adding the ones and then the tens to get the answer, trading when they need to.) Other students may start by adding the 10's – 10 + 30 is 40 – and then going to the one's – + 3 is 43 + 9 is 52. Others might say 9 + 3 = 12, 10 + 30 = 40, and 40 +12 is 52.

> Students at various grade levels can solve the following algebra problem in numerous ways:

> A farmer sends his daughter and son out into the barnyard to count the number of chickens and pigs. When they return the son says that he counted 200 legs and the daughter says she counted 70 heads. How many pigs and chickens does the farmer have?

> A student well versed in algebra might do the following to set up the problem: p = pigs, c = chickens. $p + c = 70$ (heads) $4p + 2c = 200$ (pigs have 4 legs and chickens have 2 legs). These two equations may be used to solve the problem. Students might solve this problem by "guessing and checking," or drawing pictures. Some methods of solving problems might be considered more "efficient." That may be true, but the correct answer can be found using multiple methods. Children think about mathematics in different ways depending on their prior experiences at home and school. By allowing students to think flexibly about numbers, we encourage them to "own" the math forever, instead of "borrowing" until class is over. *(Answer: 40 chickens and 30 pigs)*