

Helping Your Children Learn Math

"The first teachers are the parents, both by example and conversation."
- Lamar Alexander

Helping Your Children with Homework

In helping children learn, one goal is to assist children in figuring out as much as they can for themselves (e.g., constructing meaning). You can help by asking questions that guide, without telling what to do.

Good questions and good listening will help children make sense of mathematics, build self-confidence, and encourage mathematical thinking and communication. A good question opens up a problem and supports different ways of thinking about it. Here are some questions you might try; notice that none of them can be answered with a simple "yes" or "no."

Getting Started

- What do you need to find out?
- What do you need to know?
- How can you get the information?
- Where can you begin?
- What terms do you understand or not understand?
- Have you solved similar problems that would help?

While Working

- How can you organize the information?
- Can you make a drawing (model) to explain your thinking?
- Are there other possibilities?
- What would happen if...?
- Can you describe an approach (strategy) you can use to solve this?
- What do you need to do next?
- Do you see any patterns or relationships that will help solve this?
- How does this relate to...?
- Can you make a prediction?
- What did you...?
- What assumptions are you making?

Reflecting about the solution

- How do you know your solution (conclusion) is reasonable?
- How did you arrive at your answer?
- How can you convince me your answer makes sense?
- What did you try that did not work?
- Has the question been answered?
- Can the explanation be made clearer?

Responding (helping your children clarify and extend their thinking)

- Tell me more.
- Can you explain it in a different way?
- Is there another possibility or strategy that would work?
- Help me understand this part...

Helping your children get organized

1. Provide a study place. If possible, have the following materials readily available:
 - calculator (graphing for 7th-12th grade)
 - graph paper and notebook paper
 - ruler with both metric and standard units
 - dictionary
2. Many children need assistance in organizing and maintaining a notebook. Help them develop a system for organizing and maintaining notebook and notes.
3. Help your children develop a system for writing down assignments, as well as keeping track of progress. Some schools provide student planners or assignment sheets, but that does not mean children use them consistently. Check to make sure that they are being used consistently and appropriately.
4. Help your children develop a system for taking meaningful notes. Frequently, note taking is taught during class, so it may just be a matter of seeing if your children are taking and using notes.
5. Encourage your children to identify study buddies or another math student they can call to work with on assignments, get clarification, find out about makeup work, etc. Some parents have established study teams and times, so that students have planned opportunities to study together after school.
6. Encourage and expect children to get work done on time, to stay caught up, to get help in a timely manner, and to correct errors in work. You may want to help children go over incorrect or incomplete work and talk about how the work could be improved.
7. It is generally expected that middle school students know the basic addition, subtraction, multiplication and division facts as well as whole number computation. If your children are not proficient with these skills, help them master the needed skills.

Helping your children develop positive attitudes about math

Most parents enjoyed reading to their young children. It set an example, established a positive attitude toward reading, and developed a value that reading is both fun and important. Similarly, the parent's attitude and approach to math at home impact the importance and value that students place on learning mathematics in school.

We have tried to provide some practical suggestions to help parents help their children learn mathematics. While the information is not comprehensive, we hope it gives you some additional tools with which to help your children.

How do **you** feel about math?

Your feelings about mathematics will have an impact on how your children perceive and value mathematics, as well as how they view themselves as mathematicians. Take a moment to think about these questions:

- *Did you like math in school?*
- *Do you think everyone can learn math?*
- *Do you believe girls are as good at math as boys?*
- *Is it just as important for girls to learn math as boys?*
- *Do you think of math as important and useful in everyday life?*
- *Do you believe that most jobs today require math skills?*
- *How are your attitudes about math impacting your children's attitudes?*

Two important goals for all students are that *1) they learn to value mathematics* and *2) they become confident in their ability to do mathematics*. Parents can help children develop a "can do" disposition toward math, by nurturing their children's natural curiosity and providing support and encouragement.

Doing math at home

1. Math is everywhere, yet many children don't see it. Look for ways to point out and reinforce math skills at home. For example:
 - talk about how you use math at work or in the home
 - involve children in tasks that require computing, measuring, estimating, building, following directions, problem solving and reasoning
 - look for activities that require children to use their math skills such as building scale models, cooking, planning trips, and playing logic games
2. Look for games and activities that teach and/or reinforce math and thinking. For example, look for games that:
 - require and develop skill with mental computation and estimation
 - require players to use their math skills
 - involve the development of strategies
 - require players to think about the probability of certain events occurring
 - require the use of spatial visualization skills
 - require logical thinking
3. When you see articles that have data that might interest your children (e.g., sports statistics, data on teenage smoking, facts about natural disasters), share them and talk about what the numbers mean.
4. Share your problem-solving strategies and techniques, mental computation strategies, and estimation strategies. Have your children teach you some. Work on the same problem, then compare strategies as well as answers.
5. Invite your children to explain what was learned in math class or have them teach it to you. It provides an opportunity for children to help clarify their thinking, to practice new skills, and to practice communicating mathematically.
6. If your children have access to a computer, look for software that reinforces and teaches math concepts. Help your children learn to use math utilities such as spreadsheets and graphing programs.