

COGNITIVELY GUIDED INSTRUCTION IN DUSD

What Parents Can Do to Help their Child with Mathematics

Listen to your child's thinking and ask questions

- Why do you think that?
- Can you explain how you got that?
- How do you know?
- Does your answer make sense?
- Can you solve it a different way?

Practice/reinforce strategies used at school

- Try not to tell your child a strategy. The strategy will come with understanding and practice. If your child is stuck, try to help them make sense of the problem by asking questions.
- Ask your child word problems as they come up in every day life.
- Always ask 'WHY?'

Helping Your Child Learn Mathematics

Booklet created by the Department of Education

Introduction

What kind of attitude do you have toward math? Do you believe that math skills are important job and life skills? Do you see math as useful in everyday life? Or do you dread doing things that involve math—figuring out how much new carpet you'll need, balancing the checkbook, reading the technical manual that came with the DVD player? How you answer these questions indicates how you may be influencing your child's attitudes toward math—and how he approaches learning math.

If America is going to stay the best place to do business in the world, we must have the best math students.

— Margaret Spellings
U. S. Secretary of Education

Although parents can be a positive force in helping children learn math, they also can undermine their children's math ability and attitudes by saying things such as: "Math is hard," or "I'm not surprised you don't do well in math, I didn't like math either when I was in school," or "I wasn't very good in math and I'm a success, so don't worry about doing well." Although you can't **make** your child like math, you can encourage her to do so, and you can take steps to ensure that she learns to appreciate its value both in her everyday life and in preparing for her future. You might point out to her how fortunate she is to have the opportunity to learn mathematics today—when mathematics knowledge can open the door to so many interesting and exciting possibilities.

In everyday interactions with children, there are many things that parents can do—and do without lecturing or applying pressure—to help children learn to solve problems, to communicate mathematically and to demonstrate reasoning abilities. These skills are fundamental to learning mathematics.

Let's look closely at what it means to be a problem solver, to communicate mathematically and to demonstrate mathematical reasoning ability.

A problem solver is someone who questions, finds, investigates and explores solutions to problems; demonstrates the ability to stick with a problem to find a solution; understands that there may be different ways to arrive at an answer; and applies math successfully to everyday situations. You can encourage your child to be a good problem solver by including him in routine activities that involve math—for example, measuring, weighing, figuring costs and comparing prices of things he wants to buy.

To communicate mathematically means to use mathematical language, numbers, charts or symbols to explain things and to explain the reasoning for solving a problem in a certain way, rather than just giving the answer. It also means careful listening to understand others' ways of thinking and reasoning. You can help your child learn to communicate mathematically by asking her to explain what she must do to solve a math problem or how she arrived at her answer. You could ask your child to draw a picture or diagram to show how she arrived at the answer.

Mathematical reasoning ability means thinking logically, being able to see similarities and differences in objects or problems, making choices based on those differences and thinking about relationships among things. You can encourage your child's mathematical reasoning ability by talking frequently with him about these thought processes.

Some Important Things Your Child Needs to Know About Mathematics

You can help your child learn math by offering her insights into how to approach math. She will develop more confidence in her math ability if she understands the following points:

- 1. Problems Can Be Solved in Different Ways.**

Although most math problems have only one answer, there may be many ways to get to that answer. Learning math is more than finding the correct answer; it's also a process of solving problems and applying what you've learned to new problems.

- 2. Wrong Answers Sometimes Can Be Useful.**

Accuracy is always important in math. However, sometimes you can use a wrong answer to help your child figure out why she made a mistake. Analyzing wrong answers can help your child to understand the concepts underlying the problem and to learn to apply reasoning skills to arrive at the correct answer. Ask your child to explain how she solved a math problem. Her explanation might help you discover if she needs help with number skills, such as addition, subtraction, multiplication and division, or with the concepts involved in solving the problem.

- 3. Take Risks!**

Help your child to be a risk taker. Help him see the value of trying to solve a problem, even if it's difficult. Give your child time to explore different approaches to solving a difficult problem. As he works, encourage him to talk about what he is thinking. This will help him to strengthen math skills and to become an independent thinker and problem solver.

- 4. Being Able to Do Mathematics in Your Head Is Important.**

Mathematics isn't restricted to pencil and paper activities. Doing math "in your head" (mental math) is a valuable skill that comes in handy as we make quick calculations of costs in stores, restaurants or gas stations. Let your child know that by using mental math, her math skills will become stronger.

- 5. It's Sometimes OK to Use a Calculator to Solve Mathematics Problems.**

It's OK to use calculators to solve math problems—sometimes. They are widely used today, and knowing how to use them correctly is important. The idea is for your child not to fall back on the excuse, "I don't need to know math—I've got a calculator." Let your child know that to use calculators correctly and most efficiently, she will need a strong grounding in math operations—otherwise, how will she know whether the answer she sees displayed is reasonable!