

Question: My daughter struggles with math at school. What can I do at home to help her?

There are several fun ways you can help your child with math by promoting the life skill of Making Connections.

Making Connections is at the heart of learning—figuring out what's the same and what's different, and sorting these things into categories. Making unusual connections is at the core of creativity. In a world where people can Google for information, it is the people who can see connections who are able to go beyond knowing information to using this information well.

1

Play board games.

Researchers Robert Siegler of Carnegie Mellon University and Geetha Ramani of the University of Maryland found that children entering kindergarten differed on their ability to understand mathematical ideas and wondered if playing board games might help. In one experiment, they created a simple game based on Chutes and Ladders in which they asked children to spin a spinner and say the corresponding number names in order to advance on the game board. For example, if a child is on space number five and is going to advance two spaces, she has to say “six and seven.” This game proved effective in increasing children's ability to count, to understand which numbers are bigger or smaller than others and to read numbers.

Children playing the same game—but with colors, not numbers—didn't make the same advances in their ability to understand these mathematical ideas.

By playing board games, children gain information about numbers, but they're also promoting the skill of Making Connections. They're learning math concepts. For example, that:

- The number on the spinner or dice stands for a rule—whether to advance one or two or more spaces;
- Each space on the board stands for one number—that is, there is one-to-one correspondence between the number name and the number on the board;
- Each number is connected to the next number in a sequence, from small to large numbers; and
- There is a linear relationship between the numbers from one to ten; that is, each number in the sequence is one larger than the previous number.

2

Let your child explore the arts.

Michael Posner of the University of Oregon found that when children have training in the arts, they learn to pay attention, to stay focused and to resist distraction, noting that these skills lead to improvements in “fluid intelligence and in IQ.”

The Dana Foundation convened a group to investigate the connections among learning, arts and the brain. In their report of their findings, they stated:

There is growing evidence that learning of the arts—whether it be music, dance, drama, painting—has a positive impact on cognitive life.

Specifically, they reported:

- Links between the practice of music and skills in geometry;
- Correlations between music training and learning to read, perhaps through an increased ability to differentiate sounds; and
- Connections between training in acting and improvements in memory.

3

Practice in using mathematical ideas at home and in everyday activities can be fun as well as useful.

Kurt Fischer of Harvard University says:

When we look at how people build knowledge in the short term, one of the most basic processes we see is that people need to build knowledge over and over and over and over in order to get more stable knowledge.

There is no end to the things you can count or sort—the number of steps to the front door, the number of times you need to twist the can before it opens, the number of minutes until it is time to leave home, the number of white socks versus blue socks. In addition:

- Ask your child to help keep track of costs at the grocery store or plan and budget a meal; and
- Let your child help you measure ingredients as you cook together.

4

Encourage your child to set goals and make a plan to achieve them.

You can help your daughter make connections by setting a goal, something that she wants to achieve and breaking it down into concrete steps to achieve this goal. By spelling out these

steps, math skills are being developed. For example:

- If she wants to purchase something, help her set up a savings plan by calculating how much she needs and developing a work plan; or
- If she wants to learn something new, set a timeline and create action steps with her. It is always a good idea to discuss your concerns with your child's teacher.