

**Question:** My son just turned four years old, and he does not want to learn how to count past five. I've tried flashcards, videos and books. How can I help my son learn math?

Children have what researchers call a number sense from early infancy on: they can tell the difference between large and small numbers of things. We can build on this early ability in positive or negative ways. Susan Levine from the University of Chicago says:

*What we're finding in our studies is that early input plays a role in whether children are good at math. Whether people consider themselves a math person or not a math person may be related to the teaching they receive.*

You can build math skills 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

### Use “math talk” often.

One of the best ways to help your son become a “math person” is by helping him make connections between his experiences and math ideas—numbers, amounts and shapes—in everyday ways. For example, you could say:

- “How many people will be here for dinner? Let's count the people, so we put out enough forks.”
- “Do you think this old shirt still fits you? Let's measure it against the shirt you wore yesterday to see if it is the same size, bigger or smaller.”

2

### Reinforce words with objects or gestures.

When you point or use objects, it will make a difference in how your child learns math. For example, you can say:

- “We need to push the number three on the elevator.” Hold up three fingers and then count the floors as you pass them in the elevator.
- “We have five people eating with us, let's count five forks.” Point to each fork as you count to five.

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### Think of math as a language that you want your child to become fluent in.

You can think of math as a “language” that helps your son make sense of his everyday experience instead of thinking of math as memorizing how to count to five and other facts and figures (typically taught through math exercises, flashcards, videos, etc.). It is useful to imagine learning a new language other than the one you typically speak—a language that has unfamiliar symbols for letters. If you were presented with a list of these symbols to memorize, it would probably be harder than if you were around others who use this language and symbols in their everyday life. The same is true for helping your son with math. If you use math ideas as a part of everyday experiences, your son is less likely to resist learning math and more likely to become fluent.

4

### Encourage play with building materials.

Children learn math concepts through play. Roberta Golinkoff of the University of Delaware and Kathy Hirsh-Pasek of Temple University compared the play of preschool-aged children in three groups. The first group was given a prebuilt block structure and invited to play with it. The second group was given blocks and told what to build. The third group was given blocks and simply invited to play. They found that the children in the third group were more likely to use words and concepts related to space and math ideas (e.g. next to, behind, biggest and littlest) than the other two groups

Making Connections is learning what symbols represent; these connections are the basis for learning math. You can use anything that children can build with, such as old boxes or pillows.

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### Give children family work that involves counting, categorizing and sorting. For example, have your son help you:

- Measure ingredients as you cook together;
- Sort laundry by colors; or
- Arrange canned goods by categories (soups, vegetables, beans, etc.).

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### Play games.

In one experiment, Geetha Ramani of the University of Maryland and Robert Siegler of Carnegie Mellon University had four-year-old children play a board game based on Chutes and Ladders. When they spun the spinner to move forward, the researchers asked the children to count the numbers on the spaces out loud. For example, if a child landed on a five and the spinner said to move ahead two spaces, the child was to count, “six, seven.” This game proved effective in improving children’s ability to count, to understand which numbers are bigger or smaller than others, and to read numbers.

When children play games (board games and card games), they are gaining information and getting better at the skill of Making Connections.