Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

Vinton Elementary School
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INFO BITS

Think logically

Mathematical thinking comes into play anytime we organize things. Help your child stretch his logical thinking by asking him to sort something, such as the spice jars in your cupboard. He might arrange them alphabetically, by color, or another way. Point out that sorting makes it easier to find items later.



Shorter days

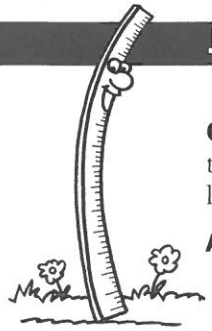
How does a scientist say it's the first day of fall? She says it's the *autumnal equinox*. After the equinox, the days (or daylight hours) get shorter than the nights. This year the equinox is September 23. Have your youngster record what time the sun rises and sets each day for a week. How do the minutes of daylight change?

Book picks

The Man Who Counted: A Collection of Mathematical Adventures (Malba Tahan) combines an adventure story with interesting math puzzles.

Learning about the solar system is fun when planets tell the story themselves. Dan Green's *Astronomy: Out of This World!* contains fascinating facts and details along with cartoon illustrations your child is sure to love.

Just for fun



Q: What has three feet but no legs or arms?

A: A yard.

Fractions of fun



Understanding fractions is much easier when your child can visualize them. Here are ideas to help her see—and use—fractions.

Keep a diary

Show her that fractions are a part of everyday life. For a week, have her record and illustrate each one she notices. For instance, she might write, "We had a half day of school today," or "Mom asked for $1\frac{1}{3}$ pounds of turkey at the store." How many examples can she find and draw?

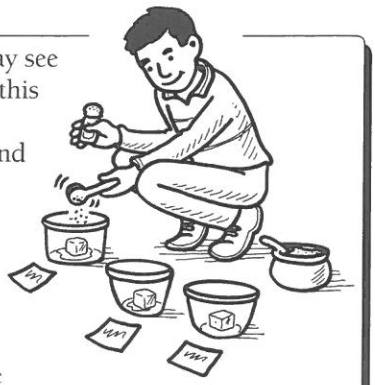
Play a game

Have each player cut a sheet of construction paper into six horizontal strips. She should leave the first one whole and then cut the second one in half (fold it, and cut along the fold), and the others into thirds, fourths, sixths, and eighths. With bits of masking tape, label a die: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, and "wild." To play, roll the die, and lay the matching piece of paper on your whole strip (for "wild," choose any piece). The goal is to be the first one to fill your strip without overlapping any pieces (*example:* $\frac{1}{2}+\frac{1}{4}+\frac{1}{4}=1$ whole strip).

Put in order

Together, make a set of fraction cards, with one fraction per index card ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2). Shuffle the cards, and see how quickly your youngster can put them in order. Then, while she closes her eyes, lay the cards in order but leave out a few. Give her the missing cards, and have her put them where they go.

Melting ice



When it's icy out this winter, your youngster may see salt being sprinkled on sidewalks and roads. With this experiment, he'll find out why.

Have him gather three clear plastic containers and place an ice cube in each one. Next, he should sprinkle 1 tsp. salt on one cube and 1 tsp. sugar on the second cube. Suggest that he label each container ("salt," "sugar," "plain"). Then, he should monitor the cubes and time how long it takes each one to melt.

The result? Your child will find that the "salt" cube melts the fastest. That's because salt lowers the freezing point of water, causing the ice that it touches to melt.

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Multiply and divide

Learning to multiply and divide can be more about *thinking* than memorizing. Strategies like these can help your child practice.

Make it fun. Practice using toys or food. If your child collects toy animals, you might ask, "How many legs do 4 horses have?" He can "skip count" the legs by 4s (4, 8, 12, 16) to see that 4 x 4 = 16. If he has 17 pretzels and wants to give 3 friends an equal amount, he can "deal them out." He'll see that each person gets 5, and there are 2 left over. (17 ÷ 3 = 5, remainder 2)



Use what you know. Encourage your youngster to look for clues to help him solve problems. For 8 x 7, he could consider other facts he knows. "I know 4 groups of 7 = 28. I need 8 groups, so I can double that answer. If 28 + 28 = 56, then 8 x 7 = 56." For 30 ÷ 5, he might say, "I know 10 ÷ 5 = 2. There are three 10s in 30, and 3 x 2 = 6. So 30 ÷ 5 must be 6."

Q & A Show interest in math

Q: *I've never felt comfortable with math. How should I talk to my children about what they're learning in math class?*

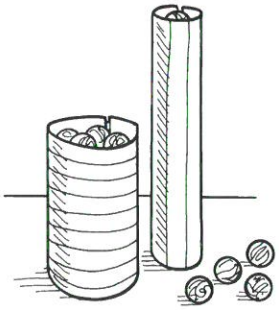
A: Try to show enthusiasm for what your youngsters are doing in math. You might ask them each day at dinner or homework time what they studied in math that day. Let them explain the concepts they're working on, and follow up with questions. For instance, if they're learning about decimals, you could ask how decimal points are used in money (they separate the parts of a dollar from the whole dollar).



Then, when your children finish their homework, have them show you how they solved a few problems. As they explain their methods to you, they'll be reinforcing their own skills. And they'll be proud to be teaching you something!

MATH CORNER Measuring volume

Which popcorn container does your youngster want at the movies? Have her do this activity to find out!



Ask her to roll two index cards into cylinders—one vertically and one horizontally—so the edges just touch, and tape them closed. One cylinder will be tall and skinny, and the other one short and wide.

Then, have her predict how many (same-size) marbles each tube could hold. Will the totals be the same? To test her prediction, let her fill each tube with marbles and count. How can she explain the result?

Your child may be surprised to find the shorter, wider cylinder holds more. That's because the radius of a cylinder has a greater effect on its volume—the amount of space inside a 3-D object—than its height does. So when she's ordering popcorn, she might prefer the shorter, wider cylinder to the taller, skinnier one!

SCIENCE LAB Where did the green go?

This experiment uncovers a surprising fact: When leaves change color in the fall, it's really the green going away and the colors that were there all along coming out.

You'll need: green leaves, small jar, rubbing alcohol, wooden spoon, foil, small bowl, water, coffee filter, scissors

Here's how: Have your child tear the leaves into the jar, cover with alcohol, and mash with the spoon. Cover with foil, and place the jar in a bowl filled with hot water. After 30 minutes, she should cut a strip from the filter, remove the foil, and dangle the filter into the alcohol. Let it sit for an hour.



What happens? Lines of different colors will travel up the filter.

Why? Green leaf color comes from the chemical *chlorophyll*, which helps make food for trees in spring and summer. In fall, chlorophyll is no longer produced, so the hidden colors (yellow, orange, red) can be seen.

OUR PURPOSE

To provide busy parents with practical ways to promote their children's math and science skills.

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