Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

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Cape Central Middle School
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INFO BITS

Magazine fractions

Let your child use old magazines to explore fractions. Suggest that he cut out pictures of similar things (say, cars or people) and divide them into equal piles. For 20 cars, he could make 4 piles of 5 cars each. What fractions would each pile represent? *Answer:* $\frac{1}{4}$ (1 of 4 piles) and also $\frac{5}{20}$ (5 of 20 cars). Then, he can rearrange piles to make other fractions.

Energy pass-along

Playing croquet? Have your youngster use a mallet to strike one ball into the other. The first ball stops while the second ball starts moving, but why? Energy transfers from her swing to the first ball, and from that ball to the second. The second ball has nowhere to transfer its energy, so the energy turns to motion.

Book picks

Read *Math Games & Activities from around the World* (Claudia Zaslavsky) to learn math games like Tapatan from the Philippines, Kaooa from India, and more.

"Why are my tears salty?" and "What are germs?" are just two of the questions answered in *National Geographic Kids Why? Over 1,111 Answers to Everything* (Crispin Boyer).

Just for fun

Q: Why did the computer keep sneezing?

A: It had a virus!

The woods are full of math

Whether in your backyard or away on vacation, use these ideas to show your youngster that the world is alive with math.

Patterns

Nature loves patterns. How many can your child recognize? Leaves, for instance, often grow in patterns. Two might grow opposite each other on the same stem or alternate from one side to the other. Or help her find geometric patterns, such as those in spiderwebs or pinecones. *Tip:* If she sees plants sporting clusters of three leaves, she should remember, "Leaves of three, leave it be," since that could be a sign of poison ivy.

Multiplication

How many petals are in a patch of flowers? Have your youngster count the petals on one flower and multiply the total by the number of (the same) flowers she sees. If a daisy has 34 petals and she counts 20 daisies, she has spotted about 680 petals (34 x 20 = 680). Which flower patch has the most petals? It may not be the one with the most flowers, since it's all about the number of petals!

Symmetry

Encourage your child to find examples of symmetry—they're everywhere in nature. (*Hint:* If she can draw an imaginary line down the middle of an object so the two sides are mirror images, she's found it.) She might spot symmetry in butterfly wings, a leaf, a ladybug, a dandelion head, and much more. Let her sketch and label all the examples she identifies.

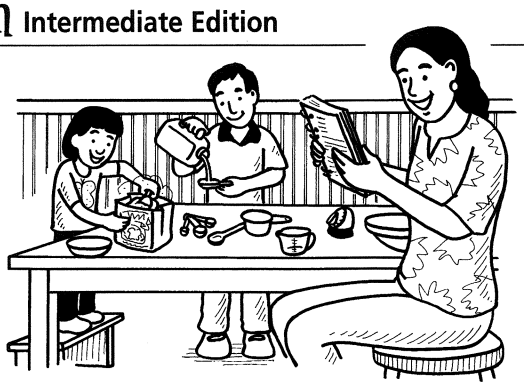
...and science

A nature walk is a perfect opportunity for your child to explore science. Suggest that he look for signs of:

- **Animal life.** He could search for nests or burrows, animals' paths (tracks, broken branches), and evidence of eating, like nibbled leaves and animal droppings. Ask what kind of animals might have been there.

- **Baby trees.** New trees have one strong stem (the future trunk) and little leaves reaching up for light. Can your youngster match the baby trees to their parent trees? *Tip:* He should look for similar leaves. Help him think about how the new trees started growing in that spot. (Seeds may have been carried in the wind, dropped to the ground, or eaten by animals and then deposited onto the dirt.)

Measure while you cook



Pick something to cook or bake with your child, and see what kind of measuring magic unfolds with questions like these.

● **When should we start?** Have your youngster read through the recipe and estimate the prep time. He can add that to the cooking time to tell you when you need to begin. For example, if you want to eat at 6 p.m., he might figure out: "30 minutes of prep + 45 minutes cooking = 1 hour 15 minutes, so we should start at 4:45 p.m." Then, when you put the dish in the oven, he could note the time, set the timer, and say when it will be done. He'll be learning about *elapsed time*—as well as helping you make dinner!

● **Which measurements are the same?** As you cook, let him explore different ways to measure ingredients. If you need a cup of milk, ask how many ounces that is (8). *Tip:* Liquid measuring cups have hash marks for ounces. When you need $\frac{1}{4}$ cup of flour, suggest that he measure it in tablespoons (he'll find that 4 tablespoons = $\frac{1}{4}$ cup). Encourage him to work out other measurements, such as 3 teaspoons for each tablespoon. He'll get more familiar with measurement equivalents and also be more comfortable in the kitchen.

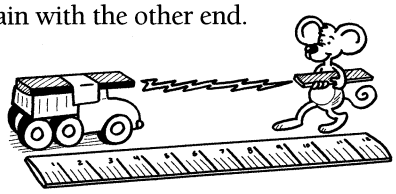
SCIENCE LAB

Come closer

Your youngster will explore magnetic fields with this "moving" experiment.

You'll need: 2 bar magnets, tape, toy car, ruler

Here's how: Have your child tape a magnet to the top of the car, lay the ruler flat, and line up the car at the 0″ mark. Then, let her start the other magnet at the 12″ mark and gradually move it toward the car. Where is the magnet along the ruler when the car moves? In which direction does it move? She should flip the magnet around and try again with the other end.

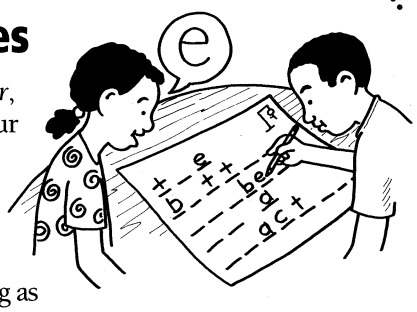


What happens? The car moves toward the magnet or away from it.

Why? Magnets have a *magnetic field*—the area where their force is felt. They also have north and south poles. Opposite poles attract each other, while similar poles repel. When the car moved toward the magnet, the opposite poles were facing each other, but when similar poles were used, the car was repelled.

MATH CORNER

Math-term games



Volume, *array*, *denominator*, and *quotient* are all words your young mathematician needs to understand. Using them in common games is a fun way to make them more familiar.

Scrabble. Play Scrabble, and if a player spells a math term, he gets double the word score—as long as he can define it. For *sum*, your child might say, "The answer to an addition problem."

Hangman. Have each player secretly write five definitions of math terms. *Example:* "The bottom number in a fraction." Then, take turns picking one of your terms, and draw a "hangman." Add dashes for the letters of each word, leaving spaces between words. The other person guesses letters until he deciphers the definition. When it's revealed, can he tell what math term was described? (*denominator*)

Note: Find a kid-friendly list of math terms and definitions at *mathsisfun.com/definitions*.

Q & A

Batting a thousand

Q: *My daughter Katie loves baseball. How could I use that love to help her practice math?*

A: You don't need to look far to find numbers in baseball. When you attend a baseball game or watch one on TV together, pose math questions about what you see or hear.

For example, when the attendance is announced, ask her to figure out the number of empty seats. She'll need to look up the stadium capacity and subtract the attendance number.

Or let her keep track of each player's hits and total the feet they ran to see who ran the farthest throughout the game. Since there are 90 feet between bases, how far would someone run for a home run? (About 360 feet, since 90 x 4 = 360.)

Finally, have her work with decimals by checking out the box scores. Suggest that she put her favorite team's players in order by batting average. She'll need to read the decimals carefully to see, for example, that .370 is greater than .307.

OUR PURPOSE

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

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