Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

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Lake Forest Hill Elementary School

INFO BITS

World records

World records offer a fun way for your child to compare numbers. Encourage him to look up records that interest him (the speed of the fastest animals, the length of Olympic-winning long jumps). Then, help him set his own records by timing his speed for running around the block or measuring his jumps.

Family science fair

"Welcome, scientists!" Let your youngster host a science fair where you take turns conducting experiments. She might ask younger siblings to predict which objects will sink or float, then test the items in a sink while everyone watches. *Idea:* Hold a science fair with extended family via video chat.

Book picks

Zookeepers use fractions as they hand-raise two tiny cubs in *Polar Bear Math: Learning About Fractions from Klondike and Snow* (Ann Whitehead Nagda and Cindy Bickel).

With *Science You Can Eat: 20 Activities That Put Food Under the Microscope* (Stefan Gates), your child can make instant ice cream, edible slime, and more.

Just for fun

Q: Why isn't your nose 12 inches long?

A: Because then it would be a foot!

Explore number patterns

Find the next number in this pattern: 1, 2, 4, 8, 16, 32, 64. It's 128, because the "rule" is to double the number each time. Your child can recognize all kinds of patterns and develop her math thinking with these playful ideas.

Keep it going

Have your youngster cover a baking sheet with a thin layer of sugar. Write a simple number pattern (3, 5, 7, 9) in the sugar for her to continue. She'd write 11, 13, 15, and 17, because your rule is add 2. Next, let her smooth out the sugar to erase the numbers and begin a different pattern for you to extend.

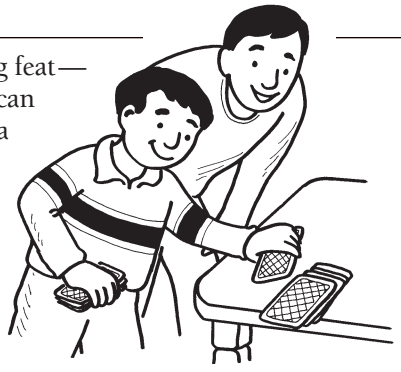
Step it up

Think of a pattern rule with at least two steps (multiply by 3, add 1). Write numbers in the pattern on separate sticky notes (3, 10, 31, 94), number the backs to indicate the order (1, 2, 3, 4), and hide the notes around the room. Your child should search for them, arrange them in order, and figure out the rule they follow. Now it's her turn to hide numbers in a two-step pattern for you.

Predict it

Show your youngster that patterns let her make predictions. Start a pattern with toy vehicles (car, car, truck, train, car, car, truck, train) or beads (red, blue, green, red, red, blue, green, red). Ask her what the 21st toy (car) or bead (red) in the pattern will be—and why. She can continue the pattern, using more objects (or drawing pictures) to check her predictions.

Build a cantilever



A house of cards is quite an engineering feat—but it's not the only thing your youngster can construct with cards. Here's how to make a *cantilever*, a structure that's supported on just one side (like a balcony).

Let him lay down a card with one end lined up at the edge of a table. Ask him to place a card on top that extends slightly over the edge of the table and another that extends over the edge of the card below it. It's a cantilever! How many cards can he add before the cantilever falls?

Why this works: The weight of the overhanging cards is supported by the other cards pressing down on top of them.

Money games

10 quarters + 25 nickels + 8 dimes + 16 pennies = 1 handful of fun (and $4.71). Help your child make sense of dollars and cents with these activities.

Three in a row. This twist on tic-tac-toe lets your youngster practice adding coin values. Have him stack any combination of coins in each square of a tic-tac-toe board, and give each player a different color crayon. Take turns removing any pile, counting the coins, and writing the total value in the square. *Example:* Pick up 1 quarter, 3 dimes, and 4 pennies, then write "59 cents." The game ends when one person gets three in a row. Add up all the coins you've removed—the player with the most money wins.

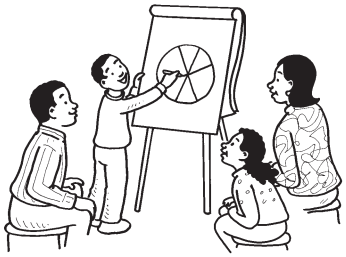
Shopping relay. Place three store flyers or catalogs around the room. Each player gets a $50 budget and lists three items to "buy" (shoes, shampoo, book). On "Go," race to each catalog and "shop," subtracting the price of each item from your budget. The winner is the first person to finish shopping, stay within budget—and get the math right!

MATH CORNER

Geometry "Pictionary"

Illustrating math terms in pictures only—no words or symbols allowed!—can boost your youngster's understanding of math concepts. Try this game.

- **Set up:** On separate index cards, ask your child to write math vocabulary words he's learned in school this year. *Examples: denominator*, *factor*, *multiple*, *trapezoid*, *parallelogram*, *pyramid*, *divide*, *area*, *perimeter*. He should fold the cards in half and put them in a bowl. Divide players into two equal teams.



- **Play:** Teams take turns picking a card, setting a 2-minute timer, and having one teammate illustrate the word on a whiteboard or paper. The other players on his team try to name the term. Your youngster might sketch a fenced-in field for *perimeter*, and a sliced pie for *divide*.

- **Score:** Earn a point for each vocabulary word your team identifies correctly.

OUR PURPOSE

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

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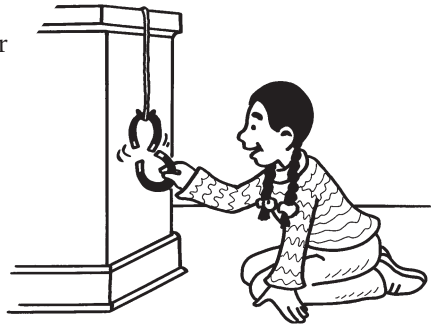
SCIENCE LAB

Magnetism: Opposites attract

An invisible force field? Sounds like science fiction—but your youngster can observe this very real physical property of magnets in this experiment.



You'll need: tape, yarn, two magnets, table

Here's how: Help your child tape one end of the yarn to one magnet and the other end to a tabletop, so that the magnet dangles off the table. Now have her hold the second magnet and move it toward the hanging one. She should move her magnet back and forth so each side, or *pole*, has a chance to attract the hanging magnet.

What happens? The hanging magnet moves toward the one your youngster holds. It turns around (or doesn't) depending on which pole of her magnet is facing it.

Why? Every magnet has a north and south pole. Opposite poles attract. When two north or two south poles face each other, the poles repel each other—in this case, causing the hanging magnet to turn around.

PARENT TO PARENT

Baking, the metric way

Our family has been baking a lot lately: bread, muffins, cookies, you name it! Recently, my daughter Caitlin found a recipe with standard *and* metric units. She wondered why 1 cup flour was 120 grams while 1 cup sugar was 200 grams—and frankly, so did I.

I bought an inexpensive food scale, and Caitlin measured the ingredients. She decided sugar must weigh more because it's denser, so we looked it up online, and she was right. And she realized something else: Using a scale makes measurements more precise, since it's hard to eyeball whether you have a level cupful or spoonful.

Now she converts all our recipes to metric units and weighs the ingredients. Not only does she bake delicious cookies, she also gets an extra helping of math practice with the metric system every time we bake.