Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

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Graph with blocks

The next time your child plays with blocks, encourage him to practice graphing. He could grab a handful of Legos and snap together blocks that are the same color and same size. If he places the towers side by side, he'll create a "Lego graph" and easily see which color has the most blocks—that tower will be the tallest.
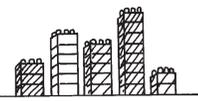
Watch the wind blow

Have your youngster pretend she's a meteorologist and use a weather tool to detect wind. Help her tape colorful ribbons to a clothes hanger. Place it outside on a patio hook or low tree branch. When the ribbons move, she'll know it's windy. Using a compass or an app, point out north, south, east, and west. Which direction is the wind blowing from?

Book picks

📖 *Ten Black Dots* (Donald Crews) presents a fun way to count to 10. After reading the book, let your child make his own dot pictures.

📖 Your youngster can dive into facts about the water cycle and more with *All the Water in the World* (George Ella Lyon).

Just for fun

Q: What is the strongest animal?

A: A snail. He carries his house on his back!

We're a happy (fact) family

Some families are made up of moms, dads, brothers, and sisters—and others are made up of math facts! A fact family contains problems with the same three numbers, such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 3 = 2$, and $5 - 2 = 3$.

Your child can play with these families to explore the relationship between addition and subtraction. Here's how.

Introduce family members

Suggest that your youngster arrange toys into fact families. She could put squares of masking tape on 20 toys and label them 1–20. Give her a math problem (say, $8 + 9$). Then, ask her to "introduce" the toys that belong to the fact family ("8 and 9, meet 17!"). Now she can say all four facts in the family: $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, $17 - 9 = 8$.

Make a house

A family of people can live in a house, and so can a fact family. Have your child draw a house with four windows and roll two dice. In each window, she should write a number sentence that belongs in the fact family. If she rolls 6 and 3, the bottom two windows could say $6 + 3 = 9$ and $3 + 6 = 9$, and the top two windows would be $9 - 6 = 3$ and $9 - 3 = 6$.

Act it out

Let your youngster use plastic animals to see which numbers make up different fact families. She might show how 4 animals plus 6 more make 10, then have the groups trade places—6 and 4 make 10, too. Finally, she could show the subtraction facts that complete the family: $10 - 4 = 6$ and $10 - 6 = 4$.

Your youngster will be drawn to find out what is and isn't magnetic by making his own "magnet bottle."

Help your child fill an empty water bottle halfway with rice and add small items like paper clips, marbles, screws, and beads. (Include some that are magnetic and some that aren't.) Screw on the lid, and have him shake the bottle to mix everything up. Next he can rub a magnet over the bottle and make a chart to keep track of what's attracted or not attracted to the magnet.

Finally, let him dump out the bottle and sort the objects: magnetic and not magnetic. What do the magnetic items have in common? (They're made of metal. You and your child could research which kinds of metal are attracted to magnets.)

Explore congruent parts

"That kite has four *congruent* triangles." Finding and making shapes that are congruent, or exactly the same size and shape, will help your youngster learn geometry and build a foundation for fractions. Try these ideas.

Congruent or not? Let your child look around the house for different pairs of congruent shapes. How can he show that they're congruent? He could lay one square coaster on top of another square coaster or one round throw pillow on a second one. Or encourage him to search for things that are divided into congruent shapes, like a window with six congruent rectangular panes.

How many parts? Let your child create geometric shapes (square, triangle, rectangle, hexagon) out of play dough. Which ones can he cut into two congruent shapes? He might cut two congruent squares from a rectangle or two congruent rectangles from a square. Does he have a triangle that can be divided into two congruent triangles?

Q&A Word problems? No problem!

Q: *My daughter sometimes gets confused by word problems. How can I help?*

A: Show your child that word problems can be fun and doable with these two simple strategies.

First, have your daughter use objects to model a problem. *Example:* "Mary has 7 shirts, and Beth has 3 shirts. How many more shirts does Mary have than Beth?" Let her stack 7 shirts on one chair ("Mary") and 3 shirts on another ("Beth"). She can match them up, 1 for 1, and count the number Mary has left (4).
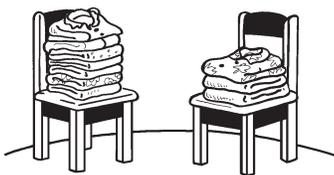
Second, suggest that your child draw the problem. She could label two stick figures "Mary" and "Beth." Under Mary, she should draw 7 shirts, and under Beth, 3. She can cross off one of Mary's shirts for each one Beth has. When Beth's shirts are all crossed off, she'll see that Mary still has 4 shirts (7 − 3 = 4).

## MATH CORNER Place-value sidewalk toss

Your child will learn about place value— and build hand-eye coordination—as he aims for the highest score with this outdoor game.

Have your youngster draw a row of three boxes on the sidewalk with chalk. He should label them "Hundreds," "Tens," and "Ones."

Standing a few feet away, take turns trying to toss 9 pebbles into each box. Count the pebbles that land in each box, and write that digit under the box. *Example*: If your child lands 7 pebbles in the hundreds box, 3 in the tens, and 5 in the ones, his score is 735. The player with the biggest number wins the round and goes first in the next round.

Your youngster will soon realize that getting pebbles in the hundreds box is most important, since the digit in the hundreds place is worth the most!
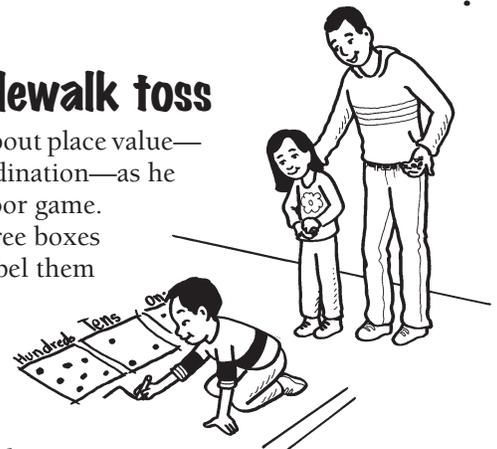
SCIENCE LAB Test your sense of touch

This mystery box puts textures at your youngster's fingertips as she explores her sense of touch.

You'll need: small household objects, shoebox, scissors, gloves

Here's how: While your child hides her eyes, gather small items with different textures (straw, stick, feather) and put them in a shoebox. Cut an opening in the lid (big enough for her to stick her hand through), and place the lid on the box. Wearing gloves, she could reach into the box and feel each object. Can she tell what they are? Have her remove the gloves and try again.

What happens? It's harder to feel textures when your youngster wears gloves.

Why? The gloves are a barrier between the objects and your child's hands. To use her sense of touch, she must feel things with her skin.