Math+Science Connection

Building Excitement and Success for Young Children

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TOOLS & TIDBITS

Horizontal, vertical

What does your youngster need for a fun lesson about lines? Just herself! Ask her to put her thumb out in a horizontal line and then to point it up for a vertical line. Now have her make her arms into horizontal lines (straight out) and vertical lines (straight up or down). How could she make her whole body horizontal or vertical? (lie down, stand up)

States of matter

Have your child unwrap a crayon and tell you if it's solid or liquid (solid). Then, set the crayon on a paper towel, and help him "blow dry" it with a hair dryer set on hot. When it melts, ask what it is now (liquid). Let the crayon cool, and check back later. He'll see that it's solid again. Does your youngster know other solids that can turn into liquids? (ice cubes, chocolate bars)

Book picks

📖 Your child will delight in figuring out the math problems in *How High Can a Dinosaur Count?…and Other Math Mysteries* (Valorie Fisher).

📖 *The Skeleton Inside You* (Philip Balestrino) gives your youngster an "inside look" at the joints, ligaments, and bones that let her run, jump, and play.

Just for fun

Q: How old is your Great Uncle Charlie?

A: I don't know, but we've had him a long time.

Learn math with Dr. Seuss

Your child can celebrate Dr. Seuss's birthday this month by doing math activities based on his books. Here are three favorites to read together, along with ideas to try.

One fish two fish red fish blue fish. Give your youngster fish-shaped crackers, and have him put one on each fish, page by page. Then, he could count the number of crackers—or fish—on a page. Ask him to count other things in the book, too. For instance, he might place a cracker on each "hump" on the "Wump" or on all the "cans" opened by "Zans."

Cat in the Hat. Help your child cut strips of red and white paper and glue them to an empty oatmeal canister—it will become a hat like the one the cat wears. As he places the strips, he will practice making an "AB pattern" (one that alternates two colors). Let him count the red strips and white strips (say, 4 of each) and add the numbers together for the total (4 + 4 = 8). If he subtracts 2 strips, how many would there be? (8 – 2 = 6)

Green Eggs and Ham. Here's a fun fact to tell your youngster: Dr. Seuss wrote this classic on a challenge to use only 50 different words! Together, write down each word the first time it's used. Then, ask your youngster to make a tally mark every time the word is used again. Have him compare the results to find out which words are used the most and the least. 🦋

A coin that jumps

With this experiment, your youngster can make a coin jump.

Put an empty bottle into a deep bowl. Have your child wet the bottle's rim and place a coin on top to cover the hole completely. Then, help her pour warm water into the bowl. (*Note:* Hold the bottle so it doesn't tip over.)
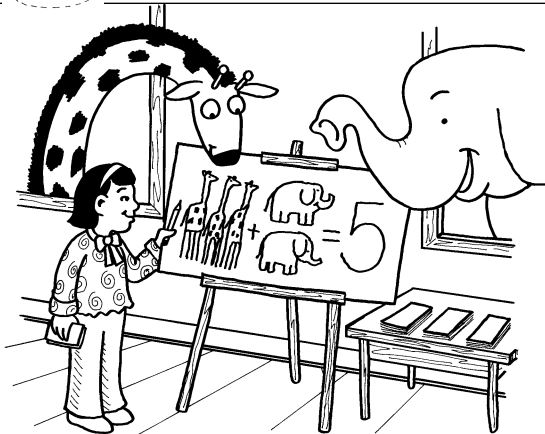
Make sure she watches closely—she'll see the coin jump in the air! You can explain that the warm water heated up the air inside the bottle, and the air expanded. As it spread upward, it pushed the coin up. 🦋

Let's play "story problems"

Here's a clever way for your youngster to practice writing and solving word problems.

1. Choose. Together, make three sets of index cards: 10 character cards (write the name of a family member, friend, pet, or book character), 10 setting cards (*examples:* school, playground, zoo, moon), and 20 number cards (1–20). Turn the stacks facedown. Each player should pick two character cards, one setting card, and two number cards.

2. Write. Use your cards to write a story problem. If your child picked Aunt Debbie, Benji, the zoo, 3, and 2, she might write, "Aunt Debbie took Benji to the zoo. They saw 3 giraffes and 2 elephants. How many animals did they see?"

3. Solve. To figure out the answer, she could draw a zoo scene with 3 giraffes and 2 elephants. Then, she should write and solve the problem: $3 + 2 = 5$. Return the cards to the piles, shuffle, and play again.

Variation: Swap story problems, and solve each other's.

MATH CORNER — Fun with fractions

An early understanding of fractions will help your child be more successful in math as he gets older. Try these projects.
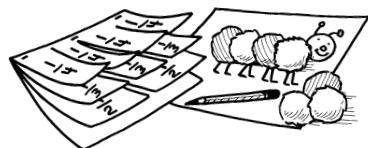
"Flap book"

Staple four sheets of paper together across the top. Have him write "1" on the bottom piece to represent "1 whole." Then, help him cut a vertical slit to divide the next sheet in half and write $\frac{1}{2}$ on each side. On the third one, he should make two slits and label each part $\frac{1}{3}$. Finally, the top piece is cut into fourths, each labeled $\frac{1}{4}$. As he plays with his book, he'll find that 2 halves, 3 thirds, and 4 fourths each make up a whole.

"Fraction-pillar"

Tell your youngster to glue 4 pompoms (using at least two colors) in a row on paper. He can draw a face and legs to make a "fraction-pillar." If 2 pompoms are blue, 1 is green, and 1 is yellow, ask, "What fraction of the caterpillar is blue?" ($\frac{1}{2}$) What portion is green? ($\frac{1}{4}$) *Idea:* Have him make shorter and longer fraction-pillars.

SCIENCE LAB — Fungus among us

How can your child create a microscopic garden on a piece of bread? It's easy!

You'll need: 3 slices of bread, 3 jars with lids, water, a magnifying glass

Here's how: Have your youngster sprinkle water on the bread, put each slice in a jar, and tightly close it. He should put one jar by a sunny window, another in a dark, warm place (pantry, cabinet), and the third in the refrigerator. Ask him to predict what will happen to each one. Then, he can check his experiment daily, using a magnifying glass to examine the bread.

What happens? Mold will grow on every slice, but at a different rate.

Why? All three samples had the water and nutrients that mold—a *fungus*—needs to grow. Cold temperatures slow down mold activity, so mold will grow slowest on the refrigerated piece.
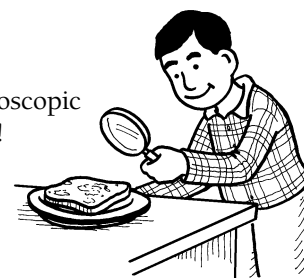
Q&A — What does zero mean?

Q: *My daughter doesn't seem to understand the concept of zero. How can I help?*

A: This is very common—it's hard for young children to realize what zero means. Try playing a simple game with her. Ask her to take three steps forward or five steps backward. Now, say, "Take zero steps forward." She may be confused at first, but soon she'll figure out that she's not supposed to take any steps, and that in this case zero means "nothing" or "none."

Next, help her work on zero's role as "placeholder." Tell her to write the number 10. If she erases the zero, what does she have? ("Just 1!") Have her put the zero back, and explain that the number 10 has 1 ten and no ones, so zero is used to hold a place in that column.