

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

November 2017

Sask Rivers Public School Division



TOOLS & TIDBITS

It's still a triangle!

Your youngster may not realize that a yield sign is a triangle—it's just "upside down" from what she probably draws as a triangle. Explain that any shape with three straight sides is a triangle. Then, challenge her to draw as many different triangles as she can—long and skinny, short and wide, or pointing left or right.

Mission to the moon

Your child will have a blast modeling phases of the moon. First, help him find moon phases in books or online.



Then, twist off the tops of several cream-filled sandwich cookies. Let him use a plastic knife to carve the cream into *quarter*, *crescent*, and *gibbous* moons. How could he show a *full* moon or a *new* moon? Now, enjoy the lunar snack together!

Book picks

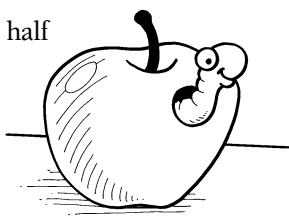
■ Your youngster can solve clever word equations like "squirrels + _____ = winter storage" in *Mathematickles!* (Betsy Franco).

■ *Rosie Revere's Big Project Book for Bold Engineers* (Andrea Beaty) shows children that being a successful engineer involves a lot of trial and error.

Just for fun

Q: What's worse than finding a worm in an apple?

A: Finding half a worm!



I see a pattern here

"Breakfast, lunch, dinner, breakfast, lunch, dinner" is a pattern, and so are the orange and black stripes on a tiger. Whether your child is spotting patterns all around him or creating patterns of his own, he's sharpening his math skills and preparing for future algebra.



Build a pattern

Give your youngster blocks in different sizes and colors. Challenge him to create something with a pattern like a striped snake that repeats red, red, black, red, red, black, red, red, black. Or maybe he'll build a castle with a pattern of short and tall blocks around the edges of the roof.

Spot the pattern

Take turns naming patterns in everyday life. Your child might think of traffic lights (green, yellow, red, green, yellow, red) or seasons (winter, spring, summer, fall, winter, spring, summer, fall). Talk about why patterns are helpful (they let you know what to expect). For

example, a yellow light tells you a red light will be next.

Roll a pattern

Play this number pattern game together. You'll each need 6 dice. To start, each player names a two-number pattern using the numbers 1–6 (say, 5, 2, 5, 2). Roll your dice at the same time, trying to be the first to form your pattern. If your youngster's first roll is 1, 5, 6, 2, 6, 3, he should set aside the 5 and 2 for the first parts of his pattern. Then he keeps rolling until he completes his pattern with all 6 dice. 🐛

Play the plastic cup

How can a plastic cup be a musical instrument? With this activity, your youngster will learn that the secret is in the vibrations.

Help your child loop a rubber band across the top and under the bottom of a plastic cup. If she plucks the rubber band, she'll hear a noise. Let her try plucking over the opening of the cup and then along the sides of the cup. She'll see that she can change the "music" by changing where she plucks her "instrument." Ask her what makes a higher sound or a lower sound. What happens if she adds more rubber bands?

The science: You can explain that when she plucks the rubber band, it causes vibrations, and vibrations make sounds. At the opening of the cup, she's mostly vibrating air. On the sides, the cup itself vibrates. And just like strings on a guitar, each makes its own sound! 🐛



Relay race for the difference

A great way for your youngster to understand any math problem is to first act it out with objects, then draw it with pictures, and finally write it with numbers. This relay race is a fun way to try this approach with subtraction.

Set up. Help your child write 12 subtraction stories on separate slips of paper. *Example:* “You have 10 marbles. You lose 6 of them. How many are left?”



Place these stories in a bowl at a start line on the floor or ground. Then for each player (or team), put a pile of 20 objects (marbles, beads) a few feet past the start, paper and pencil a few feet later, and another sheet of paper and a pencil a few feet beyond that.

Let's play. Have two players or two teams line up. On “Go,” the first players each grab a subtraction story and race to the objects to create the math problem. For example, they would gather 10 marbles and move 6 marbles away. Next, they use the paper and pencil to sketch the problem (draw 10 marbles, cross out 6 of them). At the last station, they write the number sentence ($10 - 6 = 4$). Players race back so the next players can go. The first team to solve six story problems all three ways wins!

PARENT TO PARENT

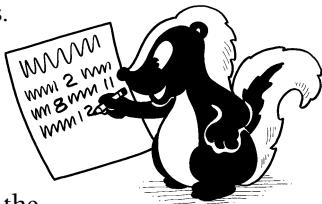
Write your math “autobiography”

My son Jamal was assigned to write his “math autobiography”—a story about his life using as many numbers as possible. He said his teacher wanted the kids to see how numbers are everywhere in their lives.

Jamal's story included his age (7), his little sister's age (3), the number on his T-ball jersey (15), and his favorite number (11). After he read his story to us, I asked if he'd write “math biographies” for the rest of our family.

Jamal asked lots of questions to get the right numbers. For his sister, he wrote, “When Kaya was 6 months old, she got her 1st tooth. Now she has 20!” His dad's biography tells about his family moving to the United States when he was 9 years old—and that they traveled more than 6,000 miles to get here.

Next, Jamal is going to write the biography of our cat. He has already asked if it's true that cats have 9 lives.



MATH CORNER

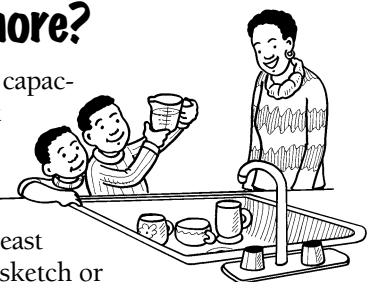
Which mug holds more?

For a hands-on way to explore capacity, challenge your youngster to find the mug that holds the most liquid.

Help him take mugs of different sizes and shapes out of your cabinet. Have him line them up in order from the one he thinks will hold the least water to the one that will hold the most. Let him sketch or take a photo of his predicted order.

To check his predictions, help him fill each mug to the brim with water and then pour the water into a large measuring cup. He can record the amount each mug holds—its *capacity*—in ounces or cups.

Now he should rearrange the mugs by capacity in the correct order. He could draw them or take a picture. How close did his predictions come?



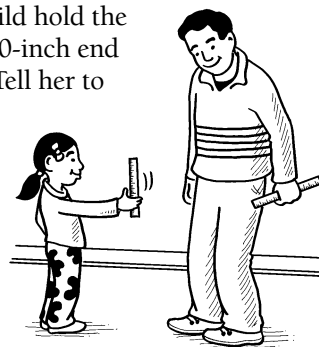
SCIENCE LAB

Reaction action

Your youngster will delight in this simple drop-and-catch experiment that measures her reaction time.

You'll need: ruler

Here's how: Have your child hold the ruler vertically, grasping the 0-inch end with her finger and thumb. Tell her to let go of the ruler and catch it with that same hand as quickly as she can. Together, read what inch mark her fingers end up on. Have her repeat the experiment 10 times. You could take a few turns, too.



What happens? Several inches will “slip through her fingers” before she catches the ruler. As she practices, she'll likely catch the ruler quicker.

Why? Our brains take in information like seeing the ruler fall or feeling our fingers let go of it. The brain then tells the hand to grab the ruler. The time in between is called reaction time. With practice, the reaction becomes a habit—so it doesn't take her brain as long to figure out what to do.

OUR PURPOSE

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

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