

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

January 2018



TOOLS & TIDBITS

A counting walk

Let your youngster practice counting when you take walks together. Have her pick something to find 10 or 20 of, such as mailboxes, red cars, or palm trees. Take turns counting aloud in order as you spot each one.



Land and water

Your child can explore earth science by building models of landforms. He might use green clay to sculpt a mountain he sees in the distance or cut blue cellophane to create the river you drive over on the way to school. Help him find other landforms in books or online—how could he model a glacier, canyon, or coral reef?

Book picks

▣ Your youngster will enjoy solving math problems along with the students in *Miss Penny Says Prove It!* (Lynda Brennan).

▣ In the 1860s, a clever engineer set out to improve New York City's traffic problem. *The Secret Subway* (Shana Corey) tells the true story of the city's first underground train.

Just for fun

Q: What does a kitten become after it's six days old?

A: Seven days old!



Adventures in estimating

Does your youngster know the difference between a guess and an estimate? A guess is random: "Guess what number I'm thinking of!" An estimate is a thoughtful "guess"—you think about what you see and know.

Try these activities to help your child make reasonable estimates.

Share a snack

Choose a snack with small pieces (crackers, raisins, cereal). Encourage your youngster to put a handful on his plate and count the pieces aloud. Now place a handful on your plate, and let him estimate whether you have more than, less than, or about the same number as he does. Have him count to check.

Cover the picture

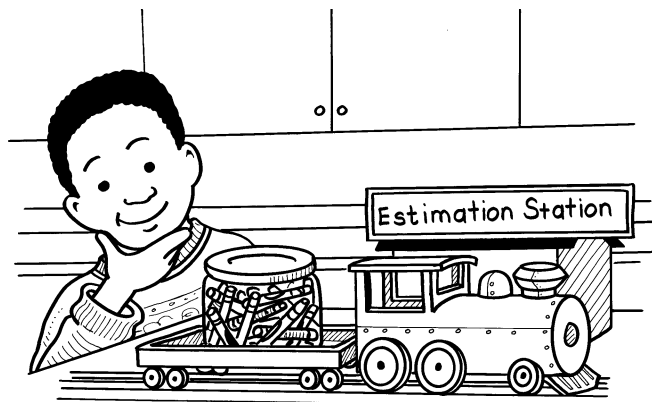
Ask your child to draw a large object (snowflake, apple, house) on paper. Next, he can estimate how many small objects, such as stickers, mini-erasers, or pom-poms, would fit inside the drawing.

Give the air some room

Even though we can't see air, it takes up space and moves around. Making a fountain from a water bottle is a fun way to help your child understand that.

Carefully poke a few holes around the sides of an empty water bottle (near the bottom). Ask your youngster what's in the bottle (air). Now let her put the bottle under a running faucet. As it fills up, water will quickly pour out of the holes like a fountain! But what happens if she fills the bottle and then screws on the cap? (The water will flow out much more slowly.)

Without the lid, air keeps moving into the top of the bottle and pushes down on the water, making it rush out of the holes. With the cap on, however, more air can't get in to push on the water.



Perhaps he'll estimate that 5 stickers will fit on each point of a snowflake and 10 will cover the middle. He can cover the picture with stickers and count.

Make an estimation station

Every week, fill a small, clear jar with something like jelly beans, crayons, or marbles. Let each family member estimate the total inside. Your youngster might count the items in one row, count the rows, and think logically about how many objects could be "hiding" in the middle. Once everyone writes down an estimate, count the items together. The person who came closest decides what goes into the jar next!



What's in a shape?

A square is a square—but it can become two triangles or four rectangles! Taking apart and combining shapes to make new ones helps your youngster think about shapes in different ways and builds reasoning skills.

● **Take apart.** Help your child draw and cut out squares, rectangles, triangles, and circles from paper. Then, she could cut each one into smaller shapes, seeing what new ones she can create. She might cut a rectangle



in half to make two squares or cut a square into fourths to form four triangles.

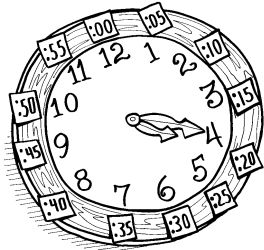
● **Combine.** Your youngster can stretch her spatial reasoning skills by putting shapes together to form other shapes. Maybe she'll arrange two rectangles to make a square. Or perhaps she'll use three triangles to create a trapezoid—a four-sided shape with only one pair of parallel lines. (*Hint:* For the trapezoid, line up three equilateral triangles with the middle one pointing down.)

PARENT TO PARENT

Tell me the time

My son Sean is learning to tell time to the nearest 5 minutes. But sometimes he forgets that when the minute hand points toward 4, it's really pointing to 20 minutes after the hour.

His teacher sent home this idea to help. I had Sean label mini sticky notes with minutes like they appear on a



digital clock (:00 for o'clock, :05 for 5 minutes past the hour, and so on, all the way up to :55 for 55 minutes past the hour). Then, I took down the kitchen clock and helped him stick each note in the correct spot.

Now when I ask Sean the time, he has the sticky notes to refer to. After a few days, we'll take away the ones he masters, perhaps :00, :15, :30, and :45. I bet before long, he'll be able to tell time without any sticky notes!

OUR PURPOSE

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

Resources for Educators,
a division of CCH Incorporated
128 N. Royal Avenue • Front Royal, VA 22630
800-394-5052 • rfeustomer@wolterskluwer.com
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MATH CORNER

Double up

What do $3 + 3 = 6$ and $9 + 9 = 18$ have in common? They're both "doubles" math facts—and knowing doubles can help your child with addition and eventually multiplication. Play this game to practice.



1. Let your youngster draw a tic-tac-toe board and write the numbers 2, 4, 6, 8, 10, 12, 14, 16, and 18 in different spaces.
2. Have him number 9 scraps of paper, 1–9, and stack them facedown.
3. Take turns picking a slip and making the number into a doubles fact. Say your child draws 4. He would say, " $4 + 4 = 8$ " and put a token (bean, bingo chip) on 8 on the board. Then, he returns the slip to the bottom of the pile.
4. Get three in a row to win. If no one wins, shuffle the slips, and play again.

SCIENCE LAB

Green all year

With this experiment, your youngster will discover the special quality that lets evergreen trees stay green all winter.

You'll need: pencil, green construction paper, scissors, water, waxed paper, tape

Here's how: Ask your child to draw two leaves on the green paper and cut them out. Then, let her sprinkle each "leaf" with water. Next, help her wrap one leaf in waxed paper and tape it closed. Have her set both leaves on the counter for two hours, then



unwrap the one in waxed paper and examine both to see if they're wet or dry.

What happens? The bare leaf will be dry, and the protected one will still be wet.

Why? Trees "drink" water from the ground through their roots. Evergreen needles have a waxy coating that helps to seal that water inside, like the waxed paper that kept the paper leaf wet. But deciduous (non-evergreen) trees lose water through tiny holes in their leaves. In winter, all trees get less water from the hard, frozen ground, so deciduous trees shed their leaves to prevent water loss—while evergreens keep theirs.