

# Math+Science Connection

Beginning Edition

Building excitement and success for young children

December 2011

## TOOLS & TIDBITS



### Form a letter

Help your youngster learn math words as he practices writing the alphabet. Give him oral directions for a letter. *Example:* "Make a *diagonal* line going *down*. Without lifting your pencil, make a *diagonal* line going *up* in the opposite direction." (He has formed a V.) Then, have him give you directions for making a letter.

### Animal tracks

Take a walk outside after a storm or snowfall, and encourage your child to look for animal footprints in the mud or snow. Can she identify any? Have her take along paper and sketch what she sees. Later, read a book (try *Big Tracks*, *Little Tracks: Following Animal Prints* by Millicent E. Selsam) or look online together to check her findings.

### Web picks

Find plenty of math activities at [www.mathgamesfun.net](http://www.mathgamesfun.net). Games can be set for different levels and cover addition, measurement, shapes, and more.

Have a carrot? Do an experiment! This site includes fun and easy ways for your youngster to learn about science through carrots. [www.carrotmuseum.co.uk/experiment.html#root](http://www.carrotmuseum.co.uk/experiment.html#root)

### Worth quoting

"I have not failed. I've just found 10,000 ways that won't work."  
Thomas Edison

## Just for fun

**Q:** What did one eye say to the other?

**A:** Between you and me, something smells.



## Let's count!

"I can count to 20!"


When your child learns to count, she puts numbers in order. But she also begins to understand that numbers represent objects. Here are three fun ways your youngster can build important counting skills.

**Zip and count.** On a strip of masking tape, help her write the numbers 1–10. Place the tape alongside a closed zipper (on a jacket or raincoat), lining up the 1 with the zipper pull. Call out a number (4), and have your child open the zipper to that number on the tape, counting as she goes (1, 2, 3, 4). Then, she can close the zipper and count backward (4, 3, 2, 1). With each zip, she'll practice counting.

**Stick and count.** Together, label index cards 1–20, one numeral per card, and place a matching number of stickers on the back of each one. Put the cards and small "counters" (beads, buttons) into a shoebox. Have your youngster pull out a card (numeral side up) and count out




that number of beads. Then, she turns the card over and puts a bead on each sticker. If the stickers and beads match up, she counted the right number! *Note:* This activity will teach your child about *one-to-one correspondence*—or matching each number to an object as she counts.

**Skip and count.** Counting by 2s, 3s, 4s, or 5s—called *skip counting*—gives your youngster a way to count faster, learn to group objects, and get ready for multiplication. Encourage her to practice skip counting around your house. She might count family members' eyes or ears by 2s. Or she could use chair legs to count by 4s. 

## Rolling along

Your young scientist can use balls and other objects to learn about force and motion. Here's how:

- Let your child gather different balls (Ping-Pong ball, small rubber ball, Wiffle ball, basketball, golf ball, bowling ball). Have him roll each one from a start line to a finish line a few feet away. Ask him which ones require more *force* (he has to push harder). He'll discover that the heavier the ball, the harder he has to push. *Tip:* This will work better on an uncarpeted floor.
- Have him predict whether various objects (apple, ball, blocks, cucumber, magazine) will roll. Then, let him prop a book against a wall to make a ramp and test them. What does he find? (Items with curved edges will roll; smooth objects will roll better than bumpy ones.) 

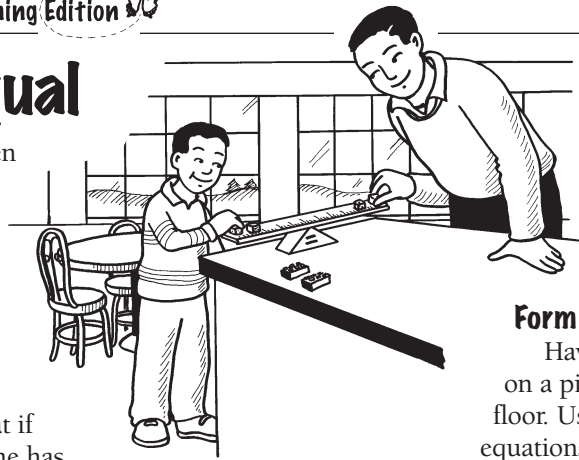


# The meaning of equal

What does “equal” mean? Young children often think it means “and the answer is.” Let your child experience what “equal” really means with these ideas.

## Make a scale

Help him make a scale by balancing a ruler on a triangular block. Together, experiment with balancing identical objects, such as dice or Legos. He’ll see that if you put two dice on one side of the scale, he has to put two dice on the other side. *Note:* Put the dice the



same distance from the center so they’ll balance. Suggest that your youngster think of an equal sign as a scale. Whatever is on one side of the equal sign has to balance with the other side.

## Form equations

Have your child write an equal sign on a piece of paper and lay it on the floor. Using blocks, he can make equal equations. If he puts 4 blocks on one side of the equal sign, he would put 4 blocks on the other side.

Next, have him write a plus and minus sign on separate slips of paper and use them to create more equations. He might arrange the blocks to make  $4 = 3 + 1$ , or  $2 + 2 = 3 + 1$ . He’ll see that  $3 + 1$  is *the same thing* as  $2 + 2$ .

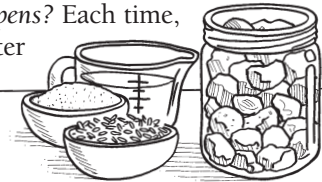
## SCIENCE LAB Filling space

In this experiment, your youngster will see with her own eyes how different forms of *matter* take up space—and how space is left between different forms of matter.

*You’ll need:* clear jar, small rocks, uncooked rice, sand, water

*Here’s how:* Have your child fill the jar with rocks until no more will fit. Ask her if she thinks the jar could hold anything else. Then, have her add as much rice as possible. Again, ask, “Will anything else fit?” Next, let her add sand. Ask the same question, and finally, have her pour in water to the top of the jar.

*What happens?* Each time, your youngster is likely to say that nothing else will fit in the jar. But each time, she’ll be able to add the new material.



## PARENT TO PARENT

### Math house

Last week my daughter woke up telling me about her funny dream—she said our whole house was made of numbers and shapes! We had a good laugh, but it actually gave me an interesting idea.

When she got home from school that day, I told her we were going to make her dream come true. “Let’s put math all through the house. We can label everything with a number or shape!” She thought that sounded like fun and got out sticky notes, construction paper, crayons, and tape.

First we labeled a window (“4 windowpanes”) and bookcase (“3 shelves”). Then, we cut sticky notes into circles, triangles, and rectangles. We put them onto matching shapes, such as a rectangle on the dishwasher door and a circle on her alarm clock.

We’ve left the labels up, and each day my daughter walks around the house saying the numbers and shapes. Her dream turned into a clever activity, and I’m happy that she’s practicing her math skills and vocabulary.



## MATH CORNER

### My first fractions

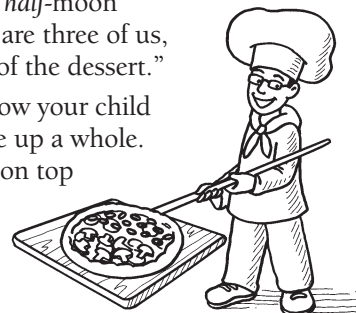
*Why?* Everything is made of matter. In this case, rocks are larger pieces of matter that take up more space, and they have more space between them. Grains of rice and sand are smaller bits of matter and have less space between them. The parts that make up water are even smaller and have even smaller spaces between them.

Quarter... half... whole... With these activities, fractions are a piece of cake for little ones:

- Use fractions in everyday conversation to get your youngster used to the words. You might say, “There’s a *half*-moon tonight,” or, “Since there are three of us, we can each have a *third* of the dessert.”
- Play with tortillas to show your child how fractional parts make up a whole. Have him lay one tortilla on top of another one and fold the top one in half. Ask him to fold it in half again—what does

that show? ( $\frac{1}{4}$  tortilla) He can see clearly how the half or quarter compares to the whole (the tortilla underneath).

- Make a “fraction pizza” for dinner. Let your youngster help you spread tomato sauce on a ready-made crust. Then, give him directions for the toppings (mushrooms on *half*, olives on the other *half*, and pepperoni on the *whole* pizza). He can tell your family what fractions make up their dinner!



**OUR PURPOSE**  
 To provide busy parents with practical ways to promote their children’s math and science skills.  
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