

# Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

November 2016



## TOOLS & TIDBITS

### I'm thinking of a number

From a deck of cards, pull out 10 cards numbered 1–10 (ace = 1). Lay them face up. Secretly pick one, and have your youngster ask questions to find your number. *Examples:* "Is it even?" (If "yes," he'll remove 1, 3, 5, 7, 9.) "Is it greater than 5?" (If "no," he'll take away 6, 8, and 10.) When he figures out your number, switch roles.

### Engineer a solution

Next time your child has a problem like tangled shoe-laces, suggest she think like an engineer to solve it. For instance, ask her to examine the laces and come up with a plan, such as loosening one loop. Did that work? If not, encourage her to rethink her approach. Soon her "knotty" problem will be solved!



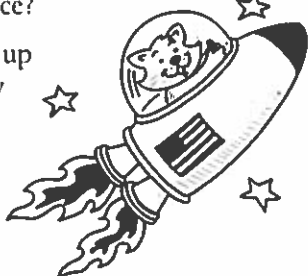
### Book picks

- Read *Pete the Cat and His Four Groovy Buttons* (Eric Litwin) for a delightful subtraction tale that offers a lesson on letting go of "stuff."
- Your youngster can discover all the joys of trees and even learn to plant one with the Caldecott Medal-winning *A Tree Is Nice* (Janice May Udry).

## Just for fun

**Q:** Why did the kitten go into outer space?

**A:** To lap up the Milky Way.



## Graphing for answers

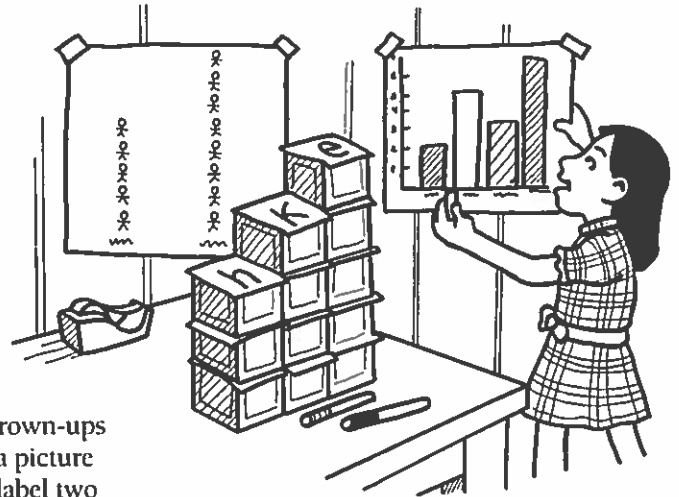
When your youngster organizes information and displays it in graphs, she can make interesting comparisons and answer lots of questions. Try these fun ideas.

### Family picture

Suggest your child list all the relatives she knows—grandparents, aunts, uncles, and cousins included. Are there more grown-ups or children? Let her make a picture graph to find out. She can label two columns ("Grown-ups," "Children"). Then, she should draw stick figures to match each person (lining up the figures evenly). She'll see at a glance if the adults or kids "win."

### Most popular toy

Have your youngster survey friends to see which of four toys they like best. She can tally the results and turn them into a colorful bar graph. Have her draw a large L, write numbers up the left side, and label the toys across the bottom. If two friends vote for puzzles, for instance, she would color a bar above "Puzzles" up to 2. Ask questions, such as "How many



friends like balls the best?" or "Are dolls or puzzles more popular?"

### Words of all lengths

Your child could make a 3-D graph comparing the number of letters in words. First, she should write a word (say, *hat*) on sticky notes, one letter per note, stick each note on a separate (same-size) block, and stack the blocks. Then, she can do the same thing with more words. Let her line up her "word stacks." Which words are shortest or longest? What's the difference between the smallest and largest number of letters?

## Leaf sort and match

Now that most leaves have fallen off the trees, invite your child to go on a leaf-collecting adventure.

Take along a zip-top bag, and let him fill it with assorted leaves from the ground. Then, take turns sorting the leaves and guessing each other's sorting rule. You might sort by color, size, shape, or texture—or according to whether insects have nibbled on them or not.

Finally, walk around again, and see if he can match each leaf with the tree it came from. He could look for similar leaves on the ground or still clinging to branches.



# Are we there yet?

With a hop, skip, and jump, your child can quickly find his way from 0 to 20 or even from 0 to 1,000. It's all about skip-counting his way there.

## Skip to 20

Have your youngster write the numbers 0–20 on scraps of paper and lay them out on the table in order. Then, using a toy figure, suggest he start counting by 2s (“2, 4, 6”) as he moves his toy to the 2, the 4, and so on. Next, have him try skip-counting by 5s and then 10s. He'll see that the toy gets to 20 faster with fewer, yet larger, jumps.



becomes 100, 20 becomes 200)—and he will “fly” while skip-counting by 100s all the way to 1,000.

## Superhero skips

What if your child could make flying leaps like a superhero? On a strip of paper, have him write 10s up to 100 (10, 20, 30). He can jump his toy figure to each number while skip-counting out loud to 100. Now help him place a zero at the end of each number (10



## Q & A Pizza party

**Q:** I thought it would be fun to use our next pizza night to play with fractions. What's appropriate for my daughter at this age?

**A:** You could definitely turn pizza night into a tasty lesson about dividing



circles into equal shares—an early introduction to fractions. Here's how.

First, help your child carefully divide a round pizza into two equal pieces. Then, ask how she might make a new cut to divide it into four equal shares. Each time, let her count the halves ( $\frac{1}{2}$ ,  $\frac{2}{2}$ ) and the quarters ( $\frac{1}{4}$ ,  $\frac{2}{4}$ ,  $\frac{3}{4}$ ,  $\frac{4}{4}$ ). Another time, start with a square or rectangular pizza, and have her divide that into equal pieces. She'll see that halves and quarters can come in different sizes and shapes!

**Variation:** No pizza? Let your child draw pizzas on paper and cut her paper pies into equal pieces.

## OUR PURPOSE

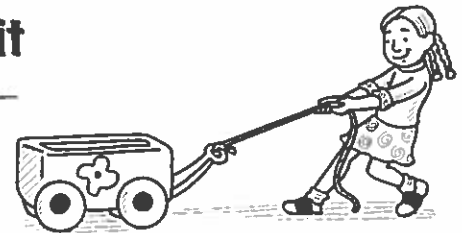
To provide busy parents with practical ways to promote their children's math and science skills.

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## SCIENCE LAB

### Push it, pull it

How things move—fast or slow, left or right—is all about forces. Give your youngster the chance to be part of the forces at work in this experiment.



**You'll need:** wagon or something else with wheels, piece of rope or string

**Here's how:** Have your child place the wagon in front of her and push it. Then, help her tie the rope to the wagon. She can stretch out the rope and pull on it.

**What happens?** When she pushes the wagon, it will roll away from her. When she pulls on the rope, the wagon also moves, but this time toward her.

**Why?** Push and pull are both forces. When forces act on objects, those objects change their motion, in this case moving either away from or toward your youngster.

**Idea:** Add math to her experiment by helping her measure how far she pushes or pulls the wagon.

## MATH CORNER

### Show me the numbers!

This two-player game will help your child gain a sense of what numbers represent.

**The setup:** Gather 30 index cards or pieces of construction paper. Have your youngster make dots on 10 cards to represent the numbers 1–10 (● for 1, ●● for 2). On another 10 cards, help him write the numbers 1–10. Then, on the last 10 cards, he can put both dots and numbers (1 and ●, 2 and ●●).



**The game:** The object is to be the first to collect 1–10 in any combination. Shuffle all the cards together, and deal 10 cards to each player. Stack the rest. Take turns drawing the top card and discarding a card you don't need. (If you run out of cards, shuffle the ones in the discard pile, and start again.)

The first player to get every number, 1–10, says, “I'll show you the numbers!” and lays down his cards in order.