Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

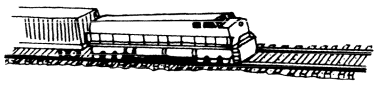
April 2016

Southport Elementary-161

INFO BITS

Parallel or perpendicular?

Help your youngster recognize parallel and perpendicular lines by naming items and asking if they have parallel



lines, perpendicular lines, neither, or both. For example, railroad tracks are parallel, the letter T has perpendicular lines, roses have neither, and plaid shirts have both. *Hint:* To keep the terms straight, she can remember the word *parallel* has parallel lines (the lowercase **l**s).

The skin you're in

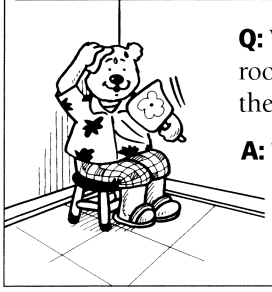
Does your child know the largest organ in his body? (An organ is a group of cells that work together for a specific purpose.) It's his skin! Skin acts as a barrier—keeping internal organs from drying out and germs from getting in. Can he think of other barriers? *Example:* A cereal bag holds cereal in and keeps dust out.

Web picks

At *toytheater.com/math.php*, win a race by solving multiplication problems, graph coordinates to collect popcorn in a bucket, and much more.

Find biology, physics, chemistry, and weather experiments to do at home with the ideas at *funology.com/science-experiments*.

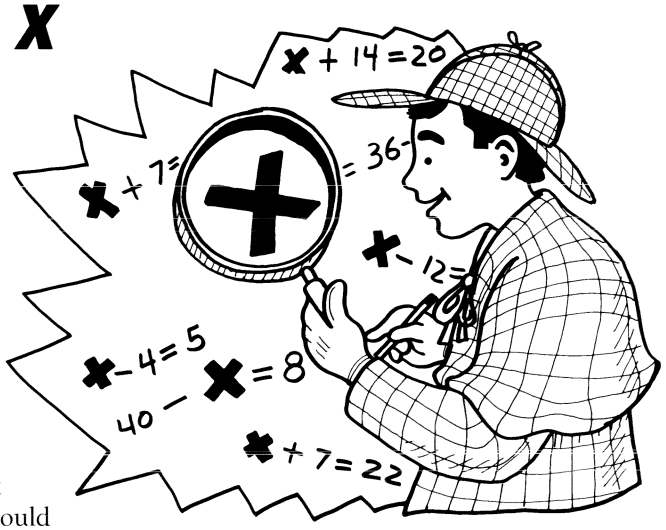
Just for fun



Q: What part of a room is usually the hottest?

A: The corner. It's 90 degrees!

Solve for *x*



Like a good mystery novel or a clever brain-teaser, algebra presents a "secret" to solve. In algebra, a letter—often *x*—symbolizes a number, and then we discover what *x* stands for. Your child can try these ideas to solve for *x*.

Complete the poster

Challenge your youngster to make a poster about himself using algebra. He could include his age, the year he was born, the number of kids in his class, and other facts. His poster might say "*x* = my age. $2 + x = 11$." Or "*x* = number of people in my family. $x - 3 = 2$."

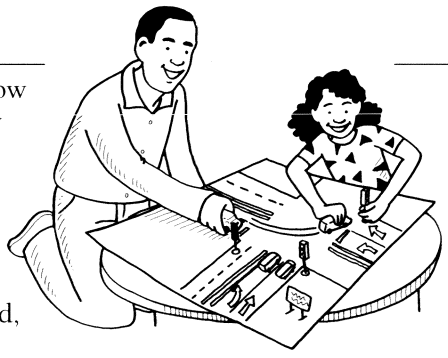
Make an algebra poster about yourself, and swap. Each of you can solve for *x* to tell the whole story.

Do you have my *x*?

Gather 24 craft sticks to play a matching game. Together, number 12 sticks: $x = 1$, $x = 2$, and so on up to $x = 12$. On the other sticks, write an equation where *x* equals a number 1–12. *Examples:* $8 \div 8 = x$ ($x = 1$), $37 - x = 35$ ($x = 2$).

Deal five sticks to each player, and place the rest facedown. The object is to match an equation with an answer, such as $x + 43 = 52$ and $x = 9$. Take turns asking questions like, "Do you have an equation where *x* equals 4?" If so, you get the stick and lay down the match. If not, draw a new stick. Play continues until all matches are made. (When you run out of sticks, draw a new one.) Make the most matches to win.

Traffic, traffic everywhere

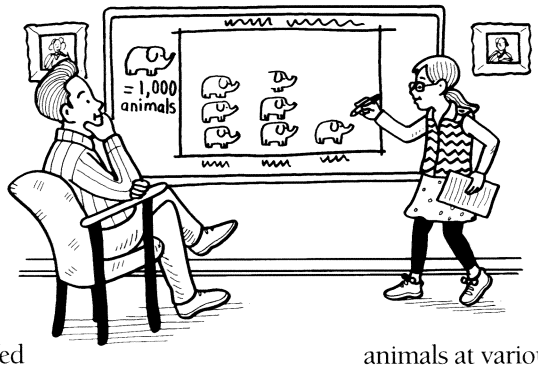


Encourage your youngster to notice how traffic intersections are designed and how the traffic flows. Then, have her try her hand at being a traffic engineer.

On poster board, she could draw streets with intersections where two or more roads cross. She should add traffic lights and signs (stop, right turn only, yield, speed limit) as needed.

Using toy cars and people, let her demonstrate how her traffic system would work. Is it safe for pedestrians and cars? Pose questions, such as "What happens when several cars need to turn left here?" Using what she learns, she can redesign her roads for safety and better traffic flow.

A picture is worth 1,000...



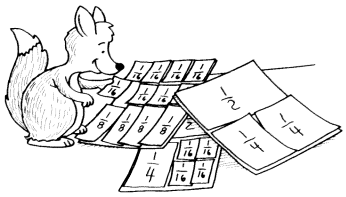
Picture graphs are a great way to represent data and compare quantities at a glance. Let your child make her own with these activities.

One-to-one. Suggest that she survey five friends on how many stuffed animals they have. To turn her data into a graph, she can write her friends' names along the bottom of a sheet of paper and draw a teddy bear to represent each of their stuffed animals. If Annie has 24, your youngster would draw 24 teddy bears above Annie's name. *Note:* It's important to line up the teddy bears evenly across the rows to read the graph accurately.

One-to-many. What would your child do if she were collecting data that involved large numbers? This time, each picture might represent 2 or 10 or 1,000 of something. She could try this by looking up the number of animals at various zoos and having 1 elephant represent 1,000 animals. For example, Cleveland Zoo has 3,000 animals, so she would draw 3 elephants. If a zoo had 2,500 animals, she would draw $2\frac{1}{2}$ elephants. When she's finished, she'll be able to easily see which zoo has the most or fewest animals.

MATH CORNER Folding fractions

With a few sheets of paper, your youngster can visualize—and understand—equivalent fractions.



1. Ask him to fold one paper in half and write $\frac{1}{2}$ on each part.

2. Next, he should fold a second sheet (the same size) in half and then half again—and label each section $\frac{1}{4}$. He could fold a third sheet into eighths (label each part $\frac{1}{8}$) and a fourth sheet into sixteenths ($\frac{1}{16}$ each).

3. Now, he'll be able to compare the sheets to find equivalent fractions—or fractions with the same value. *Examples:* $\frac{1}{2} = \frac{2}{4} = \frac{4}{8} = \frac{8}{16}$.

4. Have your child cut apart the papers into their fractional pieces. Using a new sheet of paper, he can piece together equivalent fractions to fill the sheet in various ways. For instance, $\frac{1}{2} + \frac{1}{4} + \frac{1}{4} = 1$ *and* $\frac{1}{2} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = 1$.

OUR PURPOSE

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

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SCIENCE LAB Copper (and green) pennies

Shiny or dull, pennies are a great study in chemical reactions.

You'll need: $\frac{1}{4}$ cup vinegar, 1 tsp. salt, nonmetal bowl, 10 dirty pennies, marker, paper towels

Here's how: Let your youngster mix the vinegar and salt in the bowl and add the pennies. After 10 seconds, he should remove the pennies. Have him rinse half with water and place on a paper towel labeled "Rinsed." The others go on a paper towel labeled "Unrinsed." He can observe their appearance and set them aside for two hours.

What happens? The pennies come out clean from the vinegar-salt bath. After sitting, the rinsed pennies stay clean, but the unrinsed ones turn greenish.

Why? The copper in pennies reacts with oxygen in the air to create copper oxide, turning them brown. The acid in the vinegar dissolves the copper oxide, making them shiny again. But when the vinegar-salt mixture isn't washed off, the salt reacts with oxygen to form malachite (a blue-green mineral).

Idea: Repeat the experiment with other coins or different acids like orange or lemon juice. How do the results change?

PARENT TO PARENT Dividing it up

My daughter, Chloe, is working on long division in school—or the "standard algorithm of division," as they call it now. Her teacher sent home a game for practice, and we've got a tournament going.

First, Chloe rolls a die three times and uses the numbers to form a three-digit number. For example, 1, 3, and 2 might be 132, 213, or 312. Then, she rolls the die twice more to make a two-digit number—2 and 5 become 25 or 52. I do the same to create my own numbers. We each write a division problem with our numbers—say, 316 ÷ 52—and solve it. If there's no remainder, you score 0. Otherwise, the one with the lower remainder gets 1 point, and the other person gets 2 points. After 10 rounds, the low score wins.

Tip: Check each other's answers by multiplying and adding any remainder: 316 ÷ 52 = 6, remainder 4. Then, 6 x 52 = 312 and 312 + 4 = 316.