Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

February 2014

Michigan Center Title I
Keicher Elementary

INFO BITS

The jar is half full

Hold a "half-full" estimating contest with your family. Every week, your youngster could fill a clear jar halfway with uncooked pasta, small toys, or other objects. Each person should estimate how many more items it would take to fill the jar completely. Then, she can count in the extra objects to see who came closest.

Feed the birds

Let your child invite birds into your yard with food especially for them. He might place apples on tree branches or put out bowls of seeds and nuts. Or suggest that he make a bird-feeder snowman. He could cover branches with peanut butter and birdseed for arms and thread orange slices onto a stick for the nose. Then, encourage your youngster to observe and sketch the birds that come to dine!

Web picks

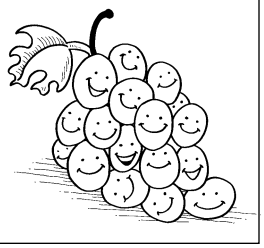
At *primarygames.com*, your child can select a topic like multiplication or geometry and play games that link math to real life.

Does your youngster know that a sweet potato is not a potato? Or that nuclear power provides 14 percent of the world's electricity? She can find science facts and experiments at *science kids.co.nz*.

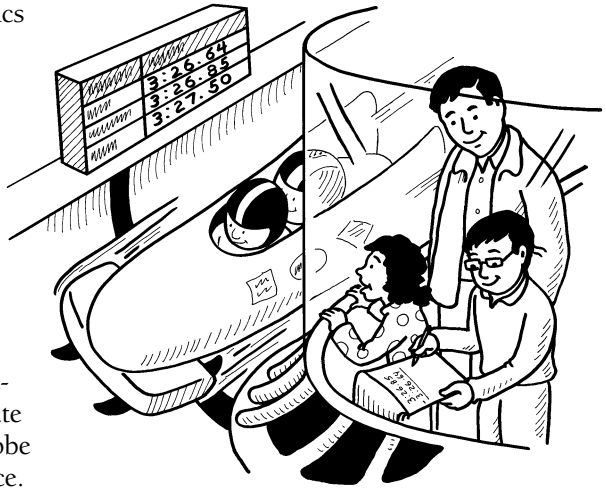
Just for fun

Q: Why aren't grapes ever lonely?

A: Because they come in bunches.



Let the games begin!



This month's Winter Olympics are a great opportunity for your child to watch athletes compete, learn about different sports, and follow the example to be physically active. And they're also a clever way to build math skills. Try these ideas.

Measure the distance

How far is Sochi—the site of the games—from your hometown? Have your youngster locate the Russian city on a map or globe and use string to see the distance. Then, he could find the actual mileage by googling "world distance calculator" and plugging in the cities. He might even see how long it would take to fly there by searching flights at a travel site like *kayak.com*.

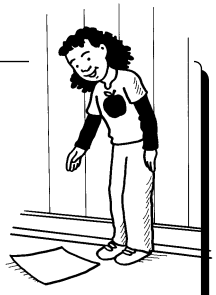
Compare times

Ask your child to compare winning times for a few timed events. For instance, he can find the times for the gold, silver, and bronze medalists in speed skating, bobsled racing, and downhill skiing. Then, he could calculate—to the decimal point—the difference between the medalists' times. Which sports can he find the biggest and smallest differences for?

Graph the medals

As your youngster watches events or reads about them, have him keep a chart of medals by country. He might list 10 countries and make columns for gold, silver, and bronze. When the games end, he can transfer his tally marks to a graph. Suggest that he try different types of graphs to see which kind will work best. *Tip:* Ask him to use his graph to tell you country rankings by type of medal and overall.

Center of gravity



Bending down to pick up a piece of paper sounds easy, right? Think again.

Ask your youngster to stand with her back and heels touching a wall. Put a sheet of paper on the floor in front of her, and ask her to pick it up without bending her knees or moving her feet. She'll see that she can't do it!

Explain that when she stands, her feet are under her center of gravity. To bend forward, she needs to shift her hips back so her center of gravity stays over her feet—but she can't do that with her back to the wall.

Now have her step away from the wall and bend over to pick up the paper. Ask her to describe the moves her body has to make.

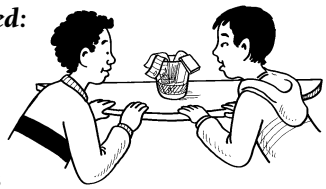
Thirsty plants

Have your youngster water a houseplant or go outside to notice rain soaking the ground around a tree. Ask how he thinks the water gets from the dirt up to the thirsty plant or tree. Then, let him try the experiment below—he'll see that *capillary action* is responsible for carrying water from the roots of a plant or tree to the leaves.

SCIENCE LAB

Watch the water flow

When does water flow up? When it travels through plants—and paper, as your child will see in this demonstration of *capillary action*.



You'll need: a juice glass, water, food coloring, strips cut from various kinds of paper (notebook, paper towel, tissue, cardboard)

Here's how: Let your youngster pour water in the glass (about $\frac{1}{4}$ full) and add food coloring. He should put the paper strips in so they touch the bottom and are folded over the rim of the glass. Have him watch closely to see how far the water travels up each strip. Does the water climb over the rim on any?

What happens? The water will travel up all the strips. It will likely go highest on the paper towel (although there may be variations depending on brand).

Why? Water moves up the paper because there are small places in the fibers for it to slide into. The paper that has the most and longest spaces in its fibers will provide the best capillary action.

OUR PURPOSE

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

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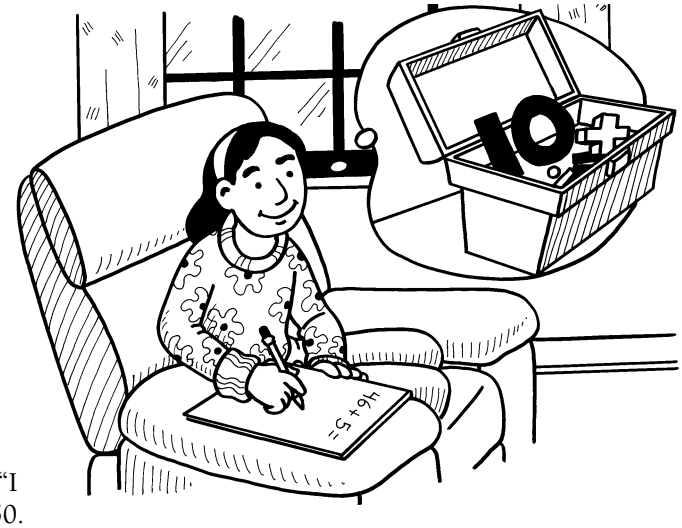
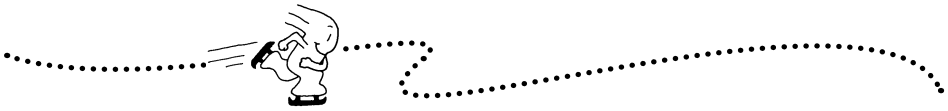
www.rfeonline.com
ISSN 2155-4412

Mental math strategies



Just as you need tools to fix things, your child needs tools to solve math problems. Share this toolkit of strategies that she can use for homework problems.

- **Make 10.** Change one of the problem's numbers to a multiple of 10 (or 100 or 1,000). To solve 46 + 5, for example, think, "I know that 46 + 4 = 50. So 46 + 5 would be 1 more, or 51."
- **Decompose numbers.** Break the numbers apart to help you add, subtract, multiply, or divide in your head. For 77 + 24, think, "24 is 20 + 4, so 77 + 20 = 97, and 4 more is 101."
- **Compensate.** Change to a simpler problem, and then adjust the numbers. To solve 143 – 29, think, "29 is 1 less than 30. Since 143 – 30 would be 113, 143 – 29 is 114."
- **Use known facts.** Break the problem into parts that you can easily do. For 7 x 8, think, "I know that 7 x 7 = 49, so I will add 7 more, and the answer is 56." Or say, "I know that 3 x 8 = 24 and 4 x 8 = 32, so 24 + 32 = 56."



PARENT TO PARENT

Send the right math message

At a recent math night at our daughter's school, the principal explained why math is so important in elementary school. Mrs. Harris said math is a "gatekeeper." If kids don't understand the concepts, that can keep them from taking higher courses in middle and high school—and even hurt their chances for college or many careers.

To encourage our children, the principal suggested that we try to relate math to things they are interested in. For our daughter, I realized, that could be the measurements she uses to bake cookies or the shapes she forms in making origami.

Mrs. Harris also urged us to be positive about math. The worst thing, she said, is to say, "I was never good at math." Instead, she said, we could say something like, "Math wasn't always easy for me. But I'm glad I stuck with it, because I never would be able to do my job without it!"