

Math+Science Connection

Building Understanding and Excitement for Children

December 2012



INFO BITS

Ask about school

Make it a point to ask your child about what he does in math and science each day. He might share his math journal or science experiment logbook with you. Then, you could ask questions like, "What strategy did you use to get that answer?" or "What surprised you about the experiment's results?" You'll reinforce his learning—and show that you care.

Brain exercise

Pose this challenge to your youngster: "How can you place a sheet of newspaper on the floor so that you and I could each stand on an end, but not be able to touch each other?" (*Hint:* What could she put between the two of you?) The ability to think creatively will help her in every school subject, including math and science.

Web picks

How about a game of meteor multiplication, sailboat subtraction, or hungry puppies decimals? Your child can find oodles of fun math activities, organized by grade, at mathgametime.com.

Let your youngster visit the "science gym" or take a mission to Earth. When she visits kineticcity.com, she'll find cool activities, experiments, and projects to do online or "for real."

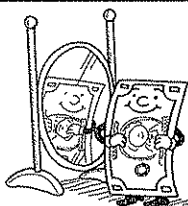
Worth quoting

"Science knows no country, because knowledge belongs to humanity, and is the torch which illuminates the world." *Louis Pasteur*

Just for fun

Q: How can you double your money?

A: Look at it in a mirror.



Woodrow Elementary School
Vickie Briscoe, Principal

Playing with fractions

"We're halfway there." "I finished three-quarters of my meal." "This recipe calls for $1\frac{2}{3}$ cups sugar."

Hardly a day goes by that your child doesn't hear or use a fraction in everyday speech. Help her understand more about how fractions work with these ideas.



Make music

Fractions are an expression of rhythm. Clap slowly, and have your youngster clap two, four, or eight times for every clap you make. She'll hear that each beat can be broken into fractions, and the fractions create the rhythm. For instance, each of her claps will take $\frac{1}{2}$, $\frac{1}{4}$, or $\frac{1}{8}$ the time of yours.

Have her line up six glasses and measure water into each ($\frac{1}{4}$ cup, $\frac{1}{2}$ cup, $\frac{3}{4}$ cup, 1 cup, $1\frac{1}{4}$ cup, $1\frac{1}{2}$ cup). To play a tune, she should strike each glass with a metal spoon. The tones will change as she goes up the "scale"—showing the connection between fractions and music.

Divide up food

Get two celery stalks that are the same length. Have her cut one into 4 equal parts and the other into 8 equal parts. Then, she can line up pieces to find *equivalencies*. For example, she'll see that $\frac{2}{8} = \frac{1}{4}$ or that $\frac{4}{8} = \frac{1}{2}$.

Let your child serve pizza and say the math as she gives each person 1 slice ($\frac{1}{8}$) or 2 slices ($\frac{1}{8} + \frac{1}{8} = \frac{1}{4}$ of the pizza). Or cut an apple into eighths. She could use the apple wedges to add fractions, and write down the equation she makes (*example:* $\frac{1}{2} + \frac{1}{8} = \frac{5}{8}$). Or she might eat 4 slices and say the fraction that's left ($\frac{1}{2}$).

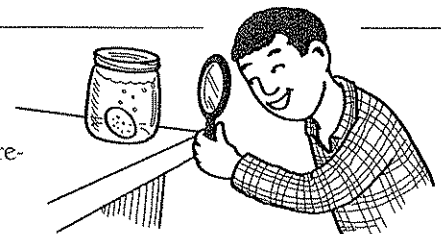
Bubbly eggs

What do eggs and people have in common? This quick activity will show your youngster the answer.

Have him put an egg in a clear jar and carefully pour hot water almost to the top. Give him a magnifying glass, and tell him to look closely at the egg and the water around it. What does he notice? (Small bubbles form on the shell and eventually rise to the top.)

Ask him why he thinks the bubbles form. *Tip:* He can use the magnifying glass to examine another egg for clues.

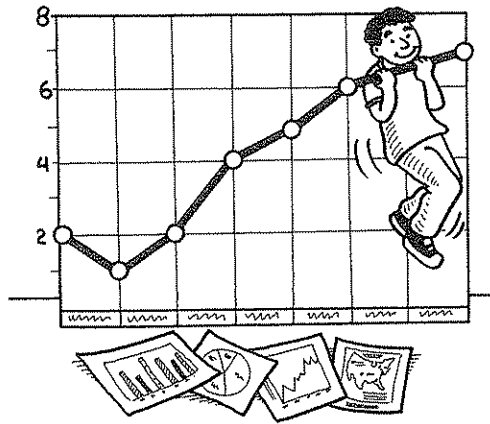
The explanation: Eggshells have thousands of tiny holes called pores—just like our skin is covered with pores. When the hot water heats up the air inside the egg, it escapes through those tiny holes, and bubbles form.



Real-world graphs

Reading and making graphs is an important way that children learn to interpret data. Give your youngster practice with these suggestions.

The story. Cut a graph out of a newspaper or magazine, and cover up the headings and labels so your child can't see what is being measured. Then, have him look at the data and make up scenarios for what the graph might show. This will help him see how we use graphs to represent data. Finally, let him



compare his ideas to the actual information being presented.

Work samples. Do you use graphs in your work? Bring home samples for your youngster to see. You can explain why they're important in your job. He'll see that there's a reason for him to learn about graphs—he will need to use them when he grows up, too.

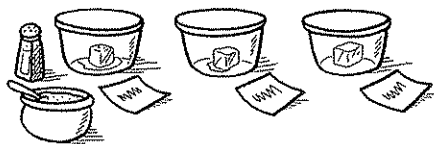
My graph. Encourage your child to get some physical activity by having him graph the results. First, ask him to list a few exercises (sit-ups, push-ups, jumping jacks). Then, he can think of ways to create a graph showing how many he does each day. Chances are he will want to exercise more so that his graph moves in the right direction! 📊

SCIENCE LAB

Melting ice

When it's icy out this winter, your youngster may see salt being sprinkled on sidewalks and roads. With this experiment, she'll find out why.

Materials: 3 ice cubes, 3 clear plastic containers, measuring spoon, salt, sugar, sticky notes



Here's how: Have her place an ice cube in each container. She can sprinkle 1 tsp. salt on one cube, 1 tsp. sugar on the second cube, and nothing on the third cube. Suggest that she label each container with a sticky note. Then, she should monitor the cubes to see which one melts first.

What happens? The cube with the salt will melt the fastest.

Why? Salt lowers the freezing point of water, causing the ice that it touches to melt.

Variation: Do the experiment again, but this time put a different type of salt (table, rock, sea, kosher, Epsom) on each ice cube. Which one works best? 📄

OUR PURPOSE

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

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MATH CORNER

The numbers on my forehead

Discover the numbers that you can't see—with this double-digit addition game for three players. Here's how to play:



1. Remove the face cards and 10s from a deck of cards.
2. Designate a leader. Then, the other players each draw two cards and—without looking at them—hold the cards on their foreheads facing out, making a two-digit number for everyone else to see.
3. The leader adds the cards together and announces the sum (ace = 1). For example, if she sees a 2 and a 6 on one forehead (26) and a 4 and 7 on the other (47), she would say, "73" ($26 + 47 = 73$).
4. The players use the sum, along with the numbers they can see, to figure out what's on their own foreheads. The first one to say the correct number wins that round.
5. Change leaders, and play again.

Variations: For multiplication and division practice, let each player hold one card to her forehead, and have the leader multiply them together. 📄

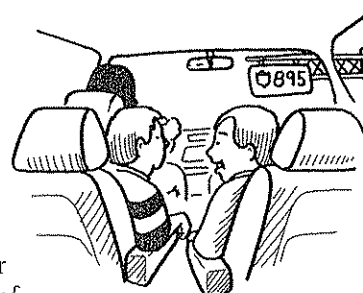
PARENT TO PARENT

Math in the car

When we were in the car recently, I heard my kids making up a game with license plates. They were trying to see who could find the largest number by adding together the digits in a single license plate.

After they played that game for a while, I suggested that they multiply the digits in highway signs to find the highest number. For instance, a speed limit of

55 would be 5×5 , or 25. My son won that round with a sign for Route 895 ($8 \times 9 \times 5 = 360$). Then, my daughter suggested that for the next round, the low number would win.



We had fun coming up with ways to play math games as we drove. Now whenever we get in the car, the kids try to think of a new math game. They're not as bored doing errands, and I'm pleased that they're practicing math as we go. 📄