Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

September 2018

Nazareth Area Intermediate School
Title I Math

INFO BITS

How old am I?

Ask your child how old she is. The catch? You want her age in months, days, minutes, and seconds. She'll need to decide how to approach each problem and then solve it. She can use paper and pencil or a calculator. But watch out if she asks how many seconds old *you* are!

Science reading

When your youngster reads his science textbook, suggest this 3-2-1 strategy. Have him jot down 3 things he discovered, 2 things he found fascinating, and 1 question he still has. Looking for facts and questions will keep him focused on what he's reading—and help him learn more.

Book picks

If You Were a Quadrilateral (Molly Blaisdell) lets your child discover all the different things one shape can be.

Travel back to ancient China, and find out how a little boy used math and the science of buoyancy to weigh an elephant in *Cao Chong Weighs an Elephant* (Songju Ma Daemicke).

Just for fun

Q: What has 100 heads and 100 tails?

A: 100 pennies!

Playing with fractions

"We're halfway there." "I finished $\frac{3}{4}$ of my meal." "This recipe calls for $1\frac{2}{3}$ cups sugar." Hardly a day goes by that your youngster doesn't hear or use a fraction in everyday speech. Help him understand more about how fractions work with these ideas.

Make music

- Fractions are an expression of rhythm. Clap slowly, and tell your child to clap two, four, or eight times for every clap you make. He'll hear that each beat can be broken into fractions, and the fractions create the rhythm. For instance, each of his claps will take $\frac{1}{2}$, $\frac{1}{4}$, or $\frac{1}{8}$ the time of yours.
- Have him line up six identical glasses and measure water into each: $\frac{1}{4}$ cup, $\frac{1}{2}$ cup, $\frac{3}{4}$ cup, 1 cup, $1\frac{1}{4}$ cups, $1\frac{1}{2}$ cups. To play a song, he should strike each glass with a metal spoon. The pitch will change as he goes up the "scale"—showing the connection between fractions and music.

Divide up food

- Get two pretzel rods that are the same length. Ask your youngster to break one into 4 equal parts and the other into 8 equal parts. Then, he can line up pieces to find *equivalencies*. For example, he'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 he 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. He could use the wedges to add fractions and write down the equation he makes (*example:* $\frac{1}{2} + \frac{1}{8} = \frac{5}{8}$). Or he might eat 4 apple wedges and say the fraction that's left ($\frac{1}{2}$).

Fish detective

Did you know that buying fish for dinner can help your child learn more about animal life? When you're in the grocery store or fish market, have her look carefully at the whole fish displayed and consider these three questions.

1. Who are the fastest swimmers? (*Hint:* Pay attention to the shape of the body, fins, and tail.)

2. Which ones eat plants? Which ones eat other fish? (*Hint:* Notice the size and shape of the mouth and teeth.)

3. How can they hide from predators? (*Hint:* Think about how their colors help them blend in with their ocean surroundings.)

Idea: Your youngster can confirm her findings with the fishmonger or by making sketches, taking notes, and consulting books or websites later.

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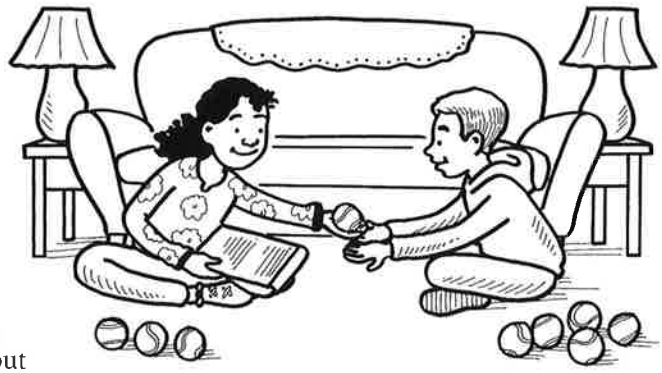
Word problem strategies



Drawing, acting, and writing are all hands-on ways for your youngster to approach word problems. Let her try these activities.

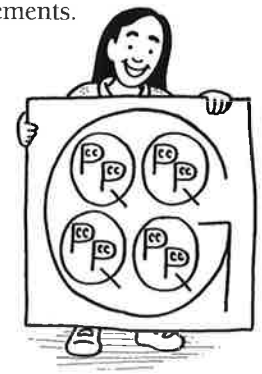
Draw a picture. Encourage your child to sketch the problem. Deciding how to illustrate it will help her pull out the important details and visualize what she has to solve.

Act it out. It's fun for kids to put on shows. Have your youngster enlist a friend or sibling (or you!) and act out word problems. She can count out the objects mentioned, perform the task in the word problem, and see the answer that results.

Create a story. Ask your child to rewrite the problem in her own words. Or she could create her own word problems that are similar to ones she's working on. Suggest that she use ideas from her daily life or make up scenarios. When she realizes she can write story problems as well as solve them, she'll feel she has "power" over word problems.

MATH CORNER What's in a gallon?

How many quarts are in a gallon? How many cups are in a pint? Here's a fun way to help your youngster remember the relationships among liquid measurements.



On a poster board, have her draw a large outline of the letter G for gallon. Inside the G, she should write four Qs to show that four quarts are in a gallon. She can put two Ps (two pints to a quart) inside each Q and two Cs (two cups to a pint) inside each P.

Next, have her use her "Big G" to figure out math problems. *Example:* The recipe calls for 4 cups of milk. How many pints should we buy? (2) Let your child make up questions for you, too.

Q & A Help with homework

Q: *Our son's math homework is getting harder for him this year. Should we help him with it?*

A: You play an important supporting role in your youngster's homework. But remember it's *his* homework—and he'll learn the most by doing it himself. Also, when he turns in his own work, his teacher will be able to see what he knows and where he needs help.

If your child gets stuck on a math problem, you can guide him. For example, suggest that he look at sample problems in his textbook or classroom notes. Or ask him to read the directions out loud, and see if there are words he doesn't understand. You could also have him explain the method he's trying to use—teaching it to you might clear up his confusion.

Finally, if he's still unsure, encourage him to call the school's homework hotline or go to his teacher for help.

SCIENCE LAB Conserving water

The average person uses about 20 gallons of water to shower. Have your child multiply that by the number of people in your home—that's a lot of water! With this experiment, your youngster can see how engineers design products to save resources.

You'll need: 2 paper cups, pencil, straight pin, water, sink

Here's how: Let your child use a pencil to poke a few large holes in the bottom of one paper cup and a straight pin to make lots of small holes in the bottom of the second cup. Then, he should fill a sink with water, hold a paper cup in each hand, and lower the cups straight down until they're underwater. Once they fill with water, have him lift them out at the same time and watch carefully as they drain.

What happens? The water will drain faster out of the cup with larger holes.

Why? Smaller holes slow down the flow of the water. So a showerhead with smaller holes will use less water—conserving water *and* saving your family money!

OUR PURPOSE

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

Resources for Educators,
a division of CCH Incorporated
128 N. Royal Avenue • Front Royal, VA 22630
800-394-5052 • rfecustomer@wolterskluwer.com
www.rfeonline.com

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