Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

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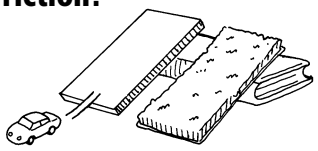
Colonsay School
Mr. McTavish: Principal Mrs. Moen: Vice Principal

INFO BITS

Artistic angles

Suggest that your child draw a picture using only straight lines. He might sketch a city landscape, an apartment building, or an abstract design. When he's done, can he identify the right (90°), acute (less than 90°), and obtuse (over 90°) angles? *Tip:* He could use a protractor to measure the angles.

What is friction?



Have your youngster set up two ramps for a toy car, one smooth (a book, a piece of wood) and one rough (corrugated cardboard, a carpet scrap). She'll see that the car goes more slowly on the rough ramp—and learn about *friction*, or the resistance of motion when objects rub against each other.

Web picks

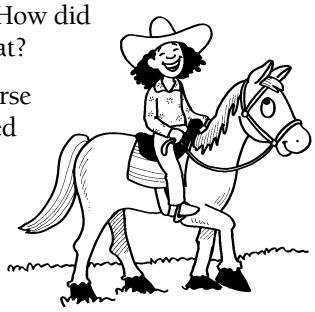
🖳 Help the monster get home by solving multiplication and division story problems at *members.learningplanet.com/act/mc/freemenu.asp*.

🖳 Visit *teacherstryscience.org/kids* for experiments with sound waves, chemical reactions, and more.

Just for fun

Q: A girl came to town on Monday. After staying three days, she left on Monday. How did she do that?

A: Her horse was named Monday!



Fabulous fractions

Your child needs to know about fractions for math class, as well as for everything from cooking to construction to finances when she grows up. Use these ideas to build everyday fraction skills.

Name them

Ask your youngster to make fractions from the world around her. You might say, "What fraction of the month has passed?" If the month has 31 days, that's the whole, and if it's the 12th, 12 is the part—so $\frac{12}{31}$ of the month has gone by. Go back and forth with each other, creating fun fractions like "What fraction of your book have you read?" or "What fraction of your socks are striped?"

> ***A fraction*** is simply a part of a whole. The ***numerator*** (top number) is the part, and the ***denominator*** (bottom number) is the whole.

Add them

Race to the finish line—by adding fractions. Have your child draw a number line from 0 to 12, labeling three evenly spaced tick marks ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$) between each pair of whole numbers. Then, she can write 8 fractions on separate note cards ($\frac{1}{4}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, $\frac{3}{4}$, $\frac{4}{4}$, $\frac{4}{4}$) and turn them facedown. To play, each person places a token at 0. Take turns picking two cards. Add the fractions shown (say, $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$), and move your marker by that sum (from 0 to $\frac{3}{4}$). As she moves up the number line, she'll work with mixed numbers, too ($4\frac{3}{4} + \frac{1}{2} = 5\frac{1}{4}$). Be the first to reach 12—exactly! ⬢

Build me a home

How do engineers design houses to protect against weather conditions?

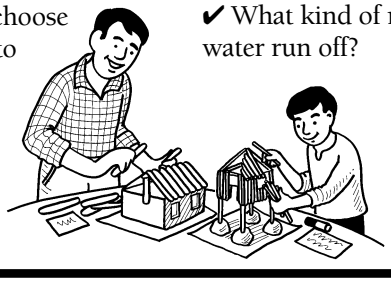
Dream up weather scenarios, and write each one on an index card. ("Snowy, very cold." "Rains daily, extremely hot.") Then, choose cards, and build homes to suit, using household materials like craft sticks, clay, boxes, straws, and tape.

Pose questions to get your child thinking:

✔ If it's very cold, should the house have thin walls or thick walls?

✔ What would protect against high winds?

✔ What kind of roof would help rainwater run off?



Now, show off your houses to each other—and talk about where they might exist! ⬢

The great pumpkin

A fall pumpkin is a good excuse for having math and science fun.

Measure

- How much does a pumpkin weigh? Let your youngster weigh himself, then weigh himself again while holding a pumpkin. The difference is the pumpkin's weight.
- How big around is the pumpkin? Have your child wrap a string around its middle like a belt, cut the string to fit, and measure its length. That's the *circumference* (distance around).

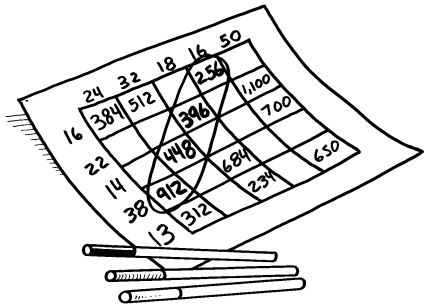
Observe

- At a pumpkin patch, encourage your youngster to notice where pumpkins grow (on a vine, on the ground). How many pumpkins are on each vine? Suggest that he talk to the farmer or read library books to learn more about how pumpkins grow.
- At home, cut off the top of a pumpkin, and let your child scoop out the insides. Have an adult carefully light a candle inside the pumpkin. What happens if you put the top back on? (The light goes out.) Try again after carving a face. Why does the candle stay lit this time? (Because the holes let in oxygen.)

MATH CORNER Double-digit dash

Multiplying two-digit numbers is a skill that's developed with practice. This game will give your child that practice.

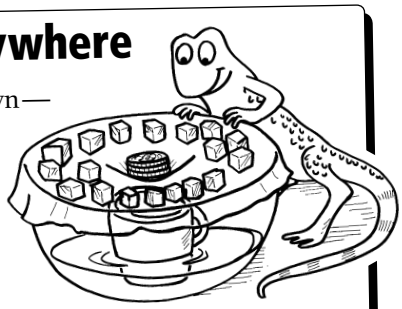
Have your youngster make a 5 x 5 grid (like a bingo card). Above each column and to the left of each row, he can write any two-digit number.



The object is to get four in a row—across, down, or diagonal. The first player picks an empty square and multiplies the column and row numbers together (*example:* 24 x 35 = 840). If he gets it right, he writes the answer in the square. (*Tip:* Use a calculator to check answers.) The other player, using a different color pen, takes his turn.

Play until someone gets four in a row or the board is full and it's a draw.

SCIENCE LAB Water, water everywhere



What goes up must come down—and go back up! Show your youngster how the water cycle works.

You'll need: mug, large bowl, measuring cup, hot water, plastic wrap, 4 quarters, ice cubes

Here's how: Help your child set the mug in the bowl and carefully pour 1 cup hot water around it. Have her cover the bowl tightly with plastic wrap, place the quarters on top (in the center), and add ice cubes all around them.

What happens? The hot water quickly starts to change into water vapor and rise. When it hits cold air (from the ice cubes), it changes to water droplets on the underside of the plastic wrap. The weight of the quarters funnels the water so it drips into the mug. If your youngster pulls off the plastic wrap, she'll find water in her mug.

Why? When water is heated by the sun, it evaporates, rising into the air as water vapor and collecting into clouds. As the water vapor cools, it condenses back into water and eventually falls to the earth as rain or snow.

PARENT TO PARENT Think your way to 100

I noticed that my daughter Tia didn't like to do math in her head. Since my mother is a fourth-grade teacher, I asked her for ideas. She suggested this "mental math" game.

To win a point, you have to reach 100 in two steps—no paper or calculators allowed. On each turn, give the other player a number and two operations to use, such as division and addition or multiplication and subtraction. For example, I gave Tia the number 77 and said to use division and addition. It took her a few minutes, but she figured out she could divide 77 ÷ 11 = 7 and then add 7 + 93 = 100.

Tia is surprised that she's enjoying doing math problems in her head. And you know what? It's good for my brain, too!

OUR PURPOSE

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

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