Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

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Fauquier County Public Schools

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INFO BITS

A tall (math) tale

Encourage your child to write a silly story about a day without math. How would his grandmother's famous muffins taste if she couldn't measure the ingredients? What mayhem would occur at the post office if there were no numbers on the mail? Your youngster will realize just how important math is.

Bird calls

Early in the morning, go outside with your child to listen to the birds. Ask her to repeat the bird calls she hears. Does she hear the same ones each morning? What about at different times of the day? Together, look up bird calls in a library book or online to identify the birds making the sounds.

Book picks

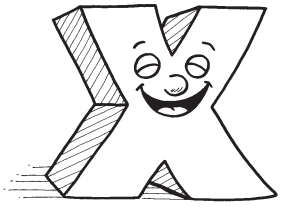
Your youngster can discover shapes and patterns of the natural world in *Mysterious Patterns: Finding Fractals in Nature* (Sarah C. Campbell).

Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner (Janice N. Harrington) tells the true story of a curious boy who became a zoologist famous for his insect research.

Just for fun

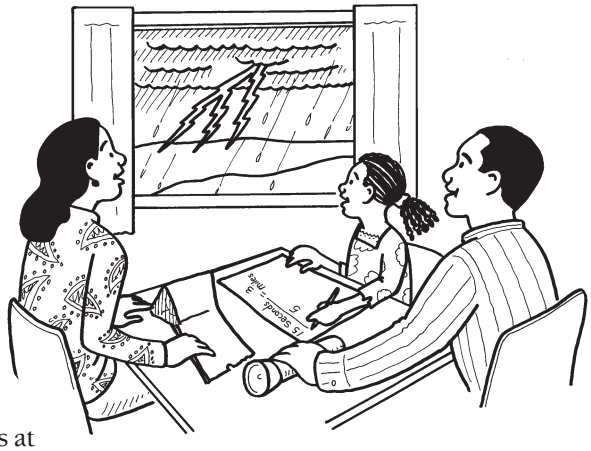
Teacher: If you solve for x, you see that x = 3.

Student: Just a minute! Yesterday you said that x = 2!



Spring into math

Spring is here! Let your child welcome the season with these fun math activities.



Calculate daylight

There's a little more daylight every day—and that means more time to play outside! Encourage your youngster to calculate the hours and minutes of daylight. She can check sunrise and sunset times online, then find the difference. For example, if the sun rises at 7:38 a.m. and sets at 8:09 p.m., that's 12 hours and 31 minutes of daylight. How much does the amount change from day to day?

Make symmetrical kites

Invite your youngster to decorate for spring—and explore symmetry—by drawing colorful kites. She can cut white paper into squares, fold each "kite" in half diagonally, and paint a design on one half. While the paint is wet, she should fold along the line, press down, and unfold. She'll see a symmetrical design—each half is a mirror image of the other.

Track thunderstorms

During a storm, ask your child to count the seconds between lightning and thunder (say, 15). If she divides by 5, she can tell you how many miles away the storm is (15 seconds ÷ 5 = 3 miles). Why? Lightning and thunder happen at the same time. But light travels faster than sound (about 186,000 miles per second for light vs. 1 mile every 5 seconds for sound). *Idea:* No thunderstorm? Create one for your child by flashing a light (lightning) and popping a paper bag (thunder).

Experiment with erosion

The Earth is constantly changing as wind and rain shape the land. Try this idea that shows your youngster how *erosion*, or the wearing away of land, works.

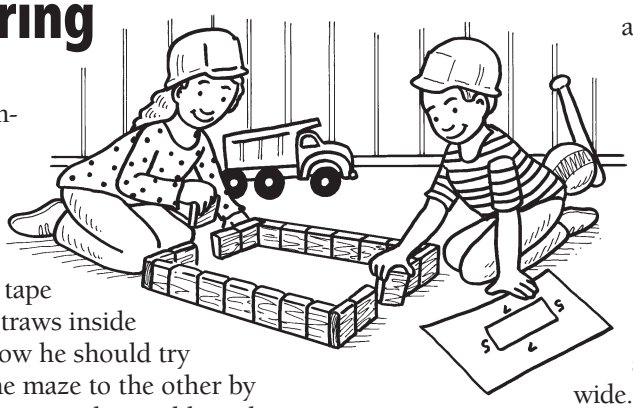
1. Have him put a layer of sand or sugar in a baking dish.

2. Let your child blow through a straw onto the sand to make a "valley." This is wind erosion. Then, tilt the pan slightly, and have him pour water into the valley at the higher end. He'll see the sand move "downstream." This is water erosion.

3. Now suggest that your youngster smooth out the sand and repeat the activity—this time adding different arrangements of rocks, leaves, or grass. (The soil won't erode as much, which is why farmers and communities use trees and bushes to protect land.)

Math + engineering

By building marble mazes and block structures, your child can combine engineering and math. Suggest these playful challenges.



A-maze-ing angles. Designing a marble maze lets your youngster experiment with angles. Have him tape craft sticks, cardboard strips, and straws inside a large box lid at various angles. Now he should try to roll a marble from one side of the maze to the other by tilting the lid in different directions. Does the marble make it all the way through? If not, he can change the angles of some of the sticks or straws and try again until he's successful.

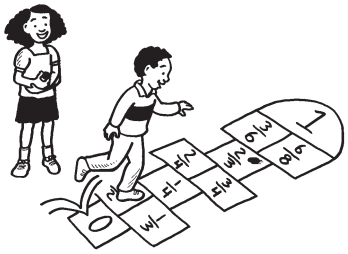
Perimeter and area. Your child will see the relationship between perimeter and area with this activity. Encourage him to make a one-story structure (no stacking) with 24 square blocks. He might make a square 6 blocks long and 6 blocks wide. Then, he should count the blocks to find the perimeter (24) and multiply to get the area (6 x 6 = 36). What happens if he makes an 8 by 4 building? (The perimeter is still 24, but the area is 32, because 8 x 4 = 32.) Have him try different possibilities (1 by 11, 2 by 10, 3 by 9). He'll see that the area changes, but the perimeter doesn't.

MATH CORNER

Fraction hopscotch

Learning equivalent fractions is a hop, skip, and jump away for your child with this spin on a classic outdoor game.

Set up: Have your youngster draw a hopscotch path and label the first block "0" and the last "1." In each block in between, let him write one of these fractions: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{3}{6}$, $\frac{6}{8}$. Give each player a token (beanbag, stone).

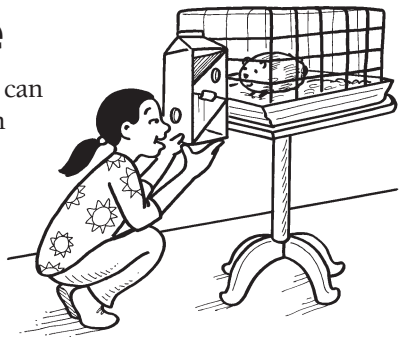


Play: Players start on 0 and take turns tossing their token into any block (except 1) and saying a fraction that's equivalent to the one it lands on. (If your child's token lands on $\frac{2}{3}$, he could say $\frac{6}{9}$.) If he's correct, he hops to the $\frac{2}{3}$ block, picks up his token, and hops back to 0. (If he's incorrect, his turn ends.) Players should land their token on each fraction before trying to land it on 1.

Win: Be the first person to reach 1.

SCIENCE LAB

Make a periscope



Ahoy, mate! Your youngster can build a simple periscope and learn about light with just a few items.

You'll need: empty milk or orange juice carton, scissors, tape, 2 small mirrors

Here's how: Help your child cut open one side of the carton. Let her tape one mirror at a 45° angle near the bottom, facing up, and the other at a 45° angle near the top, facing down. Have her cut a peephole in the carton opposite each mirror and tape the side closed. Now she can crouch by a table, holding the periscope with the bottom hole below the table and the top hole above it, and look through the bottom hole.

What happens? She'll see things overhead, just like submariners peer out of a periscope to see what's going on above them.

Why? The light bounces off the top mirror to the bottom mirror, and then to her eye. This lets her view images visible through the top hole.

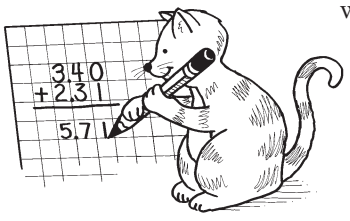
PARENT TO PARENT

Check your work

I noticed that the teacher had written "Remember to check your work" on several graded assignments my daughter Sarah brought home. When I asked Sarah about it, she said she sometimes has trouble lining up numbers and decimals in problems. So I shared a strategy I used when I was her age.

I had Sarah write the problems on a sheet of graph paper, with one number or symbol per box. This made it a breeze to line up everything correctly.

Then, my daughter suggested that when she doesn't have graph paper on hand, she could pencil in zeroes in equations to help her line up the decimals. For 3.4 + 2.31, she would write 3.40 + 2.31 and solve to get 5.71.



Now Sarah is making fewer mistakes—and getting better math grades.

OUR PURPOSE

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

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