Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

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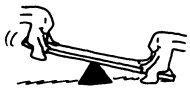
Cornelius Elementary School
Mrs. Karen E. Jackson, Principal



INFO BITS

Geometry + art = fun

Suggest that your youngster draw and cut out rhombuses, rectangles, squares, and other quadrilaterals. Then, see what monsters, animals, or landscapes she will design with them. Once she glues her creations to paper, you could hang her geometry art for all to see!

The fulcrum effect

Your child can make a lever by balancing a ruler on a pencil (the *fulcrum*). Have him put a rock on one end and add pennies on the other end until the rock is lifted. What happens if he moves the fulcrum closer to either end? With each test, he should count the pennies and measure the distance from the fulcrum to the penny end (the *effort arm*) and the rock end (the *load arm*).

Web picks

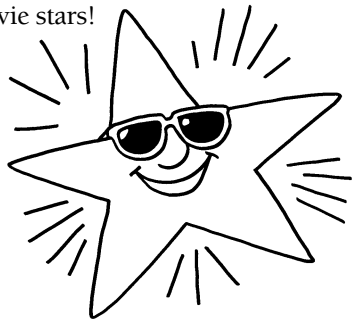
🖳 Wash skyscraper windows or run a diner—by doing math—with the activities at *fun4thebrain.com.*

🖳 Let your youngster explore science questions like "What are the northern lights?" or "Why do we yawn?" at *loc.gov/rr/scitech/mysteries/archive.html.*

Just for fun

Q: What stars wear sunglasses?

A: Movie stars!



In the right place

Place value transforms the 5 in 35,069 to 5,000. Let your child try his own transformations with these place-value games.

Cups of numbers

Setup: Have your youngster write the digits 0–9 in order around the rims of six Styrofoam cups. The second cup represents 10s, so on that cup, he writes 0 to the right of each digit (1 becomes 10, 2 becomes 20). The third cup represents 100s (add two 0s to make 100, 200), and so on. When he's finished, nestle the cups together from 1s to 100,000s (the extra 0s will all be hidden).

Play: Now, say a six-digit number (745,609). Your child rotates the cups to show the number. Ask questions like "What digit is in the hundreds place?" (6) or "What number does the 4 represent?" (40,000) To check his answers, he can pull the cups apart to see the 0s! Take turns giving each other numbers to make—and questions to answer.

Five in a row

Setup: On separate slips of paper, write the numbers 1–9, 10s from 10 to 90, 100s from 100 to 900, 1,000s from 1,000 to 9,000, 10,000s from 10,000 to 90,000, and the phrases "no 1s," "no 10s," "no 100s," "no 1,000s," and "no 10,000s." Put the slips in a bag. Each player should make a 5 x 5 bingo board, labeling the columns (left to right) 10,000s, 1,000s, 100s, 10s, and 1s. Then, randomly fill in numbers 0–9.

Play: Take turns drawing a slip. If it's 5,000, mark 5 in your 1,000s column. For "no 10s," mark 0 in the 10s. The first one with five in a row is the winner—and reads the number he formed (say, 75,802).

Map the weather

What weather does your youngster see outside? Suggest that she use this activity to compare the weather she's experiencing with the weather elsewhere.

First, she could draw or print out a blank U.S. map and make a key (say, blue for sun, gray for rain, white for snow). Have her look online or in a newspaper to find the weather in other states—and color her map to match. She'll learn about geography and how climate patterns vary throughout the country.

Then, she can make a bar graph to see at a glance which weather is most common across the United States today.

Filter out pollution

With this project, your youngster can see water pollution firsthand—and engineer a solution for filtering it out.

1. Add "pollution" to a pitcher of water. She might put in crumpled pieces of paper, coffee grounds, or scraps of plastic bags.

2. Help your child cut an empty 2-liter clear plastic bottle in half horizontally. The top half will be the filter, and the bottom half will collect the filtered water.

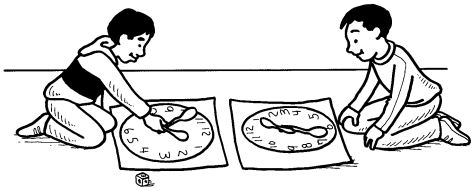
3. To make the filter, she can place a fabric swatch over the mouth of the bottle and secure it with a rubber band. Have her turn the filter upside down, set it inside the bottom half, and fill it with a material that could filter the water (pebbles, sand, dirt, or cotton balls, for instance).

4. Finally, let her pour 1 cup of polluted water slowly through the filter and into the (empty) bottom half. Have her compare the filtered water to the dirty water and make notes. How much pollution got through? What color is the water?

5. Empty the bottom, and try again with different filtering materials. Which one works best?

MATH CORNER Fractions of time

Combine telling time and fractions into a game for a fun way to practice both. Here's how.

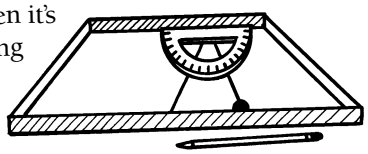


First, put masking tape over each side of a die and label them: $+\frac{1}{4}$, $+\frac{1}{2}$, $+\frac{3}{4}$, $+1\frac{1}{4}$, $-\frac{1}{4}$, $-\frac{1}{2}$. These will represent fractions of an hour. Each player should make a clock face by drawing a circle on a sheet of paper and labeling the hours (1–12). Give each person a teaspoon and a soup spoon to use as hands.

The object of the game is to be the first to 3:00. Each player sets his clock hands to 12:00. Take turns rolling the die, and move your clock hands up or back the amount rolled. For instance, if the first player rolls $+\frac{3}{4}$, he would move his clock from 12:00 to 12:45. Now, race to 3:00!

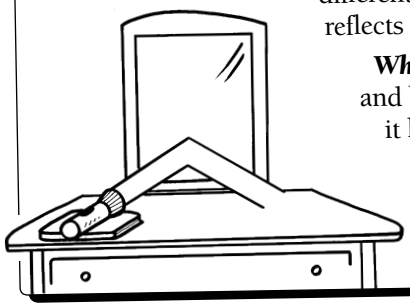
SCIENCE LAB Follow the bouncing light

Can your child predict what light will do when it's reflected off a mirror? Comparing it to a bouncing ball will help.



You'll need: ball, box, pencil, protractor, flashlight, wall mirror

Here's how: Let your youngster roll the ball inside the box so it bounces off a side. With a pencil, he can mark the path he observed. Have him use the protractor to measure the angles the ball made going toward and away from the side. Then, in a darkened room, ask your child to shine the flashlight on the mirror at different angles and, each time, watch where the light reflects on the wall.



What happens? The ball hits the side of the box and bounces off at the same angle. For instance, if it hits at a 20-degree angle, it will bounce off at a 20-degree angle. When light reflects, it behaves the same way—reflecting off the mirror *(angle of reflection)* at the same angle at which it arrived *(angle of incidence)*.

PARENT TO PARENT Multiplication on the fly

My daughter Genevieve learned her multiplication tables last year, but I noticed she had gotten rusty. My dad is a math teacher, and I remembered how he used to practice multiplication and other skills with us a little each day. So I decided to start the same tradition with Genevieve.

Now, on the way to Girl Scout meetings, we'll give each other problems like 7 x 9 or 4 x 8. Or at the library, I'll say, "Let's get three books for each person in our family. How many will that be?" Since there are four in our family, she'll figure out 4 x 3 = 12.

We do only a few problems at a time, so Genevieve doesn't feel like it's extra schoolwork. Instead, it's a game we play—and she's getting pretty good at it.

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
540-636-4280 • rfecustomer@wolterskluwer.com
www.rfeonline.com