Beginning Edition

Math+Science Connection

Building Excitement and Success for Young Children

February 2019

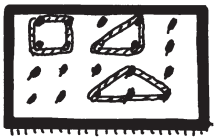
Title I

Prince William County Public Schools

TOOLS & TIDBITS

Geoboard geometry

Explore shapes with this homemade geoboard. Help your child press pushpins into a bulletin board in evenly spaced rows and columns, perhaps 5 x 5 or 10 x 10. She can wrap colorful yarn around the pins to make geometric shapes, perhaps four pins to make a square or three for a triangle.



An engineering journal

Inspire your child to think like an engineer. In a notebook, he could draw or write project ideas. Explain that engineers aim to solve problems like how to keep people warmer in winter (say, by designing better coats). Maybe he'll draw a puffy coat with gloves attached, for example.

Web picks

At *ictgames.com/resources.html*, your youngster can put leaves in order for a caterpillar to munch on, save odd- and even-numbered dragon eggs, and more.

Your child will find experiments like growing edible crystals, creating bubbles in liquid, and making fossils at *scholastic.com/kids/books/the-magic-school-bus/*.

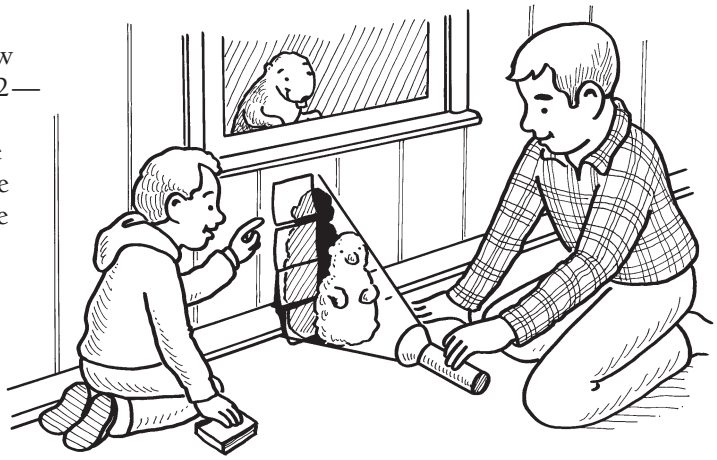
Just for fun

Q: Which month has 28 days?

A: All of them!

Groundhog Day fun

A groundhog named Phil looks for his shadow every year on February 2—but your child can find shadows any day! These activities let him practice measurement skills as he learns about the science of shadows.



Blocking light

Help your youngster understand what makes a shadow by testing different types of objects. Let him hold a book, sunglasses, and a clear glass under a bright lamp. What does he notice about the shadows they cast (or don't)? He'll see a dark shadow from the book, a dim one from the sunglasses, and no shadow from the glass. The answer? Solid objects block light—and make the best shadows!

A growing shadow

Encourage your child to sculpt a play dough groundhog and measure its shadow. In a dark room, shine a flashlight on the groundhog while your youngster lines up a column of sticky notes on its shadow. Have him count the notes. How could he make the shadow taller or shorter? Suggest that he experiment by moving the groundhog closer to the flashlight (the shadow grows taller) and farther away (it gets shorter).

Human sundial

Does your youngster know that shadows helped ancient people tell time? On a sunny day, he can find out how. Each hour through the day, have him stand in the same spot while you trace around his shadow with chalk and he marks the time. At the end of the day he'll have a clock formed by his shadow appearing in different locations as the Earth turned.

Floating fruit

Fruit is a handy tool for exploring *density*. Here's how.

Have your youngster fill a large bowl with water. Then, she can examine different fruits (apple, orange, lemon, banana, strawberry, grape) and predict which ones will float.

Let your child test her predictions by putting the fruits in the water, one at a time. She may be surprised that a heavy apple floats while a lightweight grape sinks!

Explain that fruits that are *porous* (contain air pockets), such as apples, float because they're less *dense* (the *molecules*, or tiny particles, inside are more loosely packed together). Fruits without air pockets, like grapes, sink because they're *denser* (the molecules are more tightly packed).

Artsy story problems

Arts and crafts projects are a great way to help your child visualize—and solve—story problems. Try these.

● *Seven bluebirds perched on a rooftop. Three redbirds joined them. How many birds were there in all?*

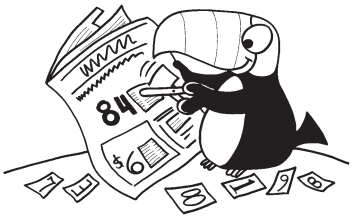
Let your youngster make a mini book by cutting a sheet of paper into fourths and stapling the pieces together. She can write a title on the cover ("Birds on the Roof") and draw one step of the problem on each page (7 bluebirds on a roof on the first page, 3 redbirds beside them on the next page). The last page is for the number sentence: 7 + 3 = 10. Now invite her to "read" her book to you.

● *A clown had six balloons. Eight kids wanted a balloon. How many more balloons does the clown need?*

Suggest that your child use craft supplies for this problem. Perhaps she'll twist pipe cleaners to create 8 stick figures representing the children. Then, she could make 6 balloons by gluing pompoms to craft sticks. Help her match one balloon to each kid—she'll see that the clown needs 2 more balloons (8 – 6 = 2).

PARENT TO PARENT Newspaper math

When my son Marcus was putting newspapers into the recycling bin, he began reading numbers in the sports headlines. I mentioned this to my sister, who is a teacher, and she gave me ideas for using the newspaper to help Marcus build more math skills.



First, she said Marcus might cut numbers from the newspaper and glue them in order on poster board. So far he has found numbers in news articles, the weather report, and the movie listings. My sister also said Marcus could cut out words containing different numbers of letters (3, 4, 5) and glue them onto separate pages labeled with the numbers.

Marcus is having a great time with his newspaper activities, and I'm glad he's practicing what he's learning in school!

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
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MATH CORNER Greater than, less than

Your youngster will build number sense by creating and playing this game to explore *greater than* and *less than*.

Have her make two sets of index cards, each with stickers or drawings representing the numbers 1–12. Shuffle the cards, and stack them facedown.

To start each round, players take a card without looking at it. On "Go," everyone flips over their cards onto a table and tries to slap the card that has the most stickers. The person who slaps the correct card first takes all the cards. For example, if one player turns over a card with 8 stickers, another flips one with 6, and a third player's card has 4, everyone would try to slap the 8 card. If there's a tie, skip that turn and play again. The player with the most cards at the end wins. Then, play again—but this time, slap the cards with fewest stickers.

SCIENCE LAB Plant a sponge garden

This indoor garden experiment lets your child observe the effect of sunlight on plants.

You'll need: tablespoon, grass or other fast-growing seeds, two shallow containers, measuring cup, water, two sponges

Here's how: Have your youngster spoon 1 tbsp. of seeds into each container. He should soak them in warm water overnight and drain off the water in the morning. Ask him to put a sponge in each container, wet each sponge with $\frac{1}{4}$ cup water, and divide the seeds equally on top. Now he can set one container in a sunny window and the other in a dark cabinet, and water both daily.

What happens? In a few days, tiny sprouts emerge on the sponges. The sprouts in the sun keep growing, but the ones in the dark will die.

Why? Plants use sunlight to make their food. While seeds can sprout without the sun, they need light to grow and become mature plants.