

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

December 2019

Title I

Prince William County Public Schools



TOOLS & TIDBITS

Twice as big

Have your child draw a picture of a favorite object—say, a boat or a dinosaur. Now ask him to draw it again in different sizes, twice as big or half as big. He'll enjoy drawing while he learns about bigger and smaller.

Snack on science

Use fruit to sharpen your youngster's observation skills. Cut grapes, apples, and oranges in half so she can compare the cross-sections. Which ones contain seeds? Are the colors the same or different inside and out? Let her draw and label what she sees. Then, make fruit salad and enjoy the sweet snack together.



Book picks

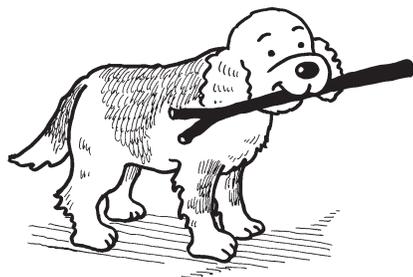
Every second counts in a championship soccer game! *Game Time!* (Stuart J. Murphy) is a soccer story that helps readers tell time.

Where Do Puddles Go? (Fay Robinson) invites youngsters to find out what happens to water after it rains.

Just for fun

Q: What do you call a boomerang that won't come back?

A: A stick.



Winter addition

These winter-themed activities encourage your youngster to add objects, practice addition facts, and find missing numbers—no snow required.

Dig in the snow

Fill a baking dish with sugar, and bury dry beans in the "snow." Your child can use a slotted spoon to dig up two scoops of beans and make them into an addition problem. If the first scoop has 7 beans and the second has 8, she would say " $7 + 8 = 15$." Have her count the beans to check her answer, then scoop up more to create a new problem.

Match the mittens

To work on facts to 10, let your youngster trace around each of her hands 5 times on paper and cut out the 10 "mittens." She should label the left mittens 1, 2, 3, 4, and 5, and the right ones 5, 6, 7, 8, and 9. Now she should make pairs that equal 10 and say each addition fact (" $5 + 5 = 10$ "). Suggest that she decorate each pair so the mittens match!



Throw the snowballs

Help your child find missing addends (numbers that are added together). Give her 20 cotton balls to throw into a bowl. Can she figure out how many landed in the bowl? If she missed 4, she would think, "Four plus what equals 20?" Then she could count up from 4 to 20 or subtract $20 - 4 = 16$. Finally, she should count the balls in the bowl to check. ❄️

An erupting volcano

Your child can watch a "volcano" erupt right before his very eyes with this hands-on model.

1. Go outdoors together, and help your youngster scoop soil (to represent a volcanic mountain) into a small plastic or paper cup.
2. Over newspaper, poke a small hole in the bottom of the cup. Have your child hold the cup in the air and insert an open toothpaste tube into the hole from the bottom. The toothpaste represents magma (melted rock).
3. What happens when your youngster squeezes the tube? (The "magma" swirls up through the "mountain" and eventually erupts as "lava.") 🌋

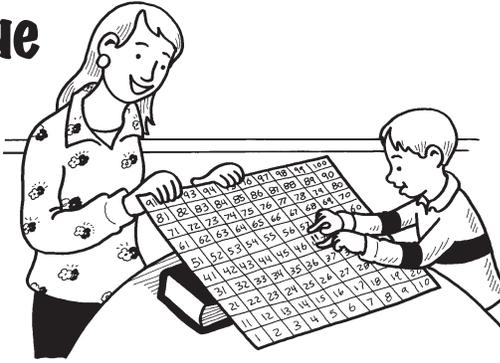


Play with place value

A hundred chart is a great tool for exploring place value. With this topsy-turvy version, your child can look at numbers in a different way! He'll work with numbers that get bigger as they climb up the chart—just as a block tower grows taller from bottom to top.

Draw a 10 x 10 grid. Starting in the bottom left corner, help him write 1–10 across the bottom row. Continue across each row until he writes 100 in the top right corner. Then, try these ideas.

Find my number. Pick a number, and give your youngster clues to find it. For 57, you might say, “My number is 10 more than 47.” He would place his finger on 47 and either



count forward by 1s to 57 or move up 1 row to add 1 ten ($47 + 10 = 57$). How are 47 and 57 similar? (They each have 7 ones. Adding 1 ten only changed the number in the tens place.)

Identify the tens and ones. Cover a number (say, 65) with a bingo chip. Encourage your child to use surrounding numbers to figure out how many tens and how many ones the covered one has. Ask him what the other numbers have in common in the same row (6 tens) and column (5 ones). How many tens and ones are in the hidden number? (Answer: 6 tens and 5 ones, or 65.)



Q & A What's that coin?

Q: My daughter is learning how to recognize coins in school. How can she practice at home?

A: Let your child set up a coin station. Give her four bowls—one each for pennies, nickels, dimes, and quarters—and put her in charge of sorting spare change.



Suggest that she make coin-rubbing labels for the bowls. She can tape each coin to a table, cover it with white paper, and rub lightly with the side of an unwrapped crayon. Help her write each coin's name (“quarter”) and value (“25 cents”) on its label.

Then, it's her job to match spare change to the rubbings and sort coins into the correct bowls. Soon, she'll recognize the coins automatically. *Idea:* She could count by 1s, 5s, 10s, and 25s to get the totals.

OUR PURPOSE

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

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SCIENCE LAB

Musical glasses

Why are some musical notes higher or lower than others? This experiment shows your youngster how pitch works.

You'll need: empty glass, pencil, measuring cup, water

Here's how: Ask your child to gently tap the side of the glass with the pencil. What does she think will happen to the sound if you pour water into the glass? Slowly fill the glass with water as she taps repeatedly.

What happens? The sound gets lower in pitch as you add more water.

Why? Striking the glass creates a sound wave that travels from the glass through the water. Water slows down the vibrations—so the more water, the slower the vibrations and the lower the pitch. When there's less water, the vibrations are faster, and the pitch is higher.

Idea: Suggest that your youngster measure different amounts of water ($\frac{1}{4}$ cup, $\frac{1}{2}$ cup, $\frac{3}{4}$ cup, 1 cup) into several identical glasses. She can tap the glasses to play a tune!



MATH CORNER

Gingerbread glyph

A *glyph*, or a pictograph, lets your youngster represent and analyze data. Try this family glyph activity to share information about your favorite things.

Materials: brown construction paper or cardboard, pencil, scissors, markers

Together, list survey questions and assign a gingerbread decoration to each possible answer. *Examples:* “Which season do you like best? Winter = round button, spring = square button,

summer = star button, fall = heart button.” “Which meal is your favorite? Breakfast = red bowtie, lunch = blue bowtie, dinner = yellow bowtie, brunch = green bowtie.”

Have each family member draw and cut out a gingerbread “person” and decorate it to show his favorites. Now compare them. How many people like summer the best? How many more people chose dinner than lunch?

