

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

May 2019

Title I

Prince William County Public Schools



TOOLS & TIDBITS

How many outfits?

Ask your child to lay out three of his shirts and two pairs of his pants. How many different outfits can he make? Let him check his prediction by drawing possible combinations. He'll learn to estimate based on what he sees and to use problem-solving skills to reach a conclusion. (Answer: Six outfits.)

Natural vs. human-made

Gather a dozen small objects. Some should be from nature (nut, leaf, rock) and others made by humans (eraser, bead, magnet). Can your youngster sort them according to whether they're natural or made by people? (Explain that natural objects come from the Earth.) When she's finished, she could collect more objects and sort again.



Book picks

📖 In *The Wishing Club: A Story About Fractions* (Donna Jo Napoli), your child will join four siblings as they discover fractions and, hopefully, get a pet pig.

📖 Pictures and words tell the story of each animal's home in *Where Do I Sleep? A Pacific Northwest Lullaby* (Jennifer Blomgren). A nice bedtime read-aloud.

Just for fun

Q: What did the banana do when it saw a monkey?

A: It split!

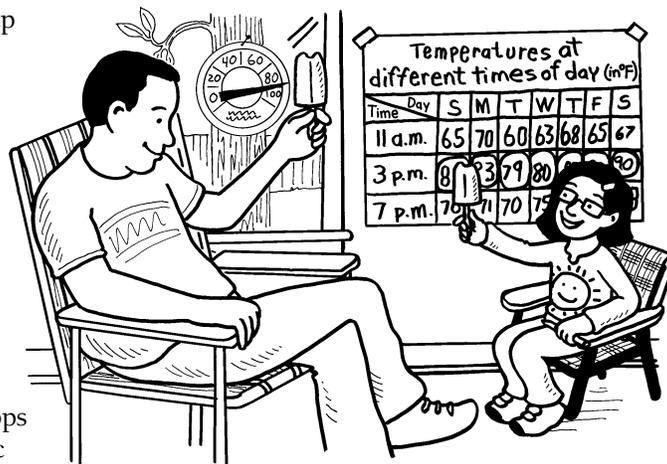


Keep cool and do math

Your youngster can keep her math skills sharp and stay cool this summer by counting, comparing numbers, and practicing facts. Here's how.

Ice cream parlor

Encourage your child to set up a pretend ice cream shop to use *ordinal numbers* like first, second, and third. Be her customer, and ask for scoops of ice cream—in a specific order. Example: "Please make the *first* scoop strawberry, the *second* chocolate, and the *third* vanilla." Then, she can scoop play dough into a cup in the correct order (pink, brown, white).



Time	Day	S	M	T	W	T	F	S
11 a.m.		65	70	60	63	68	65	67
3 p.m.		80	83	79	80			80
7 p.m.		70	71	70	75			

Hot days

When is the hottest time of day? Help your youngster use a thermometer or weather app to check the temperature each day at 11 a.m., 3 p.m., and 7 p.m. She should record the temperatures on a chart and circle each day's high in red. Each week, she could count to see which

time has the most red circles—that might be the best time to cool off indoors!

Solve and splash

Let your child work on math facts in the swimming pool. Have her use a permanent marker to write the numbers 0–20 on separate plastic plates. Float them in the water, and give each player a sponge. To play, one person says a problem like $12 - 3 = \underline{\quad}$, and the next player tosses her sponge onto the plate with the answer. If she hits the right plate (9), she gives the next person a problem. When everyone has had a turn, play again. 🦋

A coding adventure

Don't step in the lava! With this unplugged activity, your child will venture into the world of coding while staying "safe" from imaginary lava.

1. Have your youngster arrange towels or washcloths on the floor to make a path across the room.

2. Armed with a notebook and pencil, he can navigate the path while writing code to instruct others on how he avoids the "lava." Example:

"↑ 2, ↗ 1" for "Jump forward twice, jump diagonally to the right once."

3. Once your child has crossed the lava, he should read his code aloud to help you cross the room "safely."

4. Now he could rearrange the path and write a new code. 🦋



Shapes: From 2-D to 3-D

What is made up of four rectangles and two squares? A *rectangular prism*! Your child can build geometry skills by matching flat, or 2-D, shapes with solid, or 3-D, shapes. Try these ideas.

“Mail” a shape. On separate index cards, have your youngster draw shapes (circle, square, triangle, rectangle, trapezoid, pentagon, hexagon). Pick a card (say, the circle), and “mail” it to your child by placing it in a shoebox. He searches the house for a solid



object with that flat shape as one or more of its faces (a soup can, or cylinder) and mails it back. Now he chooses a card for you. If he sends you a square, maybe you’ll mail him a Rubik’s Cube.

Trace a block. With your child not looking, pick a building block, and use a crayon to trace around each of its faces (sides) on a piece of paper. For a *triangular prism*, you’d trace around two triangles and three rectangles. Ask your child which block you chose. He could test different blocks by matching their faces to the tracings. When he finds the right block, he can name its faces and its shape. Then, it’s his turn to trace a block for you.

Q & A Family math “field trips”

Q: My daughter’s two favorite things about school are math and field trips. How can we turn our family’s outings into math “field trips” this summer?

A: Field trips connect what your daughter learns in school with hands-on, real-life experiences. Luckily, just about any outing is a potential math field trip.



During a baseball game, have your child read the score after each inning and announce who’s winning and by how many runs. If you attend a concert, she might count the musicians on stage and estimate how many people are in the audience.

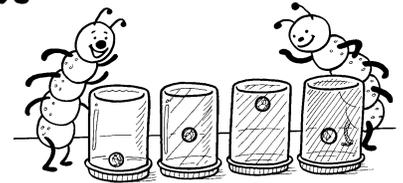
At a county fair, your daughter could make up story problems. *Example:* “There are six spotted pigs and four pink pigs. How many more spotted pigs are there than pink pigs?” (Answer: $6 - 4 = 2$.) Or she might figure out how many tickets she needs if the Ferris wheel requires three tickets and the merry-go-round takes two ($3 + 2 = 5$).

SCIENCE LAB

Thick as molasses

This experiment shows your child how the thickness of a liquid affects how fast it moves.

You’ll need: four same-size empty jars with lids, four same-size clean marbles, four liquids of different thicknesses (*examples:* water, cooking oil, honey, molasses)



Here’s how: Let your youngster put a marble in each jar and fill each jar with a different liquid. Have her screw the lids on tightly. Turn all four jars over at the same time (this will take two people), and watch the marbles drop. Which one hits bottom first? Last?

What happens? The thicker the liquid, the longer it takes the marble to fall.

Why? Thicker liquids have higher *viscosity*, or resistance to flow. If two marbles fall in about the same amount of time, the two liquids they’re in have similar viscosity.

Idea: Talk about how viscosity is important in foods. Would gravy or spaghetti sauce be good if it were as thin as water? Is it easier to make chocolate milk with thin chocolate syrup or thick hot fudge?

MATH CORNER

Just a minute

“One Mississippi, two Mississippi...” Your youngster will find out just how long a minute is with this homemade sand timer.

Materials: funnel, sand or sugar, measuring cup, two empty plastic water bottles (dried, caps removed), foil, sharpened pencil, duct tape, stopwatch

Hold the funnel while your child measures $\frac{3}{4}$ cup sand into one bottle. He should tightly cover the openings of the bottles completely with foil. Use the pencil to poke a hole (about $\frac{1}{2}$ inch

wide) in the center of the foil on each bottle. Place the empty bottle upside down against the mouth of the bottle with sand, and duct-tape them together.

Now, he can flip his sand timer while you set a stopwatch for 1 minute. He should separate the bottles, add or remove sand, and re-cover and reattach until there’s exactly 1 minute worth of sand in the timer.



What kinds of things can he do in one minute? He could use his new timer to find out. Maybe he’ll tie his shoes, tell a joke, or pick up his toys!

OUR PURPOSE

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

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