

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

November 2018

St. Johns County School District

TOOLS & TIDBITS

Match 'em up

Do you have a cabinet full of containers and lids? Encourage your youngster to match them up. Ask math questions like "What size lid will this container need—small, medium, or large?" or

"What shape lid should you put on the round bowl?" You'll boost your child's ability to think about sizes and shapes, an important part of spatial reasoning.

Day vs. night

Shed light on what makes day and night with this quick activity. Have your youngster place a sticker on a large ball (the Earth). Shine a flashlight (the sun) on the sticker—it's daytime on that spot. Now, she can slowly rotate (turn) the Earth. What changes? When the sun shines on the other side of the Earth, it's nighttime where the sticker "lives."

Book picks

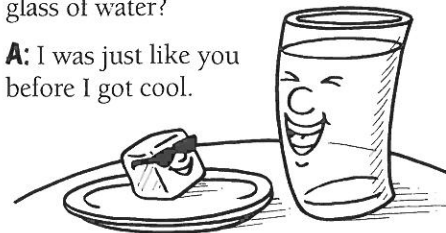
■ *Each Orange Had 8 Slices* (Paul Giganti, Jr.) uses words and pictures to pose fun math puzzles.

■ Young Albert Einstein was fascinated by science. *On a Beam of Light* (Jennifer Berne) tells the story of the genius who grew up to make important discoveries about matter, time, and space.

Just for fun

Q: What did the ice cube say to the glass of water?

A: I was just like you before I got cool.



Let's add

Addition comes to life for your child when she acts out problems, plays games, or uses counters. Try these fun hands-on ideas.

Act it out

Suggest that your youngster use toys to model addition problems. She might make 4 plastic animals climb onto a pillow and say, "Four animals are floating down the river on a raft." Then, she can move 4 more animals onto the "raft." Encourage her to count the total and say the number sentence she made ($4 + 4 = 8$ animals).

Play Simon Says

For this version of Simon Says, give each other math problems to solve with household objects. *Example:* "Simon says show me $2 + 7$ checkers, and tell me the sum." She could stack 2 red checkers and 7 black checkers and say, "9." Remind her to solve the problem

only if Simon says to. Switch roles, and let her be Simon.

Make an adding machine

This clever machine "checks" your youngster's answers. Cut a hole in the bottom of 2 paper cups, and put both cups in a box. Write an addition problem (say, $17 + 13 = \underline{\quad}$). She can drop 17 marbles or other small objects into the first cup and 13 into the second. Have her write the answer (30), then lift the cups and count the marbles that fall into the box. Was she correct? 🦋



My makerspace

Tap into your child's inner engineer by setting up a *makerspace* at home—a spot filled with supplies for creative tinkering. Here's how.

1. Gather materials. Together, collect recyclables (egg cartons, cereal boxes, coffee canisters), craft supplies (duct tape, craft sticks, pipe cleaners), and items from your toolbox (washers, nuts, bolts). Help him organize everything in bins.

2. Explore and create. Have your youngster think about what he could design with the items. Maybe he'll build a "block mover" that will hold as many blocks as possible. Or perhaps he'll construct a bug hotel with a built-in magnifying glass for observing insects closely while giving them room to move. 🦋



Piles of math fun!

Use those leaves that you and your youngster raked and played in to build math skills like matching and comparing. Enjoy these activities.

Matching leaf monsters. Let your child spread 10–20 leaves on the ground. Pick one, and ask him to find another leaf with at least one matching attribute (color, shape, points). How are the leaves alike and different? He might say they're both red,



to narrowest, and most to fewest points. Encourage him to create award certificates and draw and color the winning leaf on each one.

but one has sharp points and the other doesn't. *Idea:* Suggest that he arrange the leaves to make "monsters"—matching pairs can be used for arms and legs (or 2 tails!). Be sure to take photos of his creations.

Leaf "awards." Have your youngster compare his leaves and determine the "winner" in each category: longest, widest, and most points. To figure it out, he could line up the leaves from longest to shortest, widest

Q & A Counting on your fingers

Q: My kindergartner often counts on her fingers when she does math. Is that okay?

A: It's normal for young children to use their hands as a counting tool. As your daughter discovers new math tools and strategies, she'll stop relying on her fingers as much—just as she learned to eat with a fork rather than with her hands.



Meanwhile, counting on her fingers in different ways can actually help your child develop number sense. For example, have her show you the number 5. (She will probably hold up 5 fingers on one hand.) Now, ask her to show 5 again in new ways (3 fingers on one hand and 2 on the other, or 4 fingers and 1 finger). Do this with other numbers 1–10.

Once she's comfortable showing various ways to make these numbers, challenge her to say the combinations without using her fingers. That will be a step toward doing math in her head.



MATH CORNER

Which one is different?

Which number doesn't belong: 14, 6, 7, or 8? Your youngster might say 14, because 6, 7, and 8 are in order. Maybe you'll pick 7, since it's the only odd number. Who's right? *Answer:* Both of you!

Stretch your child's math thinking skills—and yours—with this game.

Get 4 sticky notes, and write a number on each one. Ask your youngster, "Which number doesn't belong?" If you write 5, 10, 15, and 19, he might say 19 because it's the only number you don't say while counting by 5s. Now you give a different answer—perhaps you'll say that 5 doesn't belong because it's the only 1-digit number.

Let him write 4 new numbers, and play again.



SCIENCE LAB

Please pass the butter

Your child will be thankful for this Thanksgiving experiment that lets her explore states of matter—and make butter for your holiday meal.

You'll need: heavy cream, milk, measuring cup, 2 empty jars with lids

Here's how: Have your youngster measure 2 cups of cream into one jar and 2 cups of milk into the other. Screw on the lids, and take turns shaking the jars for 10–20 minutes until she sees something change.

What happens? Butter forms in the jar that contained cream. The milk doesn't change.

Why? Each jar has a liquid (cream or milk), a solid (fat molecules in the liquid), and a gas (air). Shaking the jars forces air into the liquids. The heavy cream has a lot of fat molecules, and the air molecules force these solids together, forming butter. The milk does not have enough fat molecules to form a solid, so it remains a liquid.

Tip: As relatives butter their Thanksgiving rolls, encourage your child to explain the science behind her experiment!



OUR PURPOSE

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

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