

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

December 2020

Fargo Public Schools

Title I

TOOLS & TIDBITS



1-2-3 puzzle

Your child can turn her artwork into a math jigsaw puzzle. Have her color a picture and write the numbers 1–10 across the bottom. Now let her cut between the numbers, separating the picture into vertical strips, and mix them up.

Challenge her to put the puzzle together by arranging the numbers in order.



A box of landforms

Suggest that your youngster make models of landforms he sees in books or in real life. He could line a shoebox lid with green construction paper and add blue yarn for a river, aluminum foil for a lake, and white play dough for a snow-capped mountain.

Book picks

▣ *Counting on Katherine: How Katherine Johnson Saved Apollo 13* (Helaine Becker) tells the extraordinary true tale of star mathematician Katherine Johnson, who calculated NASA's first flight paths to the moon.

▣ Why do mirrors fog up during a bath? How do boats float? *Science Experiments at Home: Discover the Science in Everyday Life* (Susan Martineau) answers these questions and more.

Just for fun



Q: Betty had 8 cookies. She shared 3 and ate 5. What does she have now?

A: An empty plate—and a full tummy!

Breaking apart numbers

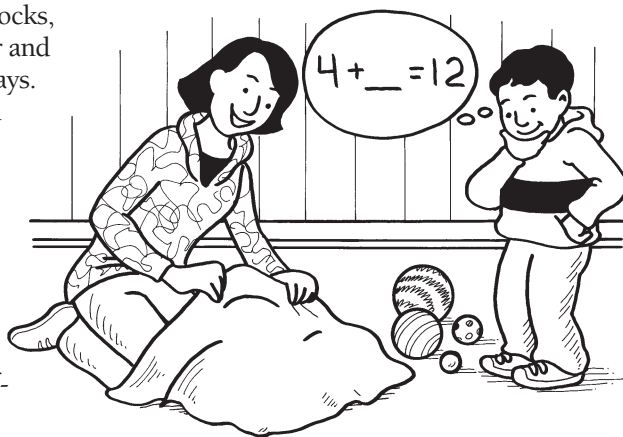
Like buildings made of blocks, numbers can be put together and taken apart in all different ways. Help your child *compose* and *decompose* numbers at home with these activities.

Build block towers

Encourage your youngster to build the number 10 with blocks or Legos. Using two different color blocks, how many different towers of 10 will he make? (Examples: 1 yellow + 9 blue, 2 red + 8 green, 3 blue + 7 red, 4 blue + 6 green, 5 yellow + 5 green.) Can he use combinations of three colors to make 10?

Drop the beads

Ask your child to draw a line dividing a paper plate in half. Have him drop a handful of small objects (beads, pom-poms) so some fall into each section (say, 4 on the left and 3 on the right). He can count the total (7) and write the number sentence ($4 + 3 = 7$) on a sheet



of paper. Now he could drop the beads again and again, writing as many different number sentences as possible.

Hide toys

Let your youngster get 12 toys like cars or bouncy balls. While he looks away, cover some (say, 8) with a blanket. Can he count the toys he sees and figure out how many are hidden? He might think, " $4 + \underline{\quad} = 12$." Or maybe he'll ask himself, "4 plus how many more make 12?" (8) 🦋

Get ready for winter

Bears hibernate. Birds migrate. Squirrels adapt. How does your youngster prepare for winter? Suggest that she write checklists for animals—and people.

● **Animals.** Help your child look up animals in books or online to learn what they do to get ready for winter. For a bear, she might write, "Eat lots of food. Find a cozy place to sleep." A bird's list could include "Invite friends to migrate with me. Fly south in a V shape." And for a squirrel: "Gather nuts. Hang out in my den."

● **People.** Your youngster can think about tasks that help your family prepare for cold weather and then make a checklist. Examples: "Take out winter clothes. Put heavy blankets on beds. Stock up on hot chocolate!" 🦋



'Tis the season for sorting

What do holiday cards and family photos have in common? Besides bringing us joy, they can help your child work on sorting, an important early math skill. Try these ideas.

Separate mail. Save a few days' worth of greeting card envelopes, catalogs, postcards, and advertising circulars. Then, let your youngster sort them in different ways. She might group according to size,



shape, thickness, or color. Or maybe she'll sort by type of sender (friend, relative, store).

Arrange photos. Gather family pictures, and encourage your child to sort them into categories for a photo album. The possibilities are endless! She can sort by occasion (birthday, holiday, wedding, vacation) or season (winter, spring, summer, fall). Let her label the pages with her categories and display the album on your coffee table.

Idea: Take turns sorting mail or photos in various ways and figuring out each other's sorting rule.

MATH CORNER Buttons: Odd and even

This cute-as-a-button activity will build your child's number sense by letting her explore odd and even numbers.

Materials: scissors, construction paper, two dice, 12 buttons

1. Have your youngster cut out a large coat shape from construction paper.
2. Take turns rolling the dice and placing that many buttons on the coat.



3. Say whether the coat has an odd or even number of buttons. (*Hint:* She could try arranging the buttons in pairs. If each button has a "partner," the number is even. If not, it's an odd number.)

4. Let your youngster keep a chart with two columns, labeled "Odd" and "Even" to record the numbers made. Can she figure out a "rule" for knowing whether a number is odd or even? (Even numbers are the ones we use to count by 2s.)

Idea: Your child could check the coats in your closet to see which ones have an even or odd number of buttons.

SCIENCE LAB

Light, shadows, experiment!

Your child will see how light shines through different materials to create shadows (or not) in this experiment.

You'll need: ceramic coffee mug, plastic milk jug, clear glass, flashlight, paper, pencil

Here's how: Ask your youngster to line up the mug, jug, and glass and predict which ones will have the darkest and lightest shadows. He can shine a flashlight on each one and record and sketch the results he observes.

What happens? The mug has the darkest shadow, the milk jug has a lighter one, and the glass has the lightest shadow.

Why? Light travels through some materials but not others. The solid (*opaque*) mug blocks all light, resulting in a dark shadow. The *translucent* milk jug blocks some light, creating a dim shadow. And the clear (*transparent*) glass lets almost all light through, casting an even dimmer shadow. Can your child find more items in each category?



PARENT TO PARENT

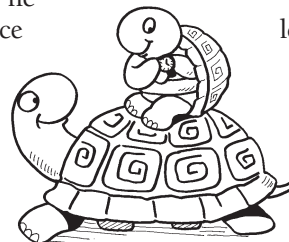
"Are we there yet?"

In the car, my son Ethan always asks, "Are we there yet?" So I decided the car would be a good place for him to practice telling time.

I gave Ethan an old watch so he could see the time on a clock face as well as on the car's digital clock. Before we leave, I give him our estimated arrival time and ask him where the watch hands will be. For instance, I

said we'd be at Grandma's house at 3:30, and he said the little hand would point toward the 3 and the big hand would be on the 6. When we arrived, he checked his watch and saw that he was right.

Now I notice Ethan looking at his watch periodically in the car to see how close the hands are getting to the time we'll arrive—and he rarely asks if we're there yet.



OUR PURPOSE

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

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www.rfeonline.com
ISSN 1942-910X