

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

November 2020

Fargo Public Schools

Title I

TOOLS & TIDBITS

Measure your name

How long is your child's name? Ask him to write his name on paper, measure it with yarn, and glue the yarn in a straight line underneath. Then, help him line the yarn up with the "0" on a ruler and measure the length. *Idea:* He could measure other family members' names, too.

Where is Earth?

Here's an out-of-this-world art project that shows your youngster Earth's place in the solar system.

Have her paint a yellow sun in the center of a piece of black paper, then paint planets orbiting it. She could use a book or website to learn about the planets' order and appearance. Our blue-and-green Earth is third from the sun!



Book picks

▣ A child learns about saving and spending money in *You Can't Buy a Dinosaur with a Dime* (Harriet Ziefert).

▣ The water cycle comes to life in *Ice Boy* (David Ezra Stein), a funny story of an ice cube that bravely ventures outside the freezer.

Just for fun

Q: How many pears grow on trees?

A: All of them.



"I can graph lots of things!"

Graphing is a fun way for your youngster to display information. Plus, she'll practice math skills like gathering and analyzing data. Suggest these kid-friendly graphs.

Coins

Your child can track coin flips with this simple graph. Let her get a handful of pennies and divide a sheet of paper into two columns ("Heads" and "Tails"). Then, she can flip each penny and place it in the correct column, making sure to lay it so it touches the coin below it. After she flips them all, have her count the coins in each column. Which has more? How many more?

Snacks

Ask your youngster to choose three snack foods and create a picture graph as she eats them this week. She can make three columns with 12 even rows on a sheet of paper and label the columns (examples: "Apple slices," "Pretzels," "Cheese"). Each time she eats a piece, she should draw and color that food in the correct column. After a

Soapy science

Soap keeps your child's hands clean—and it can teach him about science. Here's how.

Have your youngster fill a sink halfway with water and sprinkle in black pepper. He'll see that the pepper floats.

Now let him lather his hands with soap and touch one finger to the center of the water's surface. The pepper instantly races away from his finger and floats around the edges of the sink!

The science: Water is made of tiny particles (molecules) that cling together at the surface. This *surface tension* helps the pepper float. Soap breaks the tension, separating the water molecules. The water molecules quickly pull away from the soap to stay together, taking the pepper with them.



week, ask her which snack she ate the most and least of.

Colors

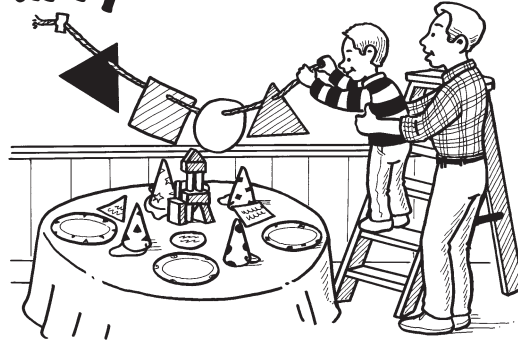
Take a walk to spot colors in nature. Have your child carry a notebook to list things she sees of each color (green grass, blue sky, white clouds). Afterward, she could make a bar graph with a separate column labeled with each color word and numbers (1–12) evenly spaced up the left side of the graph. If she saw grass, cacti, and trees, she would color a green bar up to the 3. Which color did she see most often? Least often?



Throw a shape party

From making invitations and decorations to playing games, throwing a party is a great way for your youngster to explore geometry. Have fun with these ideas.

Invitations. Suggest that your child create personalized invitations by cutting paper into a different shape for each family member. He can describe each shape in a



rhyming verse on the invitation: “There are 4 sides on a square. There’s a shape party Saturday—be there!”

Decorations. Let your youngster make a banner by cutting shapes from construction paper, punching a hole in each, and threading them onto yarn. He could also design a centerpiece out of building blocks. Ask him to name the shapes. (“I used triangles, circles, and hexagons for the banner.”)

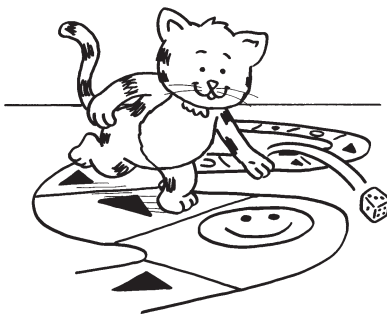
Games. Family members could play “Pin the Shape on the Robot” rather than “Pin the Tail on the Donkey” or “Circle, Circle, Square” instead of “Duck, Duck, Goose.” Another idea is to take turns pretending you’re a 3-D shape and describing yourself for others to guess. *Example:* “I have 4 triangular faces, 1 square base, and 8 edges. What am I?” (A square pyramid.)

Q & A Coding for the win

Q: My daughter is learning to code in school. How can I help her when I’m unfamiliar with this skill?

A: Think of coding, or computer programming, as using symbols to write instructions. Your child doesn’t even need a computer to practice—she could, for example, use coding to design her own board game.

Suggest that she draw a path on poster board, divide it into spaces, and make a key telling how to move along the path. *Example:* ▶ = go forward one space, ◀ = go backward one space, ☺ = roll again, Ø = end turn, ★ = trade places with any opponent. On each square, she can draw a symbol.



To play, roll a die and move a game token the number of spaces rolled. Refer to the key and follow the instruction on the space, just like a computer would. The first player to reach the end of the path wins.

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



SCIENCE LAB

Build a dam

Beavers are natural engineers! This experiment shows your child how beaver dams, made of natural materials, are different from dams people make.

You’ll need: two large plastic storage containers, shovel, soil, twigs, Legos or play dough, water

Here’s how: Have your child scoop 3–4 inches of soil into each container and run her finger through it to make a “streambed.” She should criss-cross twigs to build a beaver dam in one streambed, then make a dam with Legos or play dough in the other. Help her pack soil around the dams and slowly pour water into the streambeds.

What happens? In the beaver dam, gaps between the twigs allow water to trickle through. The dam made of Legos or play dough holds all the water back.

Why? Water trickling through natural materials creates a pond between the dam and the beavers’ home to keep predators away. Human engineers construct dams that block the flow of water to prevent flooding.



MATH CORNER

Compare the dots

Here’s a two-player version of dominoes that lets your youngster count, add, and compare—three important skills for developing number sense.

Set up: Help your child make a set of index-card dominoes. He should draw a line down the middle of each card and draw dots on both sides of the line. (Or use a store-bought set of dominoes.) Put the dominoes in a bag.

Play: Each player takes a domino from the bag and places it faceup on

the table. Quickly add the dots on each half of your domino and call out the sum. (If your youngster’s domino has 6 dots on one side and 5 on the other, he would say $6 + 5 = 11$.) The player with the greater sum keeps both dominoes.

Score: When the bag is empty, have your child count the dominoes to see who has the most. Or he might stack them to see whose pile is higher. The person with the most dominoes (or the highest pile) wins.

