Beginning Edition

Math+Science Connection

Building Excitement and Success for Young Children

October 2020

Nativity Catholic School

Ms. Maria Kelly, Principal

TOOLS & TIDBITS

Clocks are everywhere

Your child can find clocks and tell time just about anywhere, from the microwave to the town square. When she spots one—digital or analog—help her read it. Talk about what usually happens at that time of day. ("You're right, the cable box says 7:30. That's when we eat breakfast.")

Force of friction

Playing with toy cars teaches your youngster about *friction*, or the resistance caused by two surfaces rubbing together.

Ask him to roll a car across the carpet and then across a hard floor. He'll see that the car travels farther on the floor because there's less friction.

Book picks

In *Albert Keeps Score* (Daphne Skinner), a little brother wants an equal amount of everything his sister has—pumpkin seeds, books, and more. Part of the Mouse Math series.

Your child will get a glimpse of Earth and its place in the universe in *Here We Are: Notes for Living on Planet Earth* (Oliver Jeffers).

Just for fun

Q: What can you put in a barrel of water to make it lighter?

A: Holes.

This is the way we add

As your child learns about addition, he'll start by using objects—then move on to drawing pictures and finally writing numbers. Have fun together with these autumn-themed addition ideas.

Acorn adding

Pretend to be squirrels getting ready for winter, and go outdoors to gather nuts. After you've each found some, let your youngster add his plus yours. He can count the nuts in each group, find the total, and say the problem: "I collected 5 nuts, and you found 7 nuts. 5 + 7 = 12."

Leaf pictures

Enjoy a nature walk and collect colorful leaves from the ground. Your child can sort them into piles and add the piles to make different combinations. ("I have 3 red leaves and 6 orange leaves. 3 + 6 = 9.") After your walk, he could draw leaf problems on paper. Maybe he'll color 8 yellow leaves and 2 green leaves, and say, "8 + 2 = 10."

Apple equations

Let each family member cut out 10 "apple slices" from red paper and a "pie crust" from brown paper. Have each person write any number (1–20) on his pie crust. Now everyone writes an addition problem on each of his slices that equals a number on anyone's crust. If your crust says 15, your youngster could write 8 + 7 on an apple slice and place it on your crust. Ask your youngster to check all the equations.

Design a seesaw

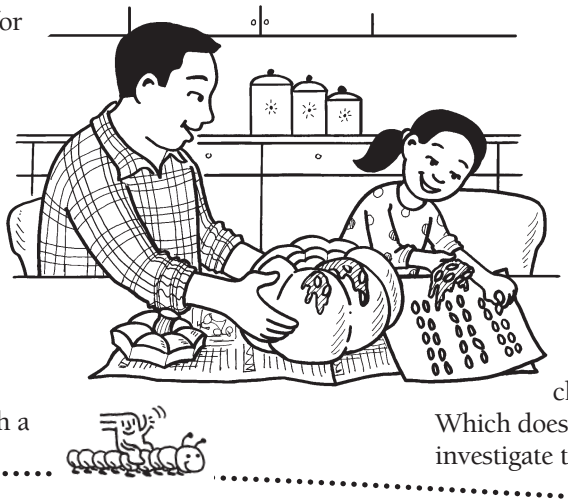
A seesaw is a familiar example of a simple machine called a *lever*. Here's how your youngster can create her own seesaw.

Have your child roll play dough into a ball, flatten the bottom, and set it on a table. Now ask her to balance a ruler on the *fulcrum* (the support for a lever, in this case the play dough).

Now let your youngster make two more play dough balls to represent each of you—one smaller and one larger. She should place them on opposite ends of the ruler. She'll see that "you" push down on one end of the lever, lifting "her" up. Suggest that she experiment with moving each of you closer to and farther from the fulcrum until she balances the seesaw!

Pumpkin studies: Big learning, big fun

A pumpkin is full of opportunities for your youngster to explore science and math. Get a pumpkin, and try these activities.



Outside. Encourage your child to observe her pumpkin and think of words to describe it. She might say it's *orange*, *round*, *smooth*, and *heavy*. Now ask her to count the number of stripes, or ribs. As she counts each rib, she could paint it or color it with a marker. That will help her keep track, and she'll end up with a colorful pumpkin.

Inside. Cut the top off the pumpkin so your youngster can observe what the inside looks and feels like. Explain that the firm part is called *flesh* (that's the part we use for pumpkin pie), and the stringy material is *pulp*. Have her count the seeds—suggest putting them in groups of 10 and counting them by 10s.

Fun fact: A pumpkin has about one row of seeds for every rib. Let your child look at different-sized pumpkins. Which does she predict has more seeds? She could investigate to confirm her prediction.

MATH CORNER Coin caterpillars

Ten coins all in a row … what do they make? A money caterpillar! With this idea, your child can learn about how much coins are worth.

Find the value

Let her line up coins (real or pretend) to make "caterpillars" of different lengths. Perhaps she'll use 6 pennies for one caterpillar and 5 nickels for another. Now help her count the money to figure out how much each caterpillar is "worth" (6 pennies = 6 cents, 5 nickels = 25 cents).

Show the price

Give your youngster a specific "price" (say, 38 cents). How many caterpillars can she make that are worth that amount? *Examples:* 3 dimes, 1 nickel, and 3 pennies or 1 quarter, 2 nickels, and 3 pennies. Can she form a caterpillar worth $1?

OUR PURPOSE

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

Resources for Educators,
a division of CCH Incorporated
128 N. Royal Avenue • Front Royal, VA 22630
800-394-5052 • rfecustomer@wolterskluwer.com
www.rfeonline.com
ISSN 1942-910X

PARENT TO PARENT Estimation made easier

My son Terrance is learning to estimate in school, and he wanted to estimate at home, too. My brother, who is a teacher, suggested that we set up a three-jar system to help Terrance practice estimating.

We got three identical clear jars. My son put 1 marble in the first jar and 5 marbles in the second. Then, I dropped a handful of marbles in the third jar. Terrance looked at the first two jars to estimate how many were in the third. Knowing how much space 1 marble and 5 marbles take up in a jar, he estimated 20. When he dumped them out—much to his delight—he was close (there were 18).

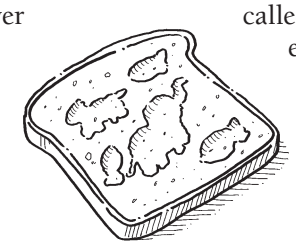
Now Terrance tries larger handfuls and different objects in the three jars. So far, he has estimated cereal rings, crayons, and dry pasta. It's satisfying for him to make such accurate estimates.

SCIENCE LAB Geology: Rock on!

Your youngster will be impressed to learn how some fossils form in rocks, with this edible experiment.

You'll need: 2 slices of bread, plastic wrap, small snacks (animal crackers, pretzels), heavy books

Here's how: Have your child lay a piece of bread on plastic wrap, arrange snacks on top, and cover with a second slice of bread and another piece of plastic wrap. Now help him set the books on the stack. After 10 minutes, he should pick up the books, separate the layers of bread, and remove the snacks.



What happens? Your youngster will see imprints left by the snacks.

Why? The pressure from the books flattens the bread around the snacks, leaving imprints. In nature, pressure from layers of mud and other materials in the Earth form imprints in rocks called fossils. By studying them, scientists can learn about animals or plants that lived long ago and made the impressions. In this case, your child will see the shapes and sizes of his snacks—and then you can enjoy the snacks together!

Beginning Edition

Math+Science Connection

Building Excitement and Success for Young Children

November 2020

Nativity Catholic School

Ms. Maria Kelly, Principal

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

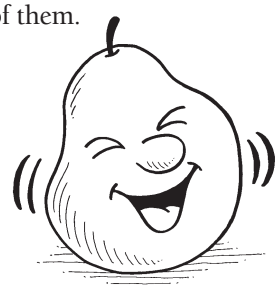
A child learns about saving and spending money in *You Can't Buy a Dinosaur with a Dime* (Harriet Ziefert).

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

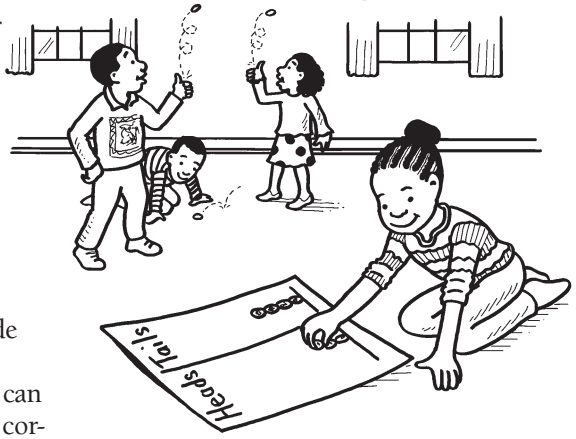
Q: How many pears grow on trees?

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?

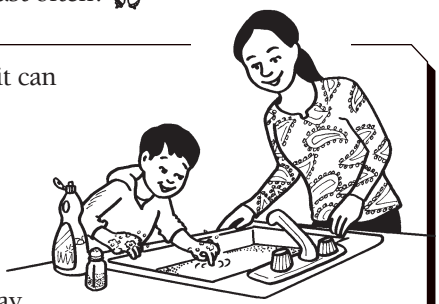
Snacks

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 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?

Soapy science



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

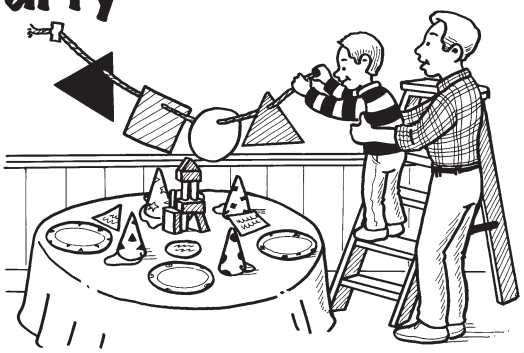
Have your youngster fill a sink halfway with water and sprinkle in black pepper. He'll see that the pepper floats.

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.

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.")

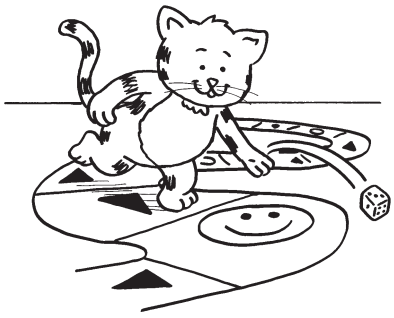
Games. Family members could play "Pin the Shape on the Robot" rather than "Pin the Tail on the Donkey" or "Circle, Circle, Square" instead of "Duck, Duck, Goose." Another idea is to take turns pretending you're a 3-D shape and describing yourself for others to guess. *Example:* "I have 4 triangular faces, 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.

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.

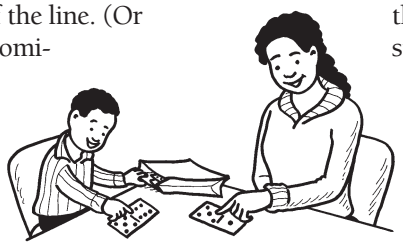
MATH CORNER Compare the dots

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.



OUR PURPOSE

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

Resources for Educators,
a division of CCH Incorporated
128 N. Royal Avenue • Front Royal, VA 22630
800-394-5052 • rfecustomer@wolterskluwer.com
www.rfeonline.com
ISSN 1942-910X