

# Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

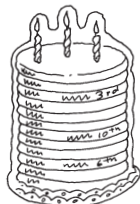
September 2020

## TOOLS & TIDBITS

### Family birthdays

This birthday chart lets your child practice

writing numbers—and will remind him to wish relatives and friends a happy birthday! Help him cut out a big paper cake and draw lines to divide it into 12 layers. He can label each layer with a month, then write names and birthdays (“Grandpa, April 3”) on the correct layers.



### Plant parts we eat

Does your youngster know that when she eats carrots, she’s eating plant roots? Together, identify the plant parts you eat. *Examples:* seeds (peas, corn), stems (asparagus, celery), leaves (lettuce, spinach), flowers (broccoli, cauliflower). If you’re not sure which plant part a veggie is, help her look it up in a book or online.

### Book picks

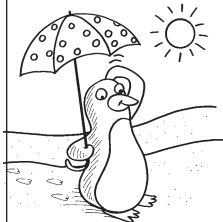
▣ The rhyming riddles in *Math for All Seasons* (Greg Tang) will inspire your child to experiment with different ways to solve math problems.

▣ *The Backyard Bug Book for Kids* (Lauren Davidson) introduces your youngster to insects like caterpillars and crickets with interesting facts and at-home activities.

## Just for fun

**Q:** What do you call a penguin in the desert?

**A:** Lost!



## Number sense in daily routines

“I have 5 buttons on my shirt.” “There are 8 apples in the fruit bowl.” Strengthen your child’s number sense with these ideas that fit easily into everyday life.

### Getting dressed

Your youngster’s clothing has lots of things to count, from buttons to pockets to designs. Perhaps she’s wearing her favorite shirt with stars on it. Ask her how many stars there are. As she counts, she should touch each star and say a number. This helps her work on one-to-one correspondence (matching one number to one object).



### Washing hands

Show your child that math and good hygiene go hand in hand—literally! Have her write each handwashing step on a separate sticky note and number the notes. (“1. Wet. 2. Lather. 3. Scrub 20 seconds. 4. Rinse. 5. Dry.”) She can put the steps in order on the bathroom wall. For more practice with numbers,

encourage her to count slowly to 20 while she scrubs.

### Doing chores

Invite your youngster to help you around the house and count by 2s, 5s, or 10s at the same time. When you fold laundry, she could count socks by 2s, since there are 2 socks per pair (“2, 4, 6, 8”). Or when she puts away small toys, she might pick up 5 blocks or 5 cars at a time and count by 5s. 🐛

## Be a cloud collector!

Your youngster can observe clouds every day—rain or shine—and learn to describe weather patterns with this craft project.

Watch the sky together, and let your child model clouds he sees by gluing cotton balls on paper. Are the clouds big and fluffy or thin and wispy? Encourage him to write under each cloud what color it was (white, gray, black) and what kind of weather he observed (sunny, cloudy, rainy).

Repeat this activity in different types of weather, and let him staple the pages together into a book. He could make a cover and title the book “My Cloud Collection.” He’ll discover that clouds can help him predict the weather. (“I know big, dark clouds mean a storm is coming!”) 🐛



# Measurement challenges

Just about anything can become a math tool when your child uses it to practice measuring. As he learns to compare sizes, try these activities.

**Crayon contest.** Give each player a pile of used crayons. For each round, draw a crayon from your pile, and line it up evenly alongside other players' crayons. The person with the longest crayon keeps the crayons. (If all the lengths are equal, "draw"



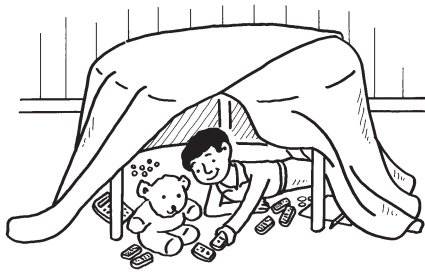
again.) Play until someone runs out of crayons. Count your crayons, and the person with the most wins. Repeat the game—this time, the shortest crayon wins.

**Length hunt.** Let your youngster choose a random object (say, a flashlight). Now have him find two objects that he thinks are longer (umbrella, baseball bat) and two that he thinks are shorter (bookmark, TV remote). Ask him to line up all the items from shortest to longest. If his predictions were correct, the flashlight will fall right in the middle. Now he can pick an object and let you search for longer and shorter items.

## MATH CORNER Make a math fort

Four chairs + 1 blanket = 1 math fort that will become your youngster's new favorite place to hang out—and do math.

First, let your child drape a blanket over the chairs (or a table). Have him stock his tent with all kinds of things to play with math. He might gather coins or pretend money, dice, dominoes, a ruler, a calculator, a pencil, paper, and small objects to count with like marbles or erasers.



Now suggest that he invite his stuffed animals inside and "teach" them what he's learning. He might use erasers to show patterns (red, blue, red, blue) or to practice making equal groups. *Example:* "There are 5 of us, and I have 10 marbles. How many marbles will we each get?" (Answer: 2.)

### OUR PURPOSE

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

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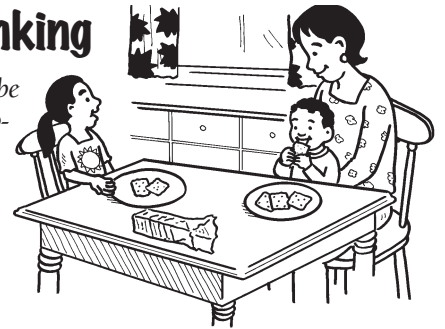
## Q & A

### Explain your math thinking

**Q:** My daughter's teacher said students will be asked to explain their answers to math problems this year. Why is this, and how can I help her?

**A:** The teacher wants to know what's going on inside your child's head when she does math. Hearing or seeing her explanation tells him whether she understands how she got the answer. Plus, talking through math thinking (or writing about or drawing it) will often help your youngster correct her mistakes.

If your daughter mentions numbers or amounts during conversations, try asking a question that begins with "How do you know..." You might say, "How do you know your brother has more crackers than you?" or "Explain why that's 26 cents." She'll get used to explaining her thinking—and become a better mathematician in the process!



## SCIENCE LAB

### Launch a balloon-rocket

Your youngster will have a blast with this demonstration that teaches her about the moving force of air.

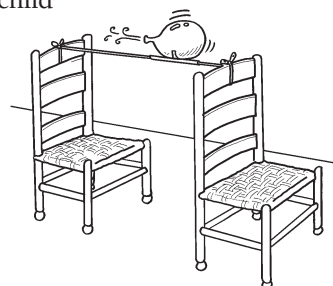
**You'll need:** yarn, scissors, straw, two chairs, uninflated balloon, masking tape

**Here's how:** Help your child cut a 6-foot piece of yarn and thread it through a straw. Tie the ends of the yarn to the backs of two chairs and set them apart so the yarn is pulled tight. Blow up the balloon,

and have her pinch the opening while you tape the straw along one side of the balloon. Then, she can slide the balloon to one end of the yarn and let go.

**What happens?** The balloon-rocket races along the yarn, and the balloon deflates.

**Why?** You blew air into the balloon, causing pressure to build inside. As the air escaped, the pressure was released—pushing the air backward and the balloon-rocket forward.



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## 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? 

## 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.

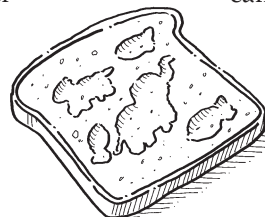
**You'll need:** 2 slices of bread, plastic wrap, small snacks (animal crackers, pretzels), heavy books

**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! 



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