

# Math+Science Connection

Intermediate Edition

Building Understanding and Excitement for Children

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## INFO BITS

### Subtraction game

First one to zero wins this game! Each player starts with 500 points. Take turns rolling two dice to make a two-digit number (for 5 and 4, make 54 or 45). Subtract that number from 500 for your score ( $500 - 54 = 446$ ). Continue playing until one person gets to zero (exactly). *Note:* When your score falls below 12, use one die.

### Round and round

Have your youngster thread a bead on a string and tie the ends tightly. Then, tell her to swing the bead around in a circle fast—and stop. What happens? *Centripetal force* will keep the bead spinning, just like it keeps people in their roller coaster seats.



### Book picks

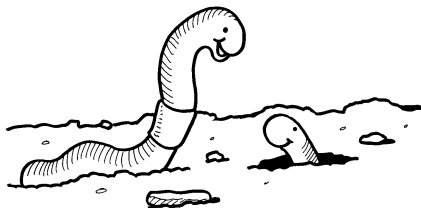
▣ In *Clean Sweep Campers* (Paige Billin-Frye), messy bunkmates use fractions to get the chores done.

▣ *Ubiquitous: Celebrating Nature's Survivors* (Joyce Sidman) looks at why beetles, sharks, ants, and other creatures have survived for millions of years.

## Just for fun

**Q:** What did the mother worm say to her baby?

**A:** “Where in earth have you been?”



## Math relay races

When your children play outside this summer, put math into the equation with these clever ideas for relay races. (*Note:* For each one, divide into two teams.)

### Add it up

**Materials:** 2 bowls, deck of cards (face cards removed, ace = 1)

1. Deal the cards into the bowls. Place the bowls at one end of the yard. Line up the teams at the other end.
2. The first person on each team runs to her bowl, picks two cards (4, 7), and adds them together. She runs back, hands the cards to the next runner, and whispers her score (11).
3. That person does the same thing—but adds her new cards (say, 3 and 5) to the last score ( $11 + 8 = 19$ ).
4. Continue the relay until all the cards are used. The first team to finish adds its cards together to check the score—if it's correct, that team wins.



### Pick a problem

**Materials:** 20 slips of paper, pencils, 2 paper bags

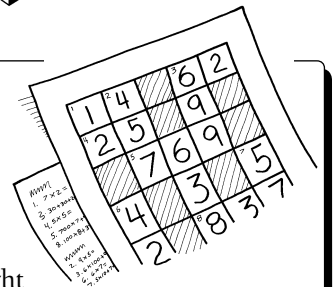
1. Each team should write 10 math problems, one per slip (*example:*  $48 \div 8$ ). Put your slips in a bag with a pencil, and set the bag opposite the other team.
2. At “Go,” player one dashes to the bag, picks a slip, and uses the pencil to solve the problem (6). She leaves the pencil and paper by the bag and sprints back to tag the next runner.
3. Continue until one team finishes its problems. Then, have the kids check the answers. If they're all right, that team is the winner. 📦

## Be a puzzle master

Here's a fun math activity for summertime (or anytime): Create and solve math crossword puzzles.

Your child and a friend should each make a grid with 25 boxes. Then, they can fill in numerals (2-digit or more) across and down some squares and color in other squares. Finally, have them number the boxes and list clues. *Example:* If 4 Across is 25, your youngster might write, “ $5 \times 5 = \underline{\quad}$ .” Now they can each make a clean copy of their puzzles (without the numbers filled in), swap them, and go to work!

*Idea:* Design crossword puzzles using math terms instead of numbers. For instance, the clue for 12 Across might be “the size of a surface” (*area*) and for 12 Down, “the shape formed by two rays with a common end point” (*angle*). 📦



**MATH CORNER**

**Organize data**

Making a graph is a useful way to organize and compare information. Suggest that your youngster conduct a public opinion poll and graph his results with these steps.




**Graph**

He can plot the results on a bar graph. First, he would write the answers across the bottom and put numbers (0–10) up the side. Then, he should color in a bar equaling the number of people giving each answer. *Idea:* Have him poll equal numbers of boys and girls and make two different-colored bars, one for each group, per answer.

**Survey**

Perhaps your child is curious about his friends' pick for best shortstop or his relatives' favorite movie. Have him draw up a question, list possible answers, and poll people.

**Analyze**

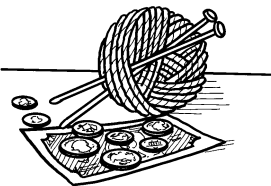
Ask him to pretend he's on the TV news and to report on his poll. He'll use his graph to compare his findings. For instance, he might announce which choice boys prefer. 




**Q & A Prevent summer slide**

**Q:** *I've read about "summer slide," where kids lose skills they gained during the school year. I'm worried that my children will slip in math this summer. What should I do?*

**A:** Your concern is understandable. Studies show that children lose an average of 1.8 months of math skills over the summer break.



First, ask your children's teachers what skills they should work on over the summer. The teachers may be able to give you recommendations for math websites, apps, books, or games that they would enjoy. They might, for instance, sing or dance along with YouTube videos of multiplication raps or fraction dances.

Also, look for regular opportunities to let your kids use math. They could count the change for family purchases, calculate gas mileage on road trips, or help you figure out a knitting pattern that has stumped you. The more math practice they get in, the better! 

**Trapped in quicksand**


"Help, I'm stuck!" While it's not likely that your child will get stuck in real quicksand, it's fun to pretend with this "sinking" demonstration of chemistry.



Have him measure 2 cups cornstarch into a bowl, slowly add 1 cup water, and stir until thick (like honey). He can add more cornstarch or water as needed.

Ask him to plunge his hand into the mixture and describe how it feels. What happens if he tries to move his hand slowly or quickly? Can he pull his hand out easily? Next, he could drop in a plastic action figure and try to rescue it.

Explain that the solid cornstarch *disperses* (spreads throughout the water)—rather than dissolving—to create a *suspension*. When he puts his hand in, the water gets trapped between the cornstarch molecules and turns the substance "semi-rigid." In nature, quicksand is a sand-and-water mixture that behaves like a solid and a liquid at the same time.

*Note:* Throw the mixture in the trash, as it may clog your sink. 

**SCIENCE LAB**

**Lightning flash**


Creating lightning inside will help your youngster understand what causes lightning outside.

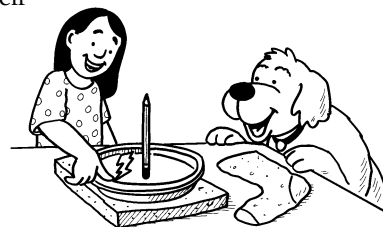
**You'll need:** thumbtack, aluminum pie pan, pencil with an eraser, wool sock (or a wool scarf or sweater), Styrofoam (plate, cup, or packing material)

**Here's how:** Have your child push the thumbtack into the pie pan (from the bottom) and stick the pencil eraser into the tack so the pencil stands up straight. Then, she should rub the wool vigorously against the Styrofoam, pick up the pie pan by the pencil (without touching the

pan), and put the pan on the Styrofoam. Quickly turn off the lights, and tell her to touch the pan with her finger.

**What happens?** She will see and hear a little spark.

**Why?** Rubbing the wool against the Styrofoam creates static electricity. Then the negative charges (*electrons*) in her finger were attracted to the positive charges (*protons*) in the metal pie pan, causing a mini lightning bolt. Real lightning happens when electrons in clouds are attracted to protons in the ground. 



**OUR PURPOSE**

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

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