

Math+Science Connection

Intermediate Edition

Building Understanding and Excitement for Children

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INFO BITS



Are you a square?

Have your youngster stand with her arms stretched out to the sides. Measure her height and her arm span (from fingertip to fingertip). If they're about the same, she's a square! Then, let her measure other family members. Who is closest to a square in your family? *Idea:* She can use her "wingspan" to measure rooms in your house.

Electrical force

Here's a way to make pepper "jump." Let your child make separate small piles of salt, pepper, and sugar. Then, ask him to rub a balloon on his hair to give it an electrical charge and bring the balloon close to each pile. The charged balloon will attract the uncharged particles. (Lighter substances like pepper will have the strongest attraction.)

Web picks

At chainreactionkids.org, youngsters will enjoy molding fossils out of clay, exploring the life cycle of a fruit fly, and more.

Make change, create graphs, and do "cross number" puzzles at mathisfun.com. Includes games and activities across all areas of math.

Worth quoting

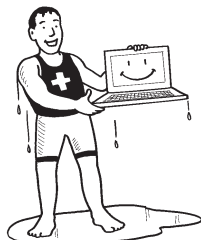
"Spring has returned. The Earth is like a child that knows poems."

Rainer Maria Rilke

Just for fun

Q: What do you get when you cross a computer and a lifeguard?

A: A screensaver!



Pick a card

Card games and math practice can go hand in hand. Here are three games your child will enjoy playing—as he learns! (*Note:* For each game, remove the picture cards, and have the ace equal 1.)


Make 15. Give your child practice in adding three numbers and thinking fast. Spread the cards faceup. At

"go," players look for and grab sets of three cards equaling 15. When no more sets can be made, the person with the most sets wins. *Variations:* Pick different target numbers (9, 14). Or use higher targets (27, 32), and have players grab sets of four cards.

High number. Multiplication is the name of the game this time. Deal the cards facedown in a stack to each person. Players turn over their top two cards and multiply the numbers. The person with the highest total takes all



the cards in that round. If players have the same total, they play again, and the winner keeps the cards. Who can capture the most cards?


Add to 1,000. In this strategy contest, your child needs to consider place value. Deal six cards per player. Each person uses his cards (all or some of them) to make two numbers that, when added together, come close to 1,000 without going over. Then, he subtracts that number from 1,000 to get his score. After 10 rounds, the person with the lowest score wins. 

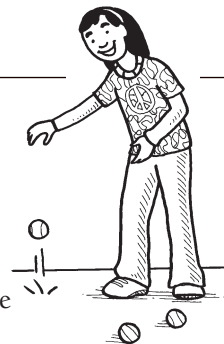
Watch the bouncing ball

With a few tennis balls, your youngster can experiment with temperature and gas pressure. Here's how.

Have her freeze one tennis ball, heat another one in the hot sun or under a heating pad, and leave a third at room temperature. Then, she can bounce each ball on pavement and observe the differences.

The heated ball should bounce the highest (pressure inside the ball rises when the gas—air—trapped inside is heated). Freezing the ball lowers the pressure, so that ball will have the least bounce.

Idea: Suggest that your child put aside one ball to test in a few weeks against a brand-new ball. Can she figure out why the old one no longer bounces high? (Air leaks out as the ball ages, causing the pressure inside and outside the ball to be the same.) Now she'll understand why tennis balls are packed in pressurized cans! 



Raindrop magic

Watching raindrops meander down a windowpane can be fascinating. It can also be a science lesson!

Observe

During a rainfall, let your child sit by a window and watch closely. Encourage her to follow the path of a single raindrop. Does it move straight down or zigzag? Does it make



it to the bottom alone or join with other drops along the way?

Experiment

Ask your youngster to tape wax paper to a cookie sheet and rest the sheet against a book to create a ramp. Using an eyedropper or her fingers, have her place several drops of water at the top. What does she notice? (The drops stick to the wax paper—that's *adhesion*.) Then,

have her add water to each drop, one drop at a time (the water sticks together—that's *cohesion*). When the drops get heavy enough, gravity will cause them to run down. Suggest that she change the ramp's angle (use more books) and repeat the experiment. How do her results change? *Tip*: Coloring the drops with food coloring will make them easier to see. 📦

SCIENCE LAB

Scene of the crime

Stage a "crime" in your house, and let your youngster be the detective solving the case. He'll learn how science is part of police work.

You'll need: cooking oil, empty glass, stamp pad, white index cards, cocoa powder, small paintbrush, clear tape

Here's how: Secretly dip a finger in oil, and press it to a glass—then report the glass "stolen." Your child can get fingerprints from family members by having each of you press a finger onto a stamp pad and then onto separate index cards. Next, you can produce the glass and have him "dust" it for fingerprints. He should brush cocoa powder on the print, lift the print with tape, and put the tape on a new card. Finally, he can match up the print to the fingerprints he took.



What happens? Your child will see that the print has only one match.

Why? Every person has a unique pattern of ridges on his fingers. That is why detectives dust crime scenes for fingerprints and search criminal databases to find matches. 📦



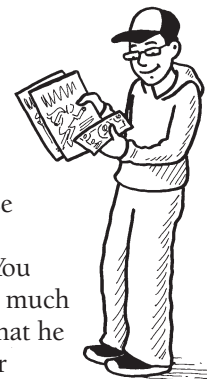
PARENT TO PARENT

Everyday division

As my son did his math homework, he kept complaining that division is "so hard." I didn't want him to get discouraged, so I gave his teacher a call. Mrs. Harris assured me that many children find division challenging, and she suggested that we look for everyday ways Max can use division.

For example, if we go shopping for comic books, I could say, "You have \$10, and they are \$2.89 each. How many can you buy? How much will you have left over?" During baseball season, I might suggest that he keep his own batting average by dividing his hits by his at-bats. Or when he has friends over, he could divide up the snacks evenly.

Mrs. Harris said examples like these will make division more meaningful for Max. He will see that division is a part of his regular life. 📦

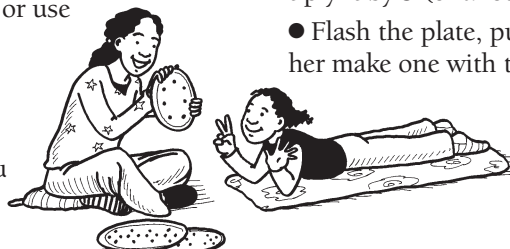


MATH CORNER

Dot-to-dot

Recognizing how many dots are in an arrangement of dots—without counting them—can help your child build understanding of numbers, or *number sense*.

On separate paper plates, draw dots representing the numbers 7 to 15. You could make the dots in a circle or rectangle or use groupings (say, 3 groups of 5 dots). Flash a plate for a few seconds, and ask, "What do you see?" Then, try these ideas:



- Ask your youngster to say a number that is 1 more or 1 less than the dots shown (or 2 more, 2 less, 10 more, 10 less).
- Say, "I really want 25. How many more dots do I need?"
- Ask her to double the number or multiply it by 5 (or another number).
- Flash the plate, put it away, and have her make one with the same number of dots.
- Have her make plates with her own arrangements of dots. 📦

OUR PURPOSE

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

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