

Math+Science Connection

Building Understanding and Excitement for Children

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Cape Central Middle School
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INFO BITS

Show your work

When your child shows his work on math problems, his teacher can see what he does and does not understand. To encourage this habit, have him choose a homework problem for each of you to solve separately. Be sure to write or draw the steps you use. It will be interesting to compare your answers, see each other's work, and talk about how you solved the problem.

Dis-assembly line

Let your youngster take apart a broken toy, radio, or vacuum cleaner. As she explores the pieces, ask questions like "How do the different parts work together?" or "What parts move other parts?" You'll invite her to think like an engineer. She could try to put the item back together or use the pieces to invent something else.



Web picks

At hoodamath.com/games/shapfold.html, your child will use logic to fit together colorful shapes.

What do chocolate and parachutes have to do with science? Your youngster can find out with the experiments at sciencekids.co.nz/experiments.html.

Just for fun

Q: What should you do if you're scared?

A: Open a math book—there's safety in numbers!

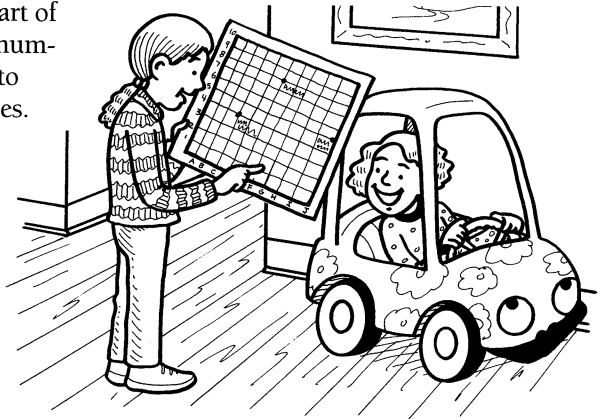


Math meets geography

Locations and distances are part of geography, but they're all about numbers, too. Encourage your child to navigate math with these activities.

Drive the distance

In the car for errands? Let your youngster use the odometer to compare large numbers. She can write down the odometer reading at the start of the trip and at every stop. Then, have her cut the numbers into separate strips, shuffle them, and compare any two side by side. Her job is to figure out which number is greater than the other. Ask her to pick two more numbers and say which one is less than the other one.



Mount Rainier ($29,029 - 14,410 = 14,619$ feet, or $8,848 - 4,392 = 4,456$ meters).

Map your travels

Charting a course? Your youngster could plot the way. Have her draw a 10 x 10 grid. She should write 1–10 up the left side and A–J across the bottom. Now, she marks the pretend places she'll visit, perhaps a library, a school, and a park. To reach her destination, she can move a finger across her grid and then up until she hits the spot—and announce the map coordinates. *Example:* "The library is at J, 5." 📍

Flipping over the moon

Making this "flip book" will help your youngster learn about the phases of the moon.

Sketch. On separate sheets of a pad of sticky notes, have him draw 30 circles, each one the same size and in the same spot.

Observe. Every night for a month, let your child gaze into the night sky to observe the moon's shape. Then, he should shade each circle to match what he sees and label it (*full moon, crescent moon*). *Note:* If the moon isn't visible, he might draw what he thinks it would be.

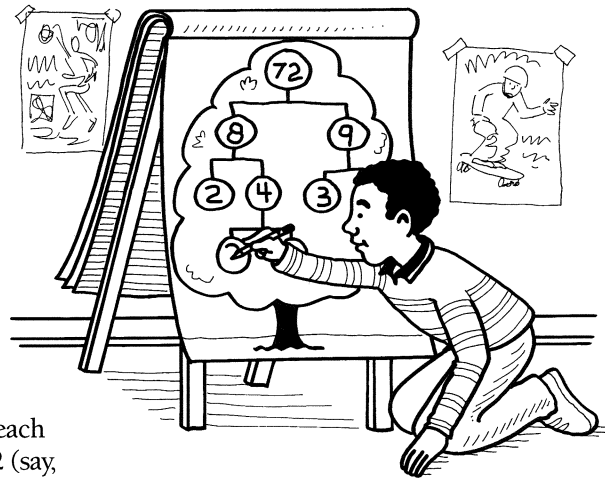
Flip. After a month, his flip book will be complete. He can "see" the phases change by flipping quickly through his notepad. It will resemble a cartoon moving through all the phases of the moon! 📖



Factor in fun

Breaking a number into its factors—numbers that multiply together to equal it—helps your child master multiplication. Suggest that he try these factor-related ideas.

● **Grow a factor tree.** Have your youngster make “family trees” for various numbers. For example, he might write and circle the number 72 at the top of a piece of paper. Underneath, he could draw two more circles, each attached by a line to 72, with factors of 72 (say,



8 and 9 because $8 \times 9 = 72$). Then, he would draw circles under each to add factors for those numbers (4 and 2 for the 8, and 3 and 3 for the 9). He continues adding circles and numbers until he has just *prime numbers*, or numbers that divide evenly only by 1 and themselves (2 and 3 are prime, so he'd just need to draw circles under the 4 for 2 and 2). Then his “72 tree” is complete!

● **What's my partner?** Let your child choose a number and one of its factors. He can pose a question for you like: “I pick 24 and the factor 8. What's my partner?” *Answer:* 3, since $8 \times 3 = 24$. Then it's your turn to give him numbers—and his turn to find the factor partner. 📦

SCIENCE LAB

Blowing bubbles

How can your youngster create bigger, longer-lasting bubbles? This experiment will show her.

You'll need: water, measuring cup, liquid dish detergent, measuring spoon, glycerin, 2 glass jars, pencil, paper, 2 pipe cleaners, timer



Here's how: Have your child measure 1 cup water and 2 tsp. detergent into each jar. She should add 1 tsp. glycerin to one jar and label the jars (“glycerin,” “no glycerin”). To make a wand for each solution, she can bend one end of each pipe cleaner into a circle. Let her blow bubbles from each solution, sketch the size of each one, and record how long it lasts before popping.

What happens? The bubbles with glycerin last longer.

Why? Bubbles pop when the water in them evaporates. Soap slows down evaporation by forming a thin film around the water. Glycerin makes this film thicker as its molecules “stick” to the water molecules. 📦

PARENT TO PARENT

Solve perimeter problems

My daughter Corinne is working on finding perimeters in math, and her teacher sent home ways to practice.

First, Corinne measured a few books by lining up blocks around their borders—remembering to use blocks that were all the same size. She counted the blocks on each side and added the four numbers together to find the perimeter of each book. Her favorite book had a perimeter of $8 + 6 + 8 + 6$, or 28 blocks.

Next, we walked to the high school football field. There were lots of opportunities to measure perimeter there! She took steps to measure each side of the end zone and found the perimeter by adding the four numbers together. Then, she used a tape measure to determine the perimeter of a team bench. The hands-on (and feet-on!) practice is helping Corinne feel more confident about her upcoming quiz on perimeters. 📦



MATH CORNER

Create riddles with coins

Question: “I have 4 coins that total 60 cents. I do not have any dimes or pennies. What are the coins?”

Answer: 2 quarters and 2 nickels.

Use riddles like these to have fun playing with the values of coins.

To start, gather about 20 coins (quarters, dimes, nickels, pennies).

Secretly choose a few, and make up a riddle. Your child can think through the answer in his

head or move around coins to work it out. Then, he gets to make up a riddle for you.

Remind your youngster that a coin riddle may have more than one solution. For example, if you say, “My coins total 55 cents, but I don't have any nickels,” he might find several answers, like 2 quarters and 5 pennies, or 4 dimes and 15 pennies. 📦



OUR PURPOSE

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

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