

Math + Science Connection

Intermediate Edition

Building Understanding and Excitement for Children

February 2020

Title I

Prince William County Public Schools

INFO BITS

Which Super Bowl is it?

Kick off Super Bowl LIV by exploring Roman numerals. Share this key with your child: I = 1, V = 5, X = 10, L = 50, C = 100, M = 1,000.

For the digits 4 or 9, a letter is placed before another, indicating subtraction: 4 = IV (5 - 1), 90 = XC (100 - 10). Can she translate LIV? (Answer: 54.)

How about family members' birth years? (Example: 1978 = MCMLXXVIII.)



Explore evergreens

Take a walk with your youngster to observe evergreen trees. If he looks closely at the needles, what does he notice? Some are reddish (old and ready to drop off), and others are light green (new). Evergreens shed needles and grow new ones all year, so they never have bare branches like *deciduous* trees that lose all their leaves in autumn.

Book picks

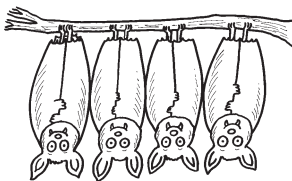
Short stories introduce your child to math greats in *Mathematicians Are People, Too: Stories from the Lives of Great Mathematicians* (Luetta Reimer and Wilbert Reimer).

Your youngster can find experiments for dissolving ink and making ice cream in a can in *The 101 Coolest Simple Science Experiments* (Rachel Miller, Holly Homer, Jamie Harrington).

Just for fun

Q: Why don't bats live alone?

A: They like to hang with their friends.



Division is practical!

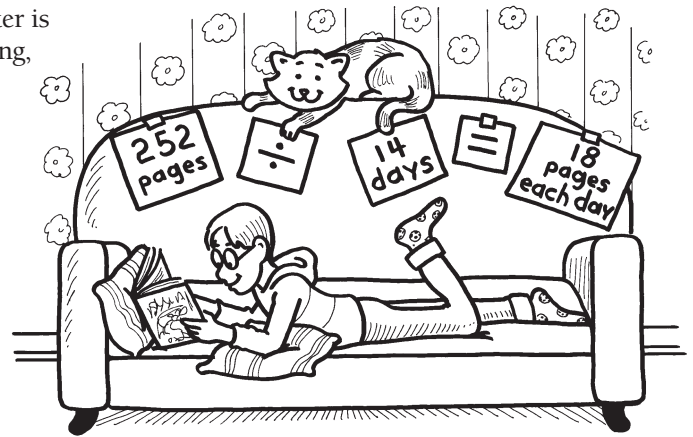
Whether your youngster is playing, reading, or shopping, he can do division. Here are ideas that will show him why it's useful to know how to divide.

Playing

Ask your child to set up shared time on a family computer or gaming console. Say you want 4 family members to share 2 hours (or 120 minutes) of computer time. He would figure out that $120 \div 4 = 30$ (or $2 \text{ hours} \div 4 = \frac{1}{2} \text{ hour}$), so each person gets 30 minutes.

Reading

Start a family book club! Pick a book, let each person get a copy, and set a date to meet. Then, have your child determine how many pages each person needs to read each day to finish before the meeting. If the book is 252 pages, and your meeting is in 14 days, you each have to read 18 pages each day ($252 \div 14 = 18$).



Shopping

Let your youngster check the price of something sold in multiples, such as socks or pencils, and then use division to find the best deal. Say you can buy 4 pairs of socks for \$5.99 or 6 pairs for \$7.50. With the four-pack, he'll see that each pair costs about \$1.50 ($5.99 \div 4 = 1.4975$), while the pairs in the larger package are \$1.25 each ($7.50 \div 6 = 1.25$). His answer? The six-pack is the better deal. 📦

Phases of the moon

Encourage your child to learn about our closest neighbor in space by tracking the moon's phases.

Have her start with a new moon—when the moon's lit side faces away from Earth and isn't visible. Then, she could sketch the moon each night for two weeks, until it's full.

To help your youngster understand what she observed, try this. Get two colors of play dough, one light and one dark. She should make a sphere with each color, flatten one side of each to turn it into a half-sphere, and press the flat sides together. If she holds the "moon" with the dark side in front of her and slowly turns it, she will see the phases. Can she match her sketches with her model? 📦



"Healthy" math

Those nutrition-facts boxes on food packages can help your child eat healthier—but only if she knows the math behind the label. Give these activities a try.

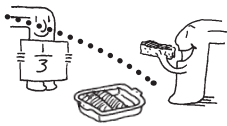
Check the serving size. Let your youngster see why it's best to stick to one serving, rather than eating the whole container! Challenge her to find the calories, fat, and other nutrients



in an entire box of crackers. The label shows the amounts per serving and number of servings per container. If there are 140 calories in a serving of crackers and a box has 8 servings, how many calories are in the box? ($140 \times 8 = 1,120$ calories)

Create a snack. Suggest that your child make trail mix and write a nutrition label. She can look up the serving size for each ingredient, such as raisins, peanuts, and pretzels, and put 1 serving of each into a bowl. Now have her add up the total amount of protein, sodium, and other nutrients. She could scoop $\frac{1}{4}$ -cup servings into separate snack bags, count the servings, and divide her totals by the number of servings. Finally, she can make labels to tape to the bags. 📦

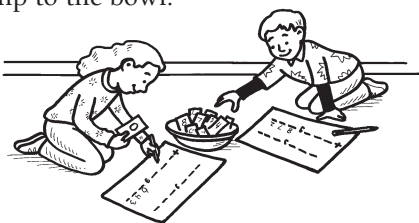
MATH CORNER Make a million



Let your youngster work with numbers to a million with this game that combines math and strategic thinking. The object is to make two numbers that add up to 1,000,000—or as close as you can get!

1. Have your child write the digits 0–9 on individual scraps of paper and put them in a bowl.
2. On separate pieces of paper, each player should write blanks for a six-digit addition problem like this:

$$\begin{array}{r} _ _ _ _ _ _ \\ + _ _ _ _ _ _ \\ \hline \end{array}$$
3. Take turns picking a scrap of paper and writing the digit shown on any one of your blanks. Where is the best place to put a small digit like 0 or 1? How about a big one like 8 or 9? Return the slip to the bowl.



4. When everyone's blanks are filled, solve your problems. Whoever comes closest to 1,000,000 wins! 📦

OUR PURPOSE

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

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SCIENCE LAB

Watch the balloon inflate

How could your child inflate a balloon without blowing it up? Try this science experiment together to find out.

You'll need: funnel, measuring spoon and cup, baking soda, uninflated balloon, vinegar, empty water bottle

Here's how: Have your child use a funnel to put 1 tbsp. baking soda into the balloon, then rinse the funnel and pour 1 cup vinegar into the water bottle. Being careful not to spill the baking soda, help him stretch the balloon's opening over the mouth of the bottle. The baking soda will fall into the bottle.

What happens? The baking soda-vinegar mixture foams up and the balloon inflates.

Why? When baking soda and vinegar combine, the chemical reaction forms carbon dioxide gas. That gas expands—and blows up the balloon. 📦



Q & A Fraction dice

Q: My son is learning to compare fractions in school. What is a fun way to practice at home?

A: Help your child make a set of fraction dice. He can cover each side with masking tape and write a different fraction ($\frac{1}{2}$, $\frac{7}{8}$, $\frac{2}{5}$) on each side.

Now have him roll one die at a time and fold and color a different sheet of paper to show each fraction. Say he rolls

$\frac{1}{3}$. He would fold one paper into thirds, color one section, and label it $\frac{1}{3}$. If your youngster rolls $\frac{1}{2}$ next, he would fold a second sheet in half, color one section and label it $\frac{1}{2}$. Lining the papers up, one above the other, he will easily see that $\frac{1}{2}$ is larger than $\frac{1}{3}$.

Suggest that your child continue rolling, folding, and coloring—and comparing fractions to each other! 📦

