

Math+Science Connection

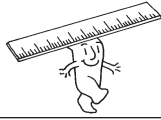
Intermediate Edition

Building Understanding and Excitement for Children

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Renaissance Academy Charter School of the Arts

Mrs. Kimberly Felton, Family Services Coordinator



INFO BITS

My "fractional" day

Challenge your youngster to come up with two numbers related to her day—one that's a decimal and one that's a fraction. *Example:* "My lunch cost \$2.25." "I read $\frac{1}{4}$ of my book today." Then, it's your turn to come up with two of your own (or maybe she can help you!).

Floating soda

For a quick experiment with density, give your child a can of regular soda and one of diet soda. Let him fill two containers with water and drop an unopened can into each. Can he figure out why the diet soda floats and the regular one sinks? (The sugar in regular soda makes it denser.)



Book picks

From Measure Up! to Computation Gridlock, *Mega-Fun Card-Game Math, Grades 3–5* (Karol L. Yeatts) includes 25 card games that build math skills.

Try This! *50 Fun Experiments for the Mad Scientist in You* (Karen Romano Young) will have your youngster making rainbow roses, super balls, dancing sugar, and much more.

Just for fun

Q: What has eight wheels and carries only one passenger?

A: A pair of roller skates.



Multiply the fun

It's comforting to know that 2×2 always equals 4. But the predictability of multiplication doesn't end there. Learning the rules, or properties, of multiplication makes math easier for your youngster to understand. Try these activities.

Make a comic strip

Add a little humor to multiplication. Suggest that your child draw a comic strip with each panel illustrating a different property. For the *zero property*, he could draw a plate of cookie crumbs and write, "I left 3×0 cookies on the plate!" For the *commutative property*, he might show one garden with 7 rows of 4 plants and another with 4 rows of 7 plants. (" $4 \times 7 = 28$, and $7 \times 4 = 28$. Each garden has 28 plants!")

Roll the dice

Have each player write the numbers 1–30 on his paper (leaving out these prime numbers: 7, 11, 13, 17, 19, 23, 29). Take turns rolling three dice and using the *associative property* to write three number sentences. For 2, 3, and 5, your youngster could write $(2 \times 3) \times 5 = 6 \times 5 = 30$, $(5 \times 3) \times 2 = 15 \times 2 = 30$, and $(2 \times 5) \times 3 = 10 \times 3 = 30$. Now on his paper, he can



cross out all the numbers he wrote: 2, 3, 5, 6, 10, 15, and 30. The first player to cross out every number wins. 🎲

Multiplication properties

- **Commutative:** $7 \times 8 = 56$ and $8 \times 7 = 56$ (numbers can be multiplied in any order)
- **Identity:** $8 \times 1 = 8$ (any number multiplied by 1 equals itself)
- **Zero:** $5 \times 0 = 0$ (any number multiplied by 0 equals 0)
- **Associative:** $(3 \times 2) \times 4 = 3 \times (2 \times 4)$ (numbers to be multiplied can be grouped in any order)

Track April showers

Let your child make a rain gauge to see how much rain falls each week in April. Here's how.

Have her use a ruler and marker to make marks every $\frac{1}{4}$ inch up the side of an empty glass jar. Set the jar outside in a spot where it won't fall over, and let her check it after each rainfall. She can record the amount, to the nearest $\frac{1}{4}$ inch, on a calendar.

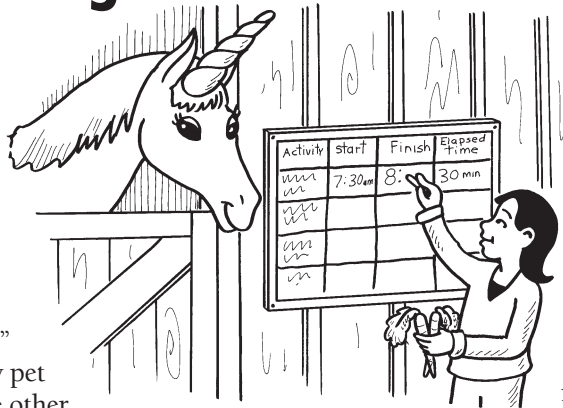
At the end of each week, your youngster should add up the total rainfall. Encourage her to repeat this each week for a month. Which week was the rainiest? What's the total rainfall for April? 🎲



Where did the time go?

“What time will we get there?”
 “When are we eating dinner?” Use these ideas to help your youngster calculate how much time something takes, or *elapsed time*.

Plan a day. Together, make a schedule for her perfect imaginary day. First, she divides a sheet of paper into four columns: “Activity,” “Start,” “Finish,” and “Elapsed time.” Now she lists an item (say, “Feed my pet unicorn”), and fills in any two of the other



columns. *Example:* 7:30 a.m. for start time and 30 minutes for elapsed time. You write the end time (8:00 a.m.) and add an item—maybe “Flying lessons” from 12:15 p.m. to 2:15 p.m. She fills in the elapsed time (2 hours) and sets up the next item for you.

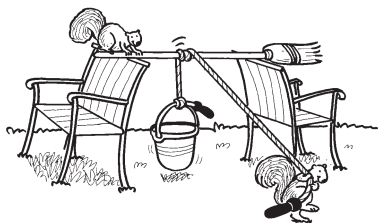
Match them up. Have your child cut two different-colored sheets of paper into 10 squares each. Then, she should make pairs of opposite-color cards, with one card showing a random time (perhaps 6:17 p.m.) and the other with a matching scenario including elapsed time and an end time. (“Jessica rode her bike for 25 minutes, finishing at 6:42 p.m. When did she begin?”) Scatter the cards facedown. On each turn, draw a card of each color. If they match, keep the pair. Collect the most pairs to win. 🎲

SCIENCE LAB The power of pulleys

How could you lift a bucket of water from a well? Head outdoors for this experiment that shows your youngster how a *pulley* helps.

You'll need: broom, two chairs, bucket of water, jump rope

Here's how: Have your child lay a broom across the chair backs and put the bucket underneath. Now he should tie one end of the rope to the bucket handle and loop the other end over the broomstick. Hold the broom steady while he pulls on the untied end of the rope and tries to lift the bucket. Then, let him wrap the rope around the broomstick several times and attempt to lift the bucket again.



What happens? Looping the rope around the broom several times makes it easier to lift the bucket.

Why? The broom and the rope act as a *fixed pulley*—a simple machine that changes the direction of the force used to lift something, making the job easier. 📦

OUR PURPOSE

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

Resources for Educators,
 a division of CCH Incorporated
 128 N. Royal Avenue • Front Royal, VA 22630
 800-394-5052 • rfeustomer@wolterskluwer.com
 www.rfeonline.com

MATH CORNER Create a scale drawing

Encourage your child to make a floor plan of his bedroom—using math to draw it to scale. He just may discover another way to arrange the furniture that gives him more space to play.

First, he should measure the dimensions of his room and decide on a scale that allows everything to fit on his paper. If the room is 12 ft. by 14 ft., his scale might be 1 in. = 2 ft. Now your youngster can measure the furniture and draw each piece to scale. If his bed is 7 ft. by 3 ft., how big should it be on his paper? (*Answer:* 3.5 in. by 1.5 in., because $7 \div 2 = 3.5$ in., and $3 \div 2 = 1.5$ in.) Once he's finished, suggest that your child experiment with other floor plans by cutting out the furniture and rearranging it on a new sheet of paper. If he finds a layout he likes better, consider helping him redo his room. 📦



Q & A Excited about STEM

Q: I know STEM careers are in demand these days. How can I spark my daughter's interest?

A: There are many ways to incorporate STEM (science, technology, engineering, and math) into everyday life and build excitement for your daughter.

Show enthusiasm for the STEM papers and projects your child brings home from school. Ask her to explain how she did a science experiment or solved a math problem. Or let her gather

materials and demonstrate an engineering project she did in class.

Also, share STEM-related news that you think will interest your daughter. She might be fascinated by what's happening on the International Space Station or that robots are programmed to deliver pizza.

Finally, look for museums and events in your area. Maybe you and your youngster could visit a science museum or attend an engineering fair at a local high school. 📦

