Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

December 2015

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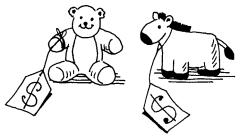
INFO BITS

Which costs less?

When shopping for gifts, let your child do some comparison shopping. For instance, if one store has a buy-one-get-one-half-off sale, have her figure the cost of the two items together. How would that compare to another store that has the items marked down? Figuring out the best deal will help her practice math—and be a smart consumer.



Sensory information

Your youngster receives information through his five senses, his brain decides what it means, and then he decides how to respond. Can your child think of examples for each sense? (Hearing a doorbell tells him someone is at the door. The smell of smoke may warn him of danger.)

Web picks

Your youngster can animate his name, create a game or a virtual pet, and make greeting cards—all while learning how to code at *scratch.mit.edu.*

See *lawrencehallofscience.org/kidsite* for fun projects like building an anemometer to measure wind speed, making glue, growing crystals, and more.

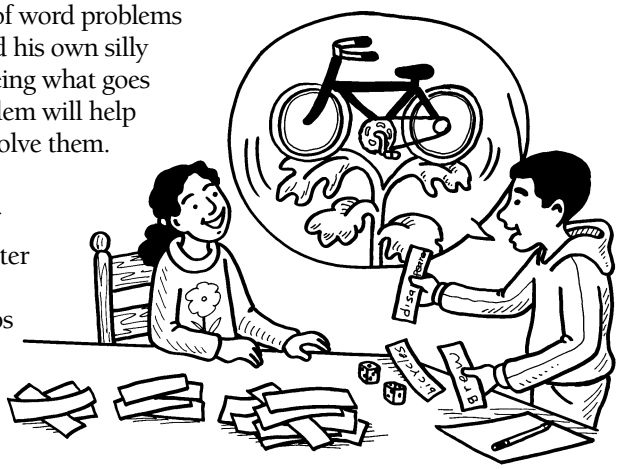
Just for fun

Q: How do you get a mouse to fly?

A: Buy it an airline ticket.

The rest of the story (problem)

Take the mystery out of word problems by letting your child build his own silly ones with these ideas. Seeing what goes into creating a story problem will help him understand how to solve them.



Multi-step problems

On individual slips of paper, have your youngster write 10 nouns (*pickles, bicycles*), 5 addition verbs (*added, bought)*, and 5 subtraction verbs (*ate, disappeared*). Stack each pile face-down. He should draw one slip from each pile. Then, he can roll a pair of dice three times to make three two-digit numbers (2 and 4 may be 24 or 42).

Now he can create a goofy two-step story problem like "I had 42 bicycles. Then I grew 11 more, but 34 disappeared. How many bicycles do I have now?" (19, because 42 + 11 = 53, and 53 – 34 = 19) Take turns creating and solving word problems. Who will write the funniest one?

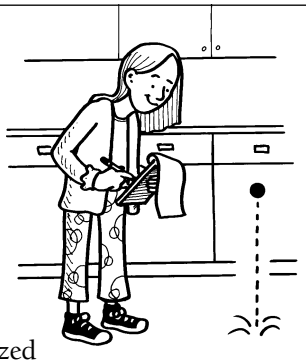
Elapsed time fill-ins

Let your child make up a funny elapsed-time story, leaving blanks for the facts, Mad Lib–style. *Example:* "___ (name) left for ____ (place) at ____ (time). He arrived at ___ (later time), but realized he forgot a ____ (item). It took him ___ (number) minutes to go to ____ (place) for it. How long did it take to get to the first place? What time did he get to the second place?"

Suggest that he ask friends to supply the missing words. ("I need a name." "Now give me a place.") Then, he can read his story aloud and answer the questions.

Patterns of motion

For centuries, scientists have studied how objects move so they could predict future movement. Your youngster can be just like a scientist with these observations, predictions, and tests.



Suggest that she drop a bouncy ball on the kitchen floor. She could count how many times it bounces and notice how the bounces get shorter and shorter. Have her record her results, repeat the experiment, and predict what will happen the next time.

Idea: Your child might vary the experiment by dropping the ball from different heights or using different-sized balls. How does she think those changes would affect the results? She can make predictions and then test to find out.

All in the family

Turn triangles into fact families for a great hands-on way to practice multiplication and division.

1. Have your youngster cut out paper triangles and get a deck of cards (aces–9s only).

2. Your child picks two cards (ace = 1) and uses the two numbers to secretly write a multiplication/division fact family on the points of a triangle. If she draws 3 and 2, she might write 3, 2, and 6 since 3 x 2 = 6 and 6 ÷ 3 = 2. Or she could combine the numbers to make 32 and write 32, 4, and 8 (4 x 8 = 32, 32 ÷ 4 = 8).

3. Let her show the two cards to her friends. Can they guess the fact family she made? They should list the possibilities and take turns saying three numbers. Some will be harder to guess than others! A number like 24, for example, has a lot of *factors* (numbers that multiply together to produce a number), such as 12 and 2, 4 and 6, and 3 and 8.

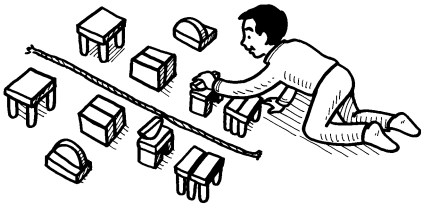
4. The person who correctly guesses the fact family creates the next one on a new triangle.

Tip: Keep playing, and your youngster will have a set of triangles for practicing multiplication and division facts.

MATH CORNER

Symmetry city

With building materials like Legos, wooden blocks, and boxes, your child can learn more about symmetry.



He should start by laying down a piece of string. This will be his line of symmetry, which means that if he could fold up his city on that line, the left half would exactly match the right half. Then, let him create a city. Each time he makes a building on one side, he needs to build one on the opposite side that matches it like a mirror image.

After he finishes building, take a walk or drive looking for structures that are symmetrical. For instance, a house might have a roof that peaks in the middle and slants down identically on either side. Or a church may have matching bell towers. How many lines of symmetry can he find?

OUR PURPOSE

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

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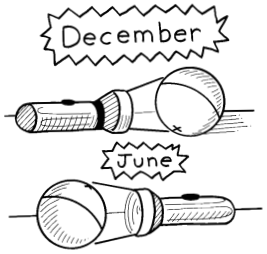
SCIENCE LAB

Why do we have seasons?

Ever have to remind your youngster to bundle up in winter even though the sun is shining brightly? Let him try this experiment to understand why it's cold outside.



You'll need: orange, marker, flashlight

Here's how: Have your child mark the top and bottom of the orange (the "earth") for the north and south poles and draw the "equator" around the middle. In a darkened room, you shine the flashlight (the "sun") on the earth while he tilts the top half (the "northern hemisphere") toward the light. This is "June." Then, he should move the earth in its orbit, without changing its tilt, to your other side. Now, turn and shine the flashlight toward the earth again. This is "December."

What happens? The light shines on the whole orange, but more intensely on the side tilted toward it.

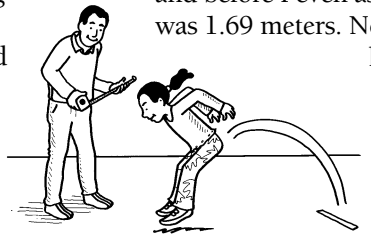
Why? The hemisphere tilted toward the sun gets the strong sunlight of summertime. During winter, the northern hemisphere is tilted away. But the southern hemisphere is just the opposite—that's why it's beach weather in South America when it's winter-coat weather here!

PARENT TO PARENT

Measure your jumps

My daughter, Sydney, is always trying to jump farther and run faster. So I decided to harness that competitive streak and help her work on measurement skills at the same time.

Sydney marked her starting point and took a big jump. I marked where she landed, and she used a tape measure to measure 49 $\frac{1}{2}$″. I asked what that was in feet and inches, and she looked at the tape measure to find the answer, 4′ 1$\frac{1}{2}$″. Then the competition was on! She kept trying to jump farther, each time measuring to see her result.



Another day, Sydney decided to take running jumps and measure them in centimeters. Her best one was 169 cm—and before I even asked, she told me that was 1.69 meters. Now Sydney is always looking for new ways to measure her exercise. It's good to see her exercising her body *and* her mind.