Intermediate Edition
Math+Science Connection
Building Understanding and Excitement for Children
October 2020
Redbank Valley Intermediate School
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INFO BITS

Let's skip count

Can your child skip count by numbers other than 2s, 5s, or 10s? Give him a random number (say, 7) and a starting point (perhaps 65). He would count 65, 72, 79, 86. Then, have him skip count backward. Maybe you'll have him begin at 103 and count back by 11s (103, 92, 81, 70).

Making mountains

Have your youngster lay two sheets of paper on a baking sheet so they overlap slightly and spread sand (or soil) over the seam. Holding down the top sheet with one hand, she should slowly push the other sheet underneath. The sand starts to mound. This shows how underground movements help form mountains over time.

Book picks

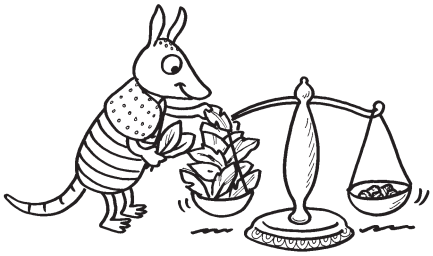
Marty views every situation like a math equation in *The Math Wiz* (Betsy Duffey). But can he solve the problem of being picked last in gym class?

Captivate your child with fascinating facts about tarantulas, diving bell spiders, jumping spiders, and more in *Spiders* (Kay de Silva).

Just for fun

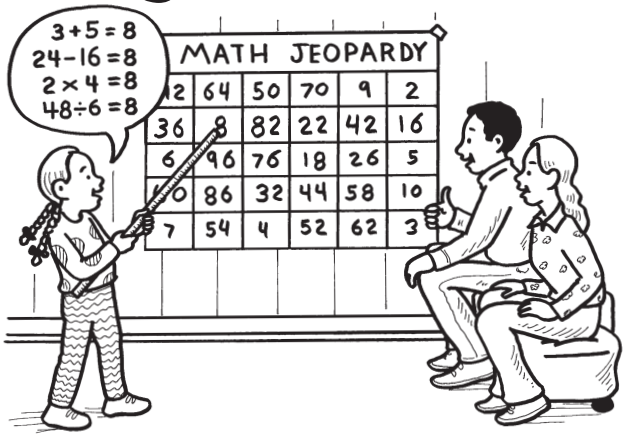
Q: Which weighs more, 1 pound of rocks or 1 pound of feathers?

A: Neither—each weighs 1 pound!



Mental math games

The more often your youngster does math in her head, the more efficient she'll become. Play these games that will inspire her to come up with strategies for solving problems—without pencil and paper.



Math Jeopardy

In this game, players first choose answers and then call out problems. Let your child draw a Jeopardy board (6 columns, 5 rows) and write a one- or two-digit number in each box.

Take turns picking an answer (say, 8) and stating four problems (addition, subtraction, multiplication, division) that equal it. *Example:* 5 + 3, 60 – 52, 4 x 2, 16 ÷ 2. Your youngster will practice doing all four operations in her head!

Check problems on a calculator. If they're all correct, score 8 points and cross out the 8. When all answers are chosen, the person with the highest score wins.

Fact fluency race

Who can score closest to 100 points without going over? Each player rolls a die to get her starting score. On each additional roll, she may add the number rolled to her score *or* multiply the number by her score.

Say your youngster has 32 points and rolls 5. By using the mental math strategy of rounding, she'll realize that 32 x 5 would put her over 100, since 30 x 5 = 150. So adding (32 + 5 = 37) is the better choice.

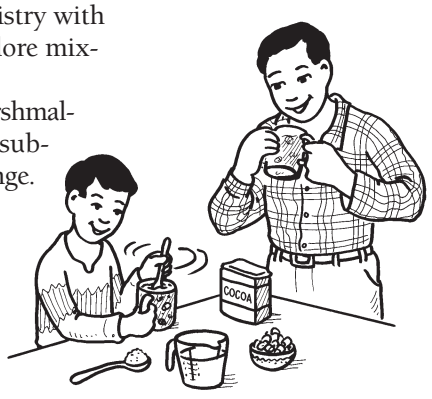
Keep track of scores on paper. A player may choose to stop rolling at any time—the winner is the person who gets closest to 100.

Mixtures and solutions

Stir up your child's enthusiasm for chemistry with some hot chocolate! Here's how he can explore mixtures and solutions.

First, let him scoop cocoa powder and marshmallows into a mug. It's a *mixture* because the substances don't dissolve, melt, or otherwise change. What happens when he adds hot milk? It becomes a *solution* because the cocoa dissolves and the marshmallows melt.

Together, think of more examples of mixtures and solutions. Your youngster might say that trail mix is a mixture and lemonade is a solution.



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Geometry: Move it, draw it

Your youngster can stretch his body *and* his mind with these ideas for learning geometry through movement and art.

Strike a pose. Have your child sit upright with his legs straight out in front of him and his arms stretched above his head. He's a right angle (90°). How could he make an acute angle (less than 90°)? (Lean forward.) An obtuse angle (more than 90°)? (Lean backward.) Now suggest that he hold his arms so they're parallel lines (lines that never touch). Can he make perpendicular lines (lines that intersect at right angles) with his arms?

Create abstract art. Encourage your youngster to draw a dozen straight, crisscrossing lines all over a piece of paper and color the shapes he forms. He could use a different color for each type of shape (trapezoid, rhombus, pentagon) and count how many of each there are. Now let him display his colorful work of art on the refrigerator.

PARENT TO PARENT

Solving for *x*

I noticed my daughter Lucy's math assignments had problems with *x* in them. Since I didn't do equations like that until middle school, I asked her teacher why they were already doing algebra.

He explained that teaching kids to solve for *x* is an early algebra skill that builds number sense and gives them a head start on the more advanced math they'll do later. That made sense to me, so I asked how I could help Lucy work on algebra.

The teacher said we might make up problems with numbers missing in different places, such as $x + 7 = 12$, $5 + x = 12$, or $5 + 7 = x$. He pointed out that Lucy doesn't have to use *x*—she could draw a heart, a star, or anything she likes.

Lucy decided to write problems on the sidewalk using pictures in place of *x*. Sometimes, we leave equations on sticky notes for each other to find—under dinner plates or on the bathroom mirror, for instance. Her current favorite math activity? Typing equations on my phone or tablet—with emojis in place of *x*.

OUR PURPOSE

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

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MATH CORNER

Place-value scarecrow

This twist on "Hangman" will build your child's understanding of place value.

1. Secretly think of a four- or five-digit number. (You may use the same digit more than once.) Draw a blank line for each place. *Example:* For 5,078, write _, _ _ _.

2. Your youngster should guess a digit (0–9). If he guesses 7, you would say, "There's a 7 in the tens place," and he would write a 7 in the correct blank (_ , _ **7** _).

3. If he guesses a digit that's not in your number, he draws a scarecrow body part and writes the digit next to it.

4. When all the blanks are filled in, ask your child to read the number to you ("Five thousand seventy-eight").

5. Switch roles, and play until your scarecrow is complete.

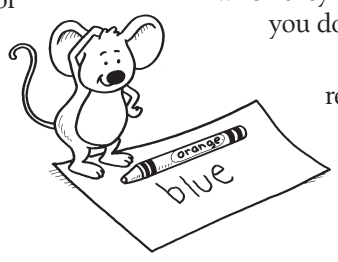
SCIENCE LAB

Why does my brain do that?

Your family may get tongue-tied with this brain-testing experiment.

You'll need: 2 sheets of white paper, 8 different-color crayons or markers, stopwatch

Here's how: On one piece of paper, have your child write 8 color words with matching crayons (blue with a blue crayon). On the second sheet, she should write the same words, but this time in a different order and in the "wrong" colors (blue might be written in orange). Time family members as they quickly say the colors of the words on the first page. Repeat with the second page—make sure to say the colors and not read the actual words (say, "orange" rather than "blue").



What happens? You say the colors when they match the words faster than you do when they don't match.

Why? One part of the brain reads words and another part identifies colors. When you try to simply name the colors, your brain instead tries to read the words.