

Math+Science Connection

Building Understanding and Excitement for Children

November 2014

Title I / Learning Assistance Programs



INFO BITS

How tall am I?

Kids love to see that they're getting taller. Let your youngster stand against a wall, and mark her height with a pencil. Then, have her use a measuring tape to see how tall she is. She could record the number and check again monthly to measure her growth. *Tip:* Each time, ask her to predict how much she's grown.

Lights on

Does your child know what happens when he flips a light switch? Explain that electricity flows only when a circuit (circular route) is connected or complete. Flipping a switch either completes or breaks a circuit. To illustrate this, let him draw or build a circular train track. Can the train keep going (complete a circuit) if the ends aren't connected?



Book picks

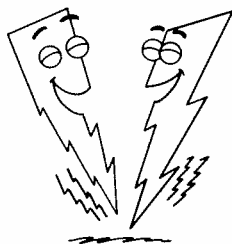
■ A fun mystery unfolds in *Sir Cumference and the Isle of Immeter* (Cindy Neuschwander)—and is only solved when two children learn about area and perimeter.

■ Use *The Body Book: Easy-To-Make Hands-On Models That Teach* (Donald M. Silver and Patricia J. Wynne) to create a paper skeleton or build models of eyes and ears.

Just for fun

Q: What did one lightning bolt say to the other?

A: You're shocking!



Same answer, different strategies

Since math is orderly, children can solve the same problem using different strategies—and still come up with the right answer. Here are ways for your youngster to see this in action.

Add and think

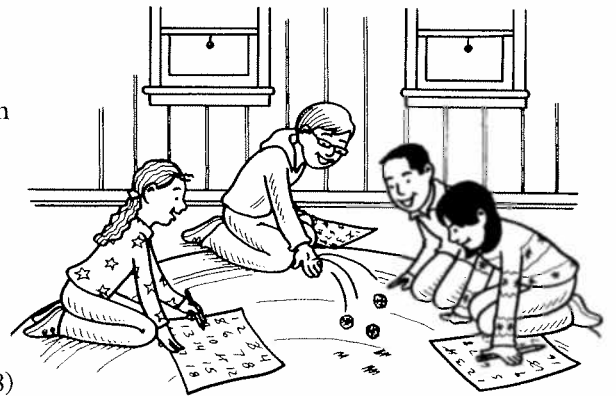
Ask your child to pick three two-digit numbers (say, 22, 54, 18) and add them together. How did he get the sum? He might have added the ones ($2 + 4 + 8 = 14$) and then the tens ($2 + 5 + 1 = 8$ tens, or 80), and then added the results together ($80 + 14 = 94$).

Can he think of a different method? For instance, he could make the numbers "friendlier" to add: Change 22 and 18 each to 20 (since they're both 2 away from 20). Then, add $20 + 20 = 40$, and compute $40 + 54 = 94$.

Which strategy does he like best?

Roll the dice

Play a game using three dice. First, each person writes the numbers 1–18



on a sheet of paper. On his turn, a player rolls all three dice and uses either two or three of the numbers rolled to make one of the numbers on his paper. He may add, subtract, multiply, or divide.

Say your youngster rolls 3, 2, and 5. He could make 10 ($3 + 2 + 5 = 10$ or $2 \times 5 = 10$). Or he might make 1 by subtracting $3 - 2 = 1$, or computing $(3 + 2) \div 5 = 1$. How many different ways can he reach the same answer? Cross out each number made—the first player to use all 18 numbers wins.

Idea: Play again using four dice, trying for the numbers 1–24. 🎲

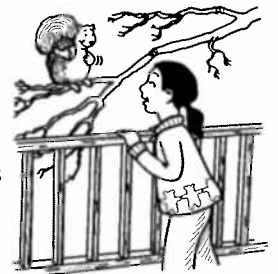
Getting through the winter

As winter draws closer, it's time to pull out coats and gloves. But how do animals prepare?

Let your child cut pictures of animals from old magazines. Then, she could make a collage, sorting the animals into groups based on how they prepare for winter,

- **Hibernate.** Some animals, such as bats, sleep through winter in a warm place like a cave.
- **Migrate.** Other animals, typically birds, move from colder to warmer climates.
- **Stay put.** Still others adapt to stay in the same place. For example, squirrels fatten up, grow thicker fur, and store nuts.

To decide which is which, have your youngster think about animals she sees (or doesn't see) during winter or what she has learned about animal habits. If she doesn't know what an animal does, help her research the answer. 📖



Lines of symmetry

Is a soccer ball symmetrical? How about a car? These activities will help your child find lines of symmetry, or imaginary lines that divide figures into two identical halves.

Snowflakes

Have your youngster fold a square piece of paper in half and then in half again. Let her cut out shapes along the folds. Opening it, she will have a paper snowflake. Now suggest that she open the little pieces of paper she cut out—the fold line is the line of symmetry for each shape.



Origami

Using origami patterns from books or the Internet, your child can have fun making origami objects. (*Hint:* Cut colored paper into squares for origami paper.) Ask her which folds are along lines of symmetry. (Anytime the sides of the fold come together and match exactly, they are symmetrical.)

Architect for a day

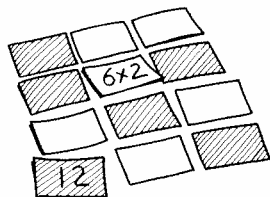
Now that she's more familiar with lines of symmetry, let your youngster imagine being the architect who designed your house or apartment building. Where can she find lines of symmetry inside or outside your home? (Perhaps she'll point out windows, chimneys, closets, or ceilings.)

MATH CORNER

Multiplication match

Play this game to give your youngster extra multiplication practice.

- Pick one set of multiplication facts, such as 6s. Have your child write the problems (6×1 , 6×2) on one set of index cards and the answers (6, 12) on another set. *Tip:* He should use different color cards for each set.
- Spread out the cards facedown in rows. Let him pick two cards to see if they go together. If so, he keeps them and draws again. If not, he should turn the cards back over, and it's the next player's turn. Play until all the cards are claimed. Whoever has the most matches wins.
- When your child knows those facts, he can make another set and play again. Use one set at a time, or combine them with the others he has learned up to that point.



Idea: Pick out multiplication facts that give your youngster trouble, and focus on those.



SCIENCE LAB

I didn't quite hear that!

Your budding scientist can explore the properties of sound by making a soundproof box.

You'll need: cardboard, sponges, scissors, glue, box, radio or MP3 player

Here's how: Help your child cut the cardboard and sponges into small squares. Have him glue the sponge pieces to the cardboard squares and then glue the squares randomly all over the inside of the box. Now he can turn on a radio or MP3 player and listen. Without adjusting the volume, he should put the box over the radio or MP3 player and listen again.



What happens? The music will get softer.

Why? Sound travels best through solid objects. Since the sponges are not solid and have lots of air pockets, sound is lost going through them. Also, the spaces between the sponges scatter the sound waves. And even more sound gets lost trying to go through the cardboard.

Q & A

Writing about math

Q: *I've heard that schools are putting more emphasis now on having kids explain answers in writing—even math answers. How can I help my twins practice this skill?*

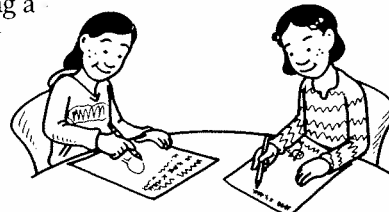
A: You could create fun opportunities for them to write about math. For example, suggest that they each write a letter or an email telling a grandparent what they learned in math class.

Or they might make up stories that involve concepts they're working on. For

example, one child could write a story about a Mars mathematician trying to solve an intergalactic division problem. The other may have a girl deciding how to spend the money in her piggy bank.

Ask them to weave math problems into their stories. For example, they could add dialogue where the characters explain how they got the answers.

Either of these activities can help them practice writing about math clearly—and will help them with school assignments and tests.



OUR PURPOSE

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

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