Intermediate Edition
Math+Science Connection
Building Understanding and Excitement for Children
February 2021
Gadsden City Schools

INFO BITS

Spatial reasoning

Don't throw away that cereal box! Your child can use it to build spatial reasoning, which includes visualizing shapes and how they fit together. Let him cut an empty box into separate panels, mix up the pieces, and put it back together with tape. *Idea:* Suggest that he build his own boxes using construction paper.

Science in the news

Encourage your youngster to see the science going on around us every day. Together, look through newspapers, magazines, or news websites, and point out articles about topics like extreme weather, new medicines, or robots. She could save interesting articles and keep them in a binder. They just may provide inspiration for a future career!

Book picks

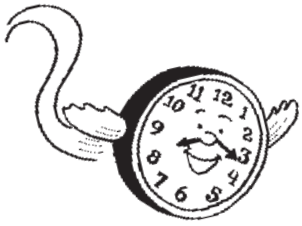
Can You Count to a Googol? (Robert E. Wells) illustrates big numbers like millions and billions and teaches children that numbers go on forever.

Mistakes That Worked: 40 Familiar Inventions & How They Came to Be (Charlotte Foltz Jones) reveals the accidental beginnings of x-rays, Silly Putty, chocolate chip cookies, and more.

Just for fun

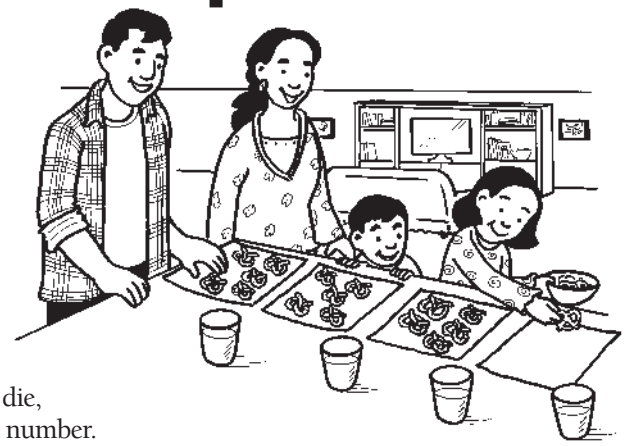
Q: How do you make time fly?

A: Throw a clock out the window.



Divide and conquer

These are the years when your child tackles division. Use the following ideas to help her become as comfortable with dividing as she is with adding and subtracting.



Play games

Add and divide. On your turn, roll six dice at once, and add the numbers in your head. Then, roll one die, and divide your total by that number. *Example:* Roll 3, 1, 5, 3, 2, and 4 for a total of 18. Roll a 3, and score 6 (18 ÷ 3 = 6). After five rounds, the player with the low score wins.

Cut in half. Remove the face cards from a deck of cards. Turn over two cards at a time to make a 2-digit number, and divide by 2. *Example:* Draw a 7 and a 1, make 71, and your score is 35.5, because 71 ÷ 2 = 35.5. Play until no cards are left. High score wins. *Variation:* For a bigger challenge, divide by 3, 4, or 5 instead of 2.

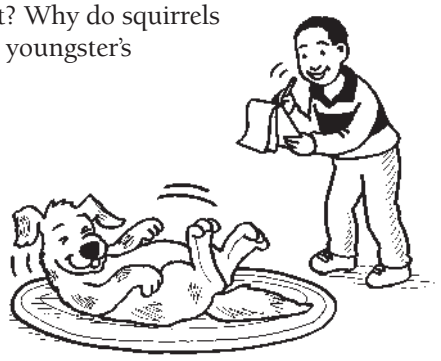
Use in real life

Figure out quantities. Let your youngster divvy up snacks for family members. If there are 20 pretzels and 4 people, for instance, each person would get 5 pretzels (20 ÷ 4 = 5).

Calculate tips. Ask her to figure out restaurant or delivery tips. For 15 percent, she can divide the check (say, $25) by 10 ($2.50), divide that number by 2 ($1.25), and add those numbers together ($2.50 + $1.25 = $3.75 tip). For 20 percent, have her divide the tab by 10 and double that number ($25 ÷ 10 = $2.50; $2.50 x 2 = $5 tip).

Study animal behavior

Why do dogs roll around on the carpet? Why do squirrels stick their tails straight up? Harness your youngster's curiosity about animals with this activity.



Observe. Encourage your child to watch an animal closely and take notes on its movements and sounds. Then, he could write explanations for what the behaviors might mean. ("I think the dog is trying to scratch her back.")

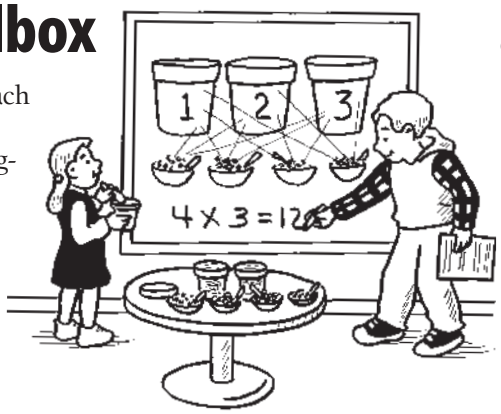
Research. Together, read library books or websites to check his ideas. He may discover that dogs roll around to scratch or to mark a spot with their scent. And squirrels use their tails to balance.

A word problem toolbox

Good problem solvers know how to approach word problems in different ways. Share these sample problems and strategies for your youngster to try.

Problem: *A shop sells 3 flavors of ice cream and 4 kinds of toppings. If you could order 1 flavor and 1 topping, how many different combinations are there in all?*

Strategy: Draw a picture. Your child could sketch 3 tubs of ice cream and 4 bowls of toppings. Then, he can draw lines to connect each flavor to each topping. He'll see that each of the 3 flavors has 4 possible toppings (3 flavors × 4 toppings = 12 combinations).



Problem: *There are 17 animals on a farm with only horses and cows. There are 9 more horses than cows. How many cows are there?*

Strategy: Work backward. Encourage your youngster to start by reading the question at the end of the problem. He'll know right away what piece of information he is looking for (the number of cows). Next, he should reread the entire problem. Finally, he could use trial and error, plugging in various numbers to see which ones have a difference of 9 and a sum of 17. (*Answer*: 13 horses and 4 cows, because 13 + 4 = 17 and 13 – 4 = 9.)

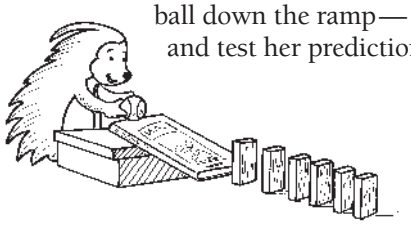
SCIENCE LAB

It's a chain reaction

With this experiment, your youngster will discover how energy transfers when objects collide during a chain reaction.

You'll need: shoebox, hardback book, rectangular building blocks, tennis ball

Here's how: Have your child place a shoebox in the center of a table and prop a book against it to make a ramp. Then, help her line up a row of same-size blocks on end, each about 1 inch apart, from the bottom of the ramp to the edge of the table. Ask her to predict what will happen when she rolls the ball down the ramp—and test her prediction.



What happens? The ball knocks down the first block. That block knocks over the next one, and so on, until the last block falls off the table.

Why? A chain reaction occurs when the ball transfers its energy to the first block. That block transfers energy to the next, and the energy transfer continues down the line.

OUR PURPOSE

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

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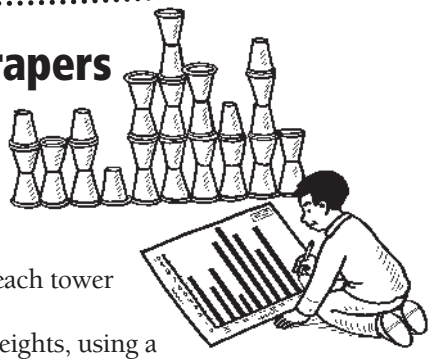
MATH CORNER

Graphing skyscrapers



If your youngster were to graph the actual heights of skyscrapers, he'd need a lot of paper! Unless, of course, he drew a *scaled* bar graph. Here's how.

Suggest that your child stack plastic cups into towers of different heights. Have him give each tower a name and measure and record its height.

Now your youngster can graph the towers' heights, using a scale so his graph will fit on paper (say, 1 cm on paper = 10 cm on towers). He could write numbers of centimeters up the left side and the towers' names along the bottom. He should also include his key: 1 cm = 10 cm.

Then, let your child draw a bar to show how tall each tower is. If his "Super Spire" tower is 72 cm tall, he would color in a bar 7.2 cm high. That's 1 cm on paper for every 10 cm of the actual tower (72 ÷ 10 = 7.2 cm).

PARENT TO PARENT

I ♥ math

"When will I ever use this math?" I had to smile when my daughter Emily asked me that question the other day—I used to ask my mother the same thing when I was her age! So I gave her the same idea my mother gave me. I had her write "I love math because" at the top of a sheet of paper and post it on the fridge for everyone to add to.

Emily was surprised when, after about a week, the page was almost full. She had listed things like "I can figure out how much snow we got by measuring it with a ruler" and "Multiplication helped me make a double batch of cookies." I added, "I save money by comparing prices on groceries." And Emily helped her little brother write, "I can count my stuffed animals."

Now when Emily asks how she'll use a particular type of math, like fractions or decimals, I encourage her to pay attention to her daily routines and see if she can find a real-life example. More often than not, she's able to add to her list.