

Math+Science Connection

Intermediate Edition

Building Understanding and Excitement for Children

December 2011

Spalding Drive Charter Elementary School



INFO BITS

Wrapping paper

Which wrapping paper is best for hiding what's inside? Have your youngster experiment with various types (traditional, tissue, cellophane, newspaper). When she discovers the paper that works the best, talk about why. (You want paper that you can't see through—this kind of paper blocks light and is called *opaque*.)

Telephone numbers

Let your child use the phone for something other than talking! Give him math challenges, such as adding up each row of numbers on the keypad (horizontal, vertical, diagonal) to find the largest sum. Or ask him to add all the numbers to find the total.

Web picks

Crack a code or escape from a room at www.counton.org. Your youngster can play games to build skills in many areas of math, including fractions and geometry.

At www.sciencetoymaker.org, your child will learn how to make toys that demonstrate science concepts. He can create a spinning top, launch a plastic bottle "rocket," and more—all using household materials.

Worth quoting

"The most beautiful thing we can experience is the mysterious. It is the source of all true art and science."

Albert Einstein

Just for fun

Teacher: Why did the germ cross the microscope?

Stephen: To get to the other slide.



Using math at home

You don't have to look far to give your child opportunities to use math. Here are ways he can practice right at home.

Make a salad. How is making a salad like problem solving? When you give your youngster a "recipe" like this: "Toss together an odd number of lettuce leaves between 20 and 30, twice as many cucumber slices as cherry tomatoes, an even number of green bell pepper slices, and half that number (also even) of red bell pepper slices." Next time, let him give you a silly recipe to follow.

Sort the mail. Put your child in charge of sorting and graphing your daily mail. First, he'll have to decide on a sorting method, such as addressee, envelope size, or type of mail (bills, invitations, magazines, junk mail). Next, he can decide what to graph. He might count the number of pieces in each pile, measure the



height of each stack, or use a kitchen or postal scale to find the weight. Finally, have him choose a graphing method (drawing a bar graph, entering data and creating a graph with <http://nces.ed.gov/nceskids/createagraph>).

Rate movies. When your family watches a movie, let your youngster ask each person to rate it on a scale of 1–5 stars. Then, have him find the average and announce your family's rating. He can keep track and let everyone know the month's top-rated films. *Tip:* Allow people to score in decimals (3.5, 4.75) so he gets practice working with those types of numbers. ▣

Star power

Go outside on a clear night, and gaze up at the stars together. Can your youngster pick out any constellations? Explain that constellations are simply groups of stars named for the shapes they resemble—and often the legends told about the shapes.

You might look at pictures of constellations in library books or online. Or let your child pick her own cluster of stars, think of a name, and even make up a story to go with it. On a piece of paper, have her make dots to represent the stars she sees.

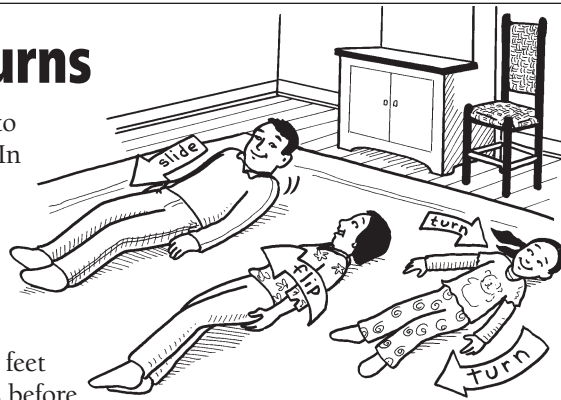
Back inside, have her poke holes through the "stars" (using a push pin or a pencil tip) and tape the sheet to an upside-down glass pie pan. Go into a darkened room, hold the pan up, and shine a flashlight through it from the bottom—her constellation will appear on the ceiling. ▣



Slides, flips, and turns

Moving shapes around is a good way to learn about *transformations* in geometry. In this case, the shape can be your child's body! Try these steps:

1. To do a slide (also called a *translation*), have your youngster lie on her back and then scoot her body forward so that her head is where her feet were. Her feet should be facing in the same direction as before.



2. To do a flip (a mirror image, or *reflection*), have her flip over from her back to her stomach. *Tip:* Ask her what other ways she could flip (she could start on her right side and flip to her left side).

3. To do a turn (or *rotation*), she should move her body 90 degrees. So, if her head faced north and her feet pointed south, after a turn her head could face east and her feet would face west.

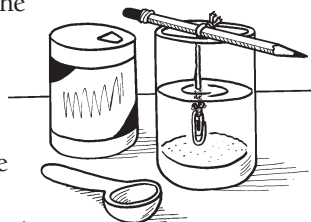
Idea: Play a game of Simon Says with slides, flips, and turns. Your child can teach other family members how to do them and then be the leader. If Simon says, "Flip," players have to make that motion. If they don't do it right—or if they move without being told "Simon says"—they're out. The last one left gets to be Simon next time. 📦

SCIENCE LAB Growing crystals

With this experiment, your youngster can witness liquid turning into a solid—and watch beautiful crystals form.

You'll need: glass, water, about 3 tbsp. salt, spoon, piece of string, paper clip, pencil, ruler

Here's how: Have your child fill the glass halfway with water. Let him stir in the salt, a spoon at a time, until it begins collecting at the bottom and won't dissolve any more. Next, he can tie one end of the string to the paper clip and the other end to the pencil's middle and place the pencil across the opening of the glass. (*Note:* Have him adjust the string's length so the paper clip almost touches the bottom of the glass.) Each day have him check for changes and measure the height of the water.



What happens? Salt crystals will form on the string, and the water level will decrease.

Why? As the water evaporates, the salt that had dissolved re-forms as crystals.

Variations: Hang the paper clip above the water. Try different types of salt (sea salt, iodized salt). Hang several strings. How do the results differ? 📦

OUR PURPOSE

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

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MATH CORNER

Think and score

Here are two math games that will give your young mathematician a workout. If she wants to score, she has to think ahead!



● In this game of probability, players choose how many dice (1–8) to roll on each turn. Add up your points every round—unless you roll a 1, and then you get no points that turn. For each turn, record the number of dice you used and the points scored. After 20 rounds, the high score wins. *Note:* The more dice you roll, the higher your score can be—but the higher your chance of rolling a 1!

● The object in this strategy game is to be the first one to say the number 20. To play, take turns counting aloud (starting at 1). Each player can say up to 3 numbers in order from where the other person left off. (Player 1 begins, "1, 2." Player 2 says, "3, 4, 5." Player 1 says, "6.") Whoever says "20" wins. *Idea:* Play up to a different number, and see how the strategy changes. 📦

PARENT TO PARENT

Taking turns

The other day my kids were fighting—again—over whose turn it was for the computer. I was tired of listening to them argue and asked my neighbor how she handles this in her house. Lucky for me, she had a good idea.

She happens to be a middle school math teacher, so she's always looking for ways children can work on math skills. She said figuring out a fair way to take turns could actually

help my son and daughter practice addition and "time sense."

First, my kids and I discussed how long they could use the computer each day, how long each turn should be, and what time they would start. To bump up the math practice, my neighbor suggested using times and numbers that are "offbeat," like starting at 4:19 and having 16-minute turns.

So far, the turn-taking is going pretty well, and they're definitely getting to know the clock better! 📦

