

Math+Science Connection

Beginning Edition

Building excitement and success for young children

September 2010

Prospect Point Elementary School



TOOLS & TIDBITS

Area-code math

Write your area code (702) on a piece of paper. Then, ask your youngster to rearrange the three digits into the largest possible number (720) and the smallest possible number (207). He'll learn about place value and comparing number size. *Idea:* Put the digits on separate slips of paper, and have your child move them around to make the new numbers.

Science safety

Teach your child to be a safe scientist. Get goggles for her to wear when she's experimenting with liquids or using tools. Explain that she should never taste or smell anything without your permission. And help her read and follow instructions on packages before using science kits.

Book picks

How many islands, countries, and mountains are in Anno's jar? *Anno's Mysterious Multiplying Jar* (Masaichiro and Mitsumasa Anno) builds simple math lessons into a clever story.

Your youngster will be amazed by the tale of a baby hippo and a 130-year-old tortoise who become best friends. Photographs and words tell about courage and love in *Owen & Mzee: The True Story of a Remarkable Friendship* (Isabella Hatkoff, Craig Hatkoff, and Paula Kahumbu).

Worth quoting

"A child can ask questions that a wise man cannot answer." *Anonymous*

Just for fun

Q: What can fill up a room but takes up no space?

A: Light.



Understanding numbers

Carla can recognize numbers. Daniel can count objects. Both children are showing "number sense"—the ability to understand what numbers mean. Help your youngster develop number sense with these activities.

Count around the table

At dinner, count around the kitchen table. The first person says "1," the next person says "2," and so on. Keep going around the table, counting as high as your youngster can go. If she isn't counting yet, count together until she feels comfortable. *Tip:* Ask an older child what her number will be on her next turn.

Discuss numbers

Each day, take turns choosing a number, and talk about it. Say today's number is 12. Ask questions like, "When is 12 a lot?" (when it's the number of children in a family) or, "When is 12 a little?" (when it's the number of minutes until bedtime). Thinking of examples will encourage creative thinking as well as number sense.

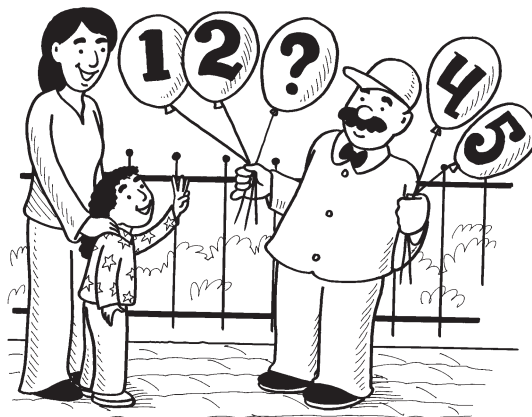
Junior paratrooper

Help your child make a parachute and let it fall to the ground. He'll learn about air resistance as he tests his design.

First, have him carefully cut four 2-foot pieces of string and tie one to each corner of a square bandana, scarf, or other piece of cloth. Knot the free ends together, and tie a key to the bottom of the knot.

Then, ask your youngster to predict what will happen when he tosses the parachute from different heights (a bottom step, the top of the steps, an outdoor deck).

Explain that the parachute "catches" air, which makes it drop slowly. The greater the height, the more time it has to catch air, and the more slowly it will fall.



What's the missing number?

Write down a sequence of numbers, leaving out one. *Example:* 1, 2, 3, __, 5, 6. Ask your youngster to fill in the blank (4). Then, have her make a missing-number string for you. This will help her think about the order of numbers. For older children, try a more difficult sequence such as 1, 4, 7, __, 13, 16 (*answer:* 10).

Start at different places

To help your child really know the numbers—rather than just counting by rote—count in different ways. You might have her start at 8, 14, or another number rather than beginning at 1. Or try "start and stop counting," where you ask her to start at 6, count by 2s, and stop at 16 (6, 8, 10, 12, 14, 16).



Playground science

On your next trip to the playground, your youngster can find out about motion while he plays. Here's how.

Swing. A swing is a lesson in *momentum*—the power to increase speed. Have your child sit on a swing without pumping his legs. What happens? (He won't move.) Then, give him two pushes. He'll begin swinging, but his motion will stop soon after your pushes end. Finally, give him a few pushes and tell him to keep pumping his legs. This time, he'll keep going. You can tell him he is building momentum by pumping, and the momentum keeps him swinging.



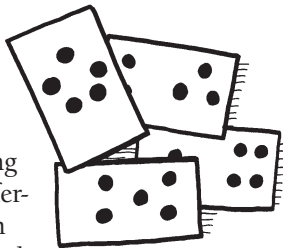
Sliding board. A sliding board can illustrate *friction*. Take along different materials for your child to sit on while he slides. *Examples:* cardboard, wax paper, a carpet scrap, a cotton T-shirt, a chair cushion. Ask him which one he thinks will give him the fastest ride. To check, use a stopwatch or cell phone to time each slide. Which material wins? Explain that friction is created when moving objects

touch a surface. Smoother materials (the cotton T-shirt) produce less friction and glide down more quickly, while rougher materials (carpet) create a slower ride.

MATH CORNER By the dots

Help your child learn to spot amounts by making a set of "dot cards."

Together, draw different numbers of dots, 1–9, with markers or crayons on separate index cards. *Idea:* Let your youngster use finger paints and dip a fingertip into the paint for each dot. Make several cards for each number, putting the dots in different places each time. For example, for her "5" cards, she might draw 5 dots across or scatter 5 dots randomly on a card. Or she can draw a group of 2 dots and a group of 3 dots.



Then, place all the cards facedown. Take turns flipping one over. The other person has to call out the number of dots. With practice, your child will begin to spot the patterns that can make up a number. And she'll see that numbers are made of smaller numbers.

OUR PURPOSE

To provide busy parents with practical ways to promote their children's math and science skills.
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Q & A Math in the grocery store

Q: I've heard that the grocery store is a good place for my son to work on math skills. Do you have any suggestions?

A: As you go through the aisles, give each other math challenges. For example, you might ask your youngster to pick out three red apples and four green apples and tell you the total ($3 + 4 = 7$ apples).

On the way to the checkout line, you can both estimate how many items are in your cart. Then, have your child count them as you put them on the conveyor belt. Who came closest?

Finally, let your youngster read the numbers on the receipt and tell you what cost the most and the least. He'll learn to compare numbers—and also get a lesson in the value of money.



SCIENCE LAB Float an egg

Can your child make an egg float in water? With this lesson in density, she'll find out.

You'll need: clear glass, water, uncooked egg, salt, teaspoon

Here's how: Have your youngster fill the glass half full with water and carefully drop in the egg. She'll see it sink right to the bottom. Then, let her add salt to the water, a teaspoon at a time. With each teaspoon, have her

gently stir (until the salt dissolves) and observe the egg.

What happens? When enough salt is added, the egg will rise up and float.

Why? Adding salt makes the water denser, or packs the molecules more closely together. At first, the egg sank because it was denser than the water. When enough salt was added, the saltwater became denser than the egg, so the egg floated.

