Beginning Edition

Math+Science Connection

Building Excitement and Success for Young Children

September 2012

Sweetbriar Elementary

TOOLS & TIDBITS

Math envelopes

This activity will give your youngster practice with math facts. Help him count out 7 small objects (beans, buttons), put them in an envelope, and write 7 on the front. Then, he can use the beans to make groupings with 7 ($3 + 4 = 7$, $7 - 5 = 2$). Use beans to make "fact envelopes" for each number 1–20.

Warm hands

Let your child feel science in her own hands. Have her vigorously rub her hands together. After just a few seconds, her palms will begin to feel warm. The faster she rubs them together, the warmer they will get. Explain that rubbing her hands together creates friction, which releases heat (or *thermal energy*).

Book picks

Zero doesn't fit in with the other numbers because he doesn't "count" for anything. In *Zero the Hero* by Joan Holub, Zero sets out to prove how important he really is.

When your youngster drinks a glass of milk, she is part of a food chain. She can learn all about how this works in *Who Eats What? Food Chains and Food Webs* (Patricia Lauber).

Worth quoting

"The most beautiful thing in the world is, of course, the world itself."
Wallace Stevens

Just for fun

Q: What kinds of stones are never found in a lake?

A: Dry ones!

Making sense of numbers

Of all the math skills your child will need, the first is to understand what numbers mean. Here are fun ways for her to make sense of numbers.

Count and say

Help your youngster understand that we use numbers to represent objects. Challenge her to count something different each day. For instance, she might count the number of chairs in your house or the number of flowerpots on your porch. Then, ask, "How many chairs are there?" She'll see that the last number she says is the number of items in the group.

Compare numbers

Have your child count two groups and say which one has more or less. If she's making jewelry, she could count purple beads and green beads and compare the numbers ("There are 6 purple beads and 4 green beads, so we have more purple beads"). At the playground, ask if there are more boys or girls. She can count each group and tell you.

Find the partner

Make a game out of missing numbers. Tell your youngster you will hold up fingers of one hand, and her job is to tell you how many fingers are missing (hold up 2 fingers, and she says 3). Take turns until she's comfortable with numbers to 5, and then play with both hands (numbers to 10). *Idea:* For older children, pick a higher target (20). Say a number (8), and the other person answers with the number needed to equal the target (12, because $12 + 8 = 20$).

What's in the bag?

Use household objects for a lesson in our sense of touch.

Together, gather objects with different textures and put them in a bag. For example, you might choose *rough* sandpaper, *smooth* construction paper, *bumpy* corrugated cardboard, a *hard* spoon, and a *soft* cotton ball.

Then, let your child pull out each object, one by one, and test it on his arm. This will help him understand that our sense of touch comes through our skin. Ask him to describe the texture ("This sandpaper is *scratchy*") and to complete a sentence, "The sandpaper is as *rough* as _____." Comparing it to "Dad's beard," for instance, helps him think about where different textures exist in the world.

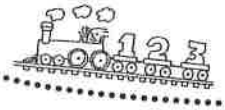
Finally, put a blindfold on your child, and have him put each item back in the bag by touch. If you say, "Put away the one that's *soft*," he would feel around for the cotton ball.

Day by day

What has numbers, patterns, and events your youngster looks forward to? A calendar! Try these ideas for using calendars to play with math.

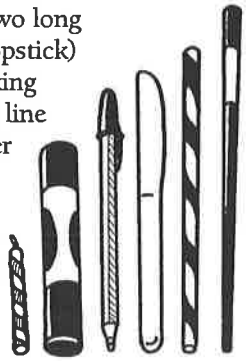
Sticky-note calendar. Suggest that your youngster create his own calendar on his bedroom wall. Each morning he can write the date on a sticky note and stick the note on the wall. Every Sunday, he should start a new row. Ask questions about his growing calendar, such as "What date will it be tomorrow?" or "What was the date two days ago?" He'll practice counting forward and backward and get used to how a calendar works.

Paper-clip countdown. What special day is coming up? Have your child pick an event (Grandma's visit, a birthday party) and circle the date on your kitchen calendar. How many days away is it? Help him count a paper clip for each day and link them together. At bedtime each night, he can count the paper clips, remove one, and count the clips left. Talk about the math problem he did. ("14 clips – 1 clip = 13 clips. There are 13 days until Grandma visits.") He'll learn a way to mark the passage of time, and he'll practice counting "one less."



MATH CORNER The length of it

Measuring length (linear measurement) is a lifelong skill. Let your youngster start practicing now:



- Have her put two long objects (pen, chopstick) side by side, making sure the bottoms line up. Then, give her a third item (marker), and ask her to place it so they go from shortest to longest. Continue giving her similar things to add (birthday candle, straw, plastic knife). She'll practice estimating length as she "eyeballs" an object, lines it up, and decides if it's in the right place.

- Help your youngster see how different units of measurement affect the measurement she gets. For instance, have her measure the length of her room with pencils (laying them end to end) and then with her body. Her room might be "18 pencils long" but only "3 Angies long."

OUR PURPOSE

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

Resources for Educators,
a division of CCH Incorporated
128 N. Royal Avenue • Front Royal, VA 22630
540-636-4280 • rfecustomer@wolterskluwer.com
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SCIENCE LAB Where to build?

Ask your youngster to build a block tower on uneven carpet and then on a smooth floor. Which one provides a sturdier ground for building? Then, let her conduct this experiment using *earth materials* that engineers have to work with.

Materials: samples of earth materials (dirt, sand, rocks, pebbles), containers, paper, pencil, blocks

Here's how: Go outside to get samples, putting each one in a separate container (filling it a few inches high). On a piece of paper, have your child list the materials. Then, tell her to press a block into each material and draw a picture of the results.

What happens? The block will either stand up straight, lean over, or fall down.

Why? Earth materials have different properties, and some will support more pressure than others. Engineers test the ground to find the best places to build.

Q&A A supporting role

Q: *My child likes me to do math homework with him. Should I?*

A: It's best if your youngster learns from an early age that his homework is his. But you can play an important supporting role. First, make sure he has the supplies he needs for math assignments, such as paper, pencils, an eraser, colored pencils, a ruler, and perhaps a calculator.

Also, let him explain his assignments to you. If he's having trouble with a problem, say something like, "Talk to me while you're working. What are you doing now?" Talking aloud can help him clarify the steps in his own mind.

When he finishes his math problems, ask how he reached a few answers. Seeing that you're interested is a great way to show your support—while letting him do his math homework himself.