

Math+Science Connection

Beginning Edition

Building Excitement and Success for Young Children

April 2013

Portage Area Elementary School

Title I



TOOLS & TIDBITS

Time yourself

Use a timer to help your youngster understand the passage of time. Set a kitchen or cell phone timer for 1 minute, and ask her to predict when it will buzz. Or say, "We're eating dinner in 3 minutes." Then, set a timer, and see if she can call "time!" when it's about to go off. With practice, she'll get better at estimating *elapsed time*.

Hear a heartbeat

Before your child's next checkup, help him make his own stethoscope to try at home. He can use duct tape to attach a funnel to a paper towel tube (wide end of the funnel facing out). Then, have him listen to your heart. Run in place for a minute, and let him listen again. He'll see that exercise makes your heart beat faster.

Web picks

Find a variety of math games and apps, organized by age and grade level, at knowledgeadventure.com/subject/math-games.aspx.

Help your youngster use science to make tops, instruments, and more with the ideas at sciencetoymaker.org.

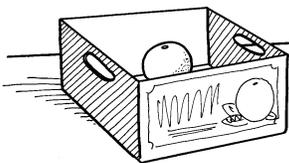
Worth quoting

"Arithmetic is being able to count up to 20 without taking off your shoes."
Mickey Mouse

Just for fun

Q: How many oranges can you put in an empty box?

A: One.
After that, it's not empty anymore!



Math on the road

"Are we there yet?"

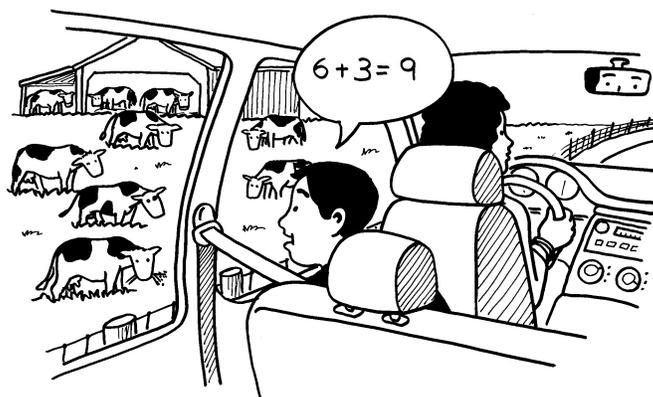
Take the edge off your child's time in the car by playing math games along the way. He'll practice math skills—and he won't get bored! Try these ideas.

Count the cars

Let your youngster pick a car color to look for (red). Then, each time he sees a red car, he counts it aloud. After 2 minutes, he can switch to another color (blue). After 2 more minutes, ask, "How many red and blue cars did you see altogether?" Or give each person a car color to count. The first one to 10 wins. Pick new colors, and play to 20.

Look for numbers

Work on number recognition by reading signs. Passengers might spot numbers on exit signs or billboards. An older child could use the numbers to make equations. For instance, if he sees a speed limit of 35, he can add the numbers ($3 + 5 = 8$). Or



he might subtract one speed limit from another ($55 - 40 = 15$).

Use what you see

Make up math problems based on the sights you pass. If you see a farm, you could say, "There are 6 cows in the field. If 3 more were in the barn, how many cows would live on this farm?" (9) When you're stopped at a light, have your youngster count the windows on the front of a house (4). Then ask, "If the same number of windows are on the front and back, and half as many are on each side, how many total windows would there be?" ($4 + 4 + 2 + 2 = 12$) Let him think of math problems for you, too. 🦋

Liquid or solid?

This tasty activity will show your youngster important differences between solids and liquids.

1. Empty a can of frozen juice concentrate into a bowl, and have your child touch it (with clean hands). Ask her how it feels (cold, hard) and what shape it is (a cylinder). This is a *solid*.

2. Let it sit until it melts. How would she describe it now? (Runny, no shape.) This is a *liquid*.

3. Pour the concentrate into two paper cups, and put one in the freezer. After several hours, she'll see that the one in the freezer is solid again. What does she think makes the substance go from solid to liquid to solid? (Answer: temperature.)

4. Let her eat the frozen one with a spoon! 🦋



Math rocks

Math fun is as close as the nearest rocks! Head to your backyard or to a park, and follow these suggestions.

Find. Ask your child to gather 20 rocks of all different sizes, shapes, and colors and put them in a bucket or bag. As she deposits each one, she'll practice counting.

Sort. Have her sort the rocks by color or shape. She will need to notice *attributes*—or characteristics—to decide how to sort them. She might put brown



rocks in one pile and gray rocks in another. Or she could divide them by rounded or flat.

Order. Let your youngster line the rocks up by size, from smallest to biggest, or biggest to smallest. Help her use vocabulary words like *pebble* and *stone* to describe smaller ones. Can she think of other words that indicate a rock's size?

For example, a grain of sand is a very tiny rock, and a *boulder* is a huge one.

Number. With permanent markers, ask her to draw different numbers of dots on 10 rocks (one dot, two dots, three dots) and numerals (1, 2, 3) on the other 10. Then, mix them up, and have your child pair each "dot rock" with its matching "numeral rock."

SCIENCE LAB

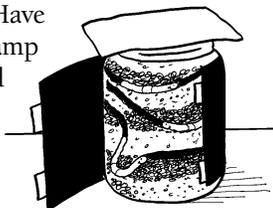


Worms welcome here!

After a spring rain, your youngster might notice worms crawling around. He can learn about these critters by making a "worm hotel."

You'll need: large glass jar, damp soil, worms, leaves, grass, kitchen scraps, construction paper, tape

Here's how: Have your child put damp soil in the jar and carefully place five worms inside. He can add "worm food" like leaves, grass, lettuce, apple pieces, or carrot peels. Then, he should tape dark construction paper around the jar and cover the top loosely with paper. Let the jar sit in a cool, dark place for 24 hours, and remove the paper.



What happens? The worms will have made tunnels in the dirt and begun eating the food. *Tip:* Encourage your child to observe the "hotel" over several days for changes. Then, make sure he returns his "guests" to the outdoors.

Why? In nature, worms dig through soil, eating what's there and adding nutrients to the soil.

OUR PURPOSE

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

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www.rfeonline.com
ISSN 1942-910X

PARENT TO PARENT

Singing along with number songs

When I heard my son, Jason, singing along with his favorite songs the other day, it occurred to me that we could use songs to practice math.

I asked him to help me think of songs with numbers in them. He came up with "This Old Man," "The Ants Go Marching," and "Five Little Monkeys Jumping on the Bed." As we sang them, I heard him counting forward and backward.

Then, I suggested that he make up his own number songs. Jason had fun coming up with songs like "On Top of Addition" to the tune of "On Top of Spaghetti," and "The Numbers on the Bus" to the tune of "The Wheels on the Bus." He even decided to create his own songbook. After he wrote down each song and illustrated it, we stapled the pages into "Jason's Numbers Songbook." He's enjoying his musical math practice, and I'm happy to hear him singing his numbers!



MATH CORNER

Looking at arrays

Working with *arrays*—or arrangements of objects in rows and columns—can help your youngster get ready for multiplication. Here's how:

- Let her use toys to make arrays. For example, she could line up 2 rows with 4 stuffed animals each. To find the total, have her count the columns by 2s (2, 4, 6, 8). Help her see that she has created a multiplication problem: $4 \times 2 = 8$.

- Have her make a picture of her array. She might draw a smiley face to

represent each stuffed animal. This will help her visualize $4 \times 2 = 8$ on paper.

- Ask her to arrange the toys in another way. This time, she could have 2 columns of 4 animals. What problem did she make? ($2 \times 4 = 8$) She'll see that you can multiply digits in either order—this is the *commutative property*.

- Let her make arrays with even numbers of other objects. For instance, she might organize 12 erasers into 4 rows of 3, 3 rows of 4, 6 rows of 2, 2 rows of 6, 1 row of 12, and 12 rows of 1.

