Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

October 2017

Region #12 Elementary Schools
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INFO BITS

The answer is 23!

Name a number (say, 23). Then, challenge your child to come up with equations using three numbers and various operations to equal it. *Examples:* 4 x 6 – 1 = 23 or 5 x 4 + 3 = 23. Or give her two numbers (12, 3), and let her come up with a third number to make 23, perhaps 12 x 3 – 13 = 23 or 12 ÷ 3 + 19 = 23. Then, swap roles.

Inventor's corner

To inspire your youngster's engineering mind, gather odds and ends for him to tinker with. Using string, paper, scissors, duct tape, and pieces of wood, for instance, he might figure out how to design a door opener or a hovercraft. This is a great way to problem solve and learn how things work.

Web picks

At *abcya.com*, your child will work with money in Dolphin Feed, arrange numbers in Paint Ball Ascending Numbers, and play other games organized by grade level.

Explore science with facts, pictures, videos, and quizzes at *dkfindout.com*. Covers camouflage, famous scientists, the human skeleton, and more.

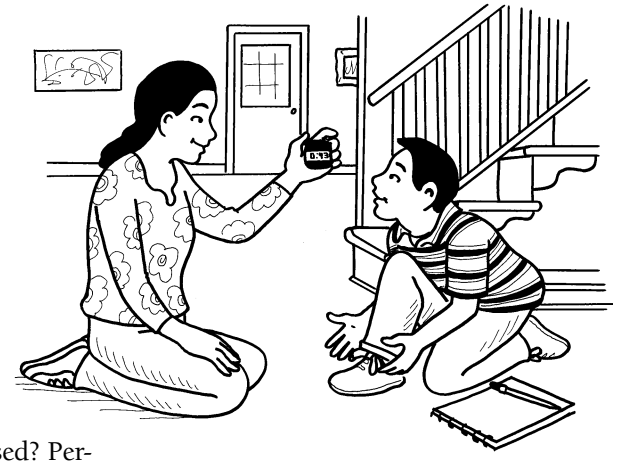
Just for fun

Q: What follows a zebra wherever it goes?

A: Its tail!

That's about right

Learning to estimate is valuable—your youngster will use this skill when an exact number isn't needed or to see if his answers make sense. Practicing estimation is easy and fun with these activities.



How many?

Fill a glass jar with marbles, marshmallows, or other small objects. Can your child estimate the total and explain the strategy he used? Perhaps he counted the top layer and multiplied that number by the number of layers. If he counted about 12 marbles in the top layer and about 10 layers, his estimate would be 120 marbles. To check, have him dump out the jar and count. How close did he come?

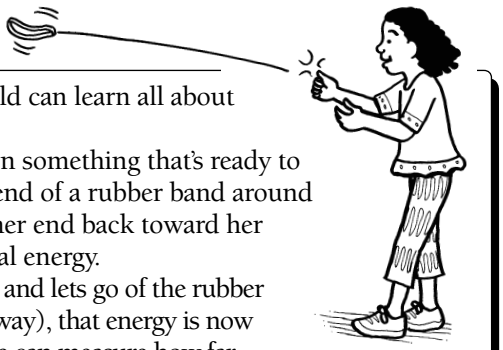
How long?

Ask your youngster how long he thinks it takes him to tie one shoe. Let him use a stopwatch to time it. Now suggest that he estimate how quickly he can tie two shoes. Say it took him 22 seconds for one shoe—it's likely he'll estimate 44 seconds for two. It probably won't be exact, but it should be close since he's estimating based on what he already knows.

How accurate?

Estimating is useful to check math answers. If your child is multiplying decimals (3.2 x 0.8), he could estimate the answer by rounding each decimal to the closest whole number. For example, he might estimate 3 x 1 = 3, so his answer should be close to 3. If he multiplies and gets 2.56, that seems right based on his estimate. But an answer of 25.6 will tell him to try again.

Rubber band energy



With a simple rubber band, your child can learn all about potential and kinetic energy.

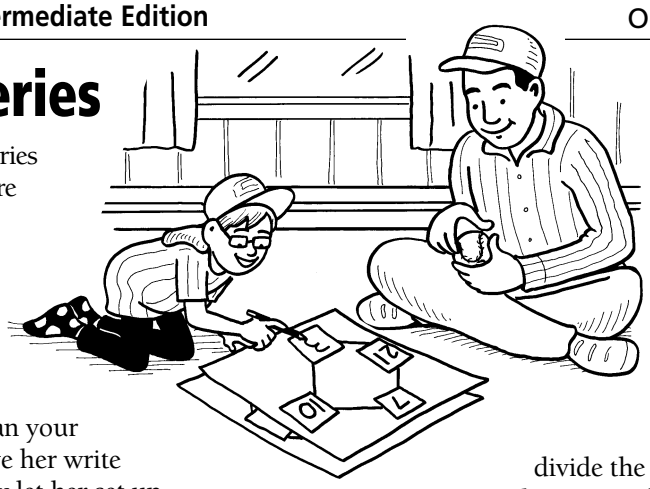
Potential energy is the energy stored in something that's ready to be used. Have your youngster put one end of a rubber band around the tip of her thumb and stretch the other end back toward her body. Now the rubber band has potential energy.

If she points her thumb straight ahead and lets go of the rubber band (making sure people are out of the way), that energy is now being used, so it's called *kinetic energy*. She can measure how far her rubber band flew as a measure of its kinetic energy.

Ask her what she could do to give the rubber band even more potential energy. (*Answer:* Pull back on it more before letting go.) Let her try—when she measures its flight this time, she'll see that it was converted into more kinetic energy!

Pre-algebra World Series

Couple the excitement of baseball's World Series with some "part-part-whole" math. You'll prepare your child to hit future home runs in algebra!

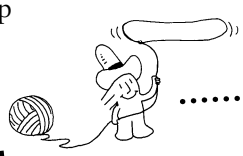


Base by base

Ask your youngster to draw a baseball diamond, while you secretly think of two numbers between 0 and 9 (3, 7). Write the sum of the numbers on first base (10) and the product of the numbers on third base (21). Can your child figure out the numbers you picked? Have her write one each on second base and home plate. Now let her set up a sum-and-product diamond for you to solve.

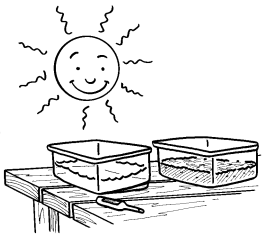
Game of snacks

Suggest that your youngster gather peanuts or another snack for a pretend 9-inning baseball game. If she has 54 peanuts, how many should she eat to have the same number each inning? Let her draw 9 boxes and divide the peanuts evenly to find the answer (54 ÷ __ = 9, so she should eat 6 per inning).



SCIENCE LAB Land vs. water

Here's a riddle for your youngster: If the sun shines on water and on land, which gets hot the fastest? He can find out for himself with this experiment.



You'll need: 2 identical plastic containers, water, dirt, thermometer, pencil, paper

Here's how: Help your child fill one container with 2 inches lukewarm tap water and the other with 2 inches dirt from a shady spot. Let him place the thermometer in each container and record the temperatures. Then, he should put both containers in the sun. Have him check and record the temperatures again after 10, 20, and 30 minutes.

What happens? The dirt's temperature rises faster than the water's.

Why? Land absorbs heat, while water reflects it, making land temperature rise faster. This explains why the water may be chilly even on a warm day when your youngster goes swimming!

PARENT TO PARENT Let the math games begin

My son, Brayden, could always use extra math practice, so I asked his teacher for ideas to use at home.

Her first suggestion quickly turned into a family favorite that we call "Name My Pattern." We take turns creating number patterns. The other person has to figure out the "rule" and name the next number. For instance, I'll write, "3, 9, 8, 24, 23, 69, 68." Brayden comes up with "x 3, –1" and continues the pattern with "204, 203." The interesting thing is, sometimes more than one rule will work—showing him how different strategies can be used to solve math problems!

Brayden's teacher also recommended playing math board games like Pay Day, Monopoly Junior, and Sequence Numbers. She even suggested putting a math spin on classics like Checkers. We write facts on masking tape and stick one on each square. Then, as we land on a space, we say the answer.

With all these games, Brayden is getting lots of math practice, and we are having lots of family fun!

MATH CORNER Shape shifting

Your child will enjoy playing this shape game with her friends.

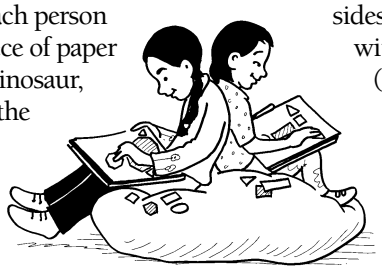
1. Each player cuts out 8 shapes from construction paper, such as hexagons, pentagons, triangles, and quadrilaterals.

2. Working back-to-back, each person arranges her shapes on a piece of paper into a design or an object (dinosaur, flower), then traces around the outline and removes the shapes.

3. Players swap shapes and papers. Who can arrange the shapes to match the outline the fastest?

4. When everyone is done, have them make new designs and switch again.

Idea: After completing their puzzles, players could count the total number of sides in the design, along with pairs of *parallel lines* (like side-by-side train tracks) and pairs of *perpendicular lines* (lines that form an L or a T). Who has the most of each?



OUR PURPOSE

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

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