Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

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INFO BITS

Birthday countdown

How soon until your youngster celebrates his next birthday? Have him count the days (the days left in this month + the days in each month until his birthday + the days in his birthday month until his special day). Then, he could multiply the number of days by 24 to get the hours—and the hours by 60 to see how many minutes until his birthday cake!

Become a frog-watcher

Encourage your child's interest in nature by having her become a FrogWatch USA volunteer. She'll learn about frogs and toads and how to identify their calls. Then, she'll monitor frogs and toads in your area and submit data to a national database. For information about online training and other details, see *frogwatch.org*.

Book picks

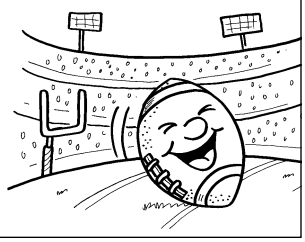
What's the best way to get from here to there? Let your youngster put his word problem–solving skills to the test in *Math Everywhere! Math on the Move* (Katie Marsico).

Packed with amusing illustrations, *Gut-Wrenching Gravity and Other Fatal Forces* (Anna Claybourne) will teach your child about g-forces, black holes, friction, magnets, and more.

Just for fun

Q: What has 300 feet but no legs?

A: A football field.



Decimals in my pantry

Want to help your child work on decimals? Look no farther than your kitchen pantry. Have her gather five or six cans and packages that are marked in decimal weights, such as a 3.3-oz. package of microwave popcorn or a 0.84-oz. granola bar. Then, try these activities.

Line 'em up

Challenge your youngster to put the items in order from lightest to heaviest. Have her look at the numbers to the left of the decimal point and find the largest one, then move to the next number to the right, and so on.

She'll need to be careful when comparing an item with one decimal place (1.5 oz.) against an item with two decimal places (1.12 oz.)—since 12 is greater than 5, it can be easy to think that 1.12 is greater than 1.5. Suggest that she convert all the weights to the same number of decimal places. For instance, she would change 1.5 to 1.50. That should help her identify that 1.50 is greater than 1.12.

Add, subtract

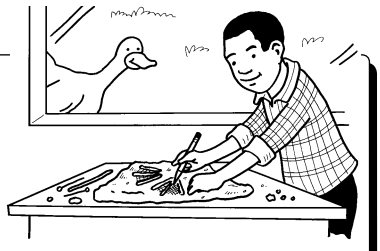
Let your child practice adding and subtracting decimals by picking two cans or packages and adding their weights together or subtracting the lighter one from the heavier one. Remind her to line up the decimal points, and again, it will help to convert both numbers to the same number of decimal places.

Examples:

1.50	19.30
+1.12	– 0.84
2.62	18.46

Now make it into a game: Take turns naming random decimal weights (4.04 oz., for example). Who can come closest to that weight by adding or subtracting two items from your pantry?

Making tracks

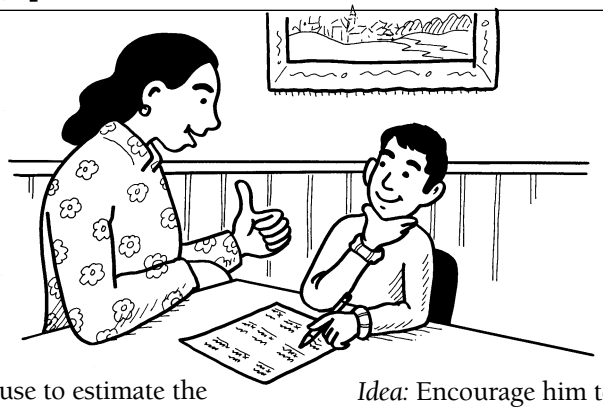


With clay, mud, or snow, your youngster can create animal tracks.

Together, look outside for tracks and consider which animals made them. Or he might search for examples in library books or online. For instance, a coyote print has four toe pads with claws in a semicircle and a larger pad behind them. A duck, on the other hand, has three lines (like three fingers spread out) connected with webbing.

Then, your child could use pencils, straight pins, or his fingers to make impressions in clay inside or in mud or snow outside. Encourage him to think about what purpose the different features might serve. A duck's webbing, for example, helps propel it through water.

Estimate first



Estimating answers to math problems before solving them gives your youngster confidence that his answer is right (Yay!) or tells him to try again (Oops!). Pose a multiplication problem, say 6 x 23, and suggest these strategies.

Make it familiar. Ask your child to think of something familiar he could use to estimate the answer. For example, he might think, "23 is close to 25, and a quarter is 25 cents. Since 6 quarters would be $1.50 or 150 cents, 150 is a good estimate for 6 x 23."

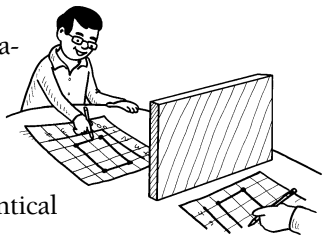
Make it simpler. Have him make one of the numbers simpler to use by rounding it to the nearest 10. If he rounds 23 down to 20, he would estimate 6 x 20 = 120.

Now when your youngster computes the actual problem (6 x 23 = 138), he'll know the answer is reasonable because it's between his two estimates of 120 and 150.

Idea: Encourage him to estimate answers first when he does homework. If his estimate is on target, he can shout "Yay!" If it comes out "Oops!" he should check his work.

Q & A Can you plot it?

Q: *My son has been learning about plotting coordinates on a grid. He thinks this is fun and wants to practice at home. Any suggestions?*



A: Sure, try this. On separate sheets of graph paper, you should each draw an identical large L.

Mark the graph paper lines at the corner of the L with 0, and then number the lines (1, 2, 3) across the horizontal part of the L (the *x-axis*) and up the vertical part (the *y-axis*). This lets you use *ordered pairs* to identify any point within the L. *Example:* For (2, 3), count 2 boxes across and 3 boxes up.

Now, ask your child to secretly draw a shape (rectangle, hexagon) within his L. He should tell you the coordinates of the *vertices* (the corners) so you can draw the shape on your paper. For instance, (1, 1), (1, 4), (3, 1), and (3, 4) would form a rectangle. Take turns giving coordinates and figuring out the shapes drawn.

OUR PURPOSE

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

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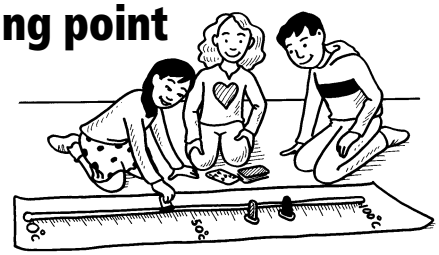
MATH CORNER Reach the boiling point



Combine science and math in this game where reaching the boiling point wins!

Materials: paper, pencil, token for each player, deck of cards (remove face cards and all red cards over 5)

1. Have your child make a game board by drawing a Celsius thermometer on a large sheet of paper. The thermometer should go from 0 to 100, with small tick marks for each number (1, 2, 3) and larger tick marks for every 5 numbers (5, 10, 15).

2. Place all tokens at 40° Celsius, and stack the cards facedown.

3. Take turns drawing a card (ace = 1). If it's black, move up the thermometer by that number. If it's red, move down. For instance, if you're at 45°C and draw a red 4, slide down to 41°C.

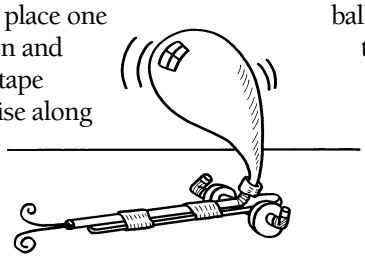
4. Try not to get too "cold"—if a player reaches 0°C (freezing point), she's out. But get hot, and you win the game—the first one to reach 100°C (boiling point) exactly is the winner.

SCIENCE LAB Demonstrating Newton's law

Making her own "balloon car" will help your young scientist understand Newton's third law: For every action, there is an equal and opposite reaction.

You'll need: 2 flexible straws, balloon, tape, 2 candies with a hole in the middle (like Life Savers), craft stick

Here's how: Let your child place one straw's short end in the balloon and tape securely. Then, have her tape that straw's long part lengthwise along the craft stick. The other straw will be the axle: She should thread on the candy "wheels" (bending up the straw's tips to keep them from sliding off) and tape the axle underneath the craft stick, at the balloon end. Now, your youngster can blow through the straw to inflate the balloon, plug the straw with her finger, set the car down—and let go.



What happens? The car takes off!

Why? When the air rushes out of the balloon toward the back of the car, the force pushes the balloon—and the car—forward, demonstrating Newton's law. This is the same principle used in jet thrust.