Intermediate Edition

Math+Science Connection

Building Understanding and Excitement for Children

September 2020

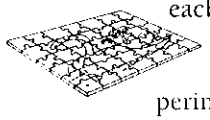
Cape Central Middle School

Mr. Rex Crosnoe, Principal

INFO BITS

Jigsaw geometry

Do a jigsaw puzzle together, then let your child find its perimeter and area. First, have her measure each side and add the four measurements to get the perimeter (24 + 24 + 18 + 18 = 84 inches). For the area, she should multiply length x width (24 x 18 = 432 square inches). Without checking the box or counting each piece, can she use math to say how many pieces are in the perimeter? The whole puzzle?



Family stargazing

Head outdoors on a clear night to observe the sky with your youngster. You could take along a library book or download a free app to identify stars, constellations, or planets. *Idea:* Encourage him to sketch the night sky and connect stars to create and name his own constellation.

Book picks

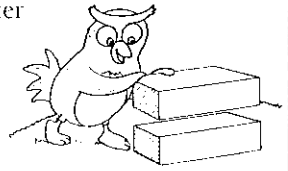
The little girl in *Math Curse* (Jon Scieszka and Lane Smith) finds math everywhere. She adds words, subtracts shoes, and even puts math symbols in her art project.

Your child can make glowing clothes, dancing bubbles, silly putty, and more with the help of *Real Chemistry Experiments: 40 Exciting STEAM Activities for Kids* (Edward P. Zovinka).

Just for fun

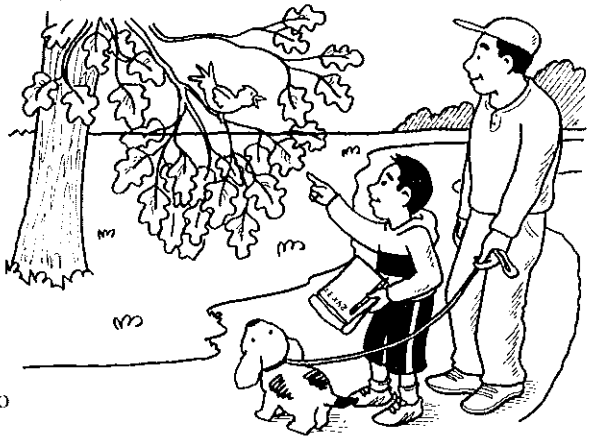
Q: Why was the equal sign so humble?

A: Because it knew it wasn't less than or greater than anything else.



Math in nature

Right outside your door is a math "classroom" for your youngster. Try these ideas for practicing math while enjoying nature.



Estimate the leaves

How many leaves are on that tree? Your child could count the leaves on a small branch (say, 24) and the branches on a limb (3), and multiply (24 x 3 = 72). To estimate the total number of leaves on the tree, he can estimate the number of limbs (maybe 22) and multiply by the number of leaves per limb (22 x 72 = 1,584). He'll see how estimating and multiplying are helpful when he can't count things one by one.

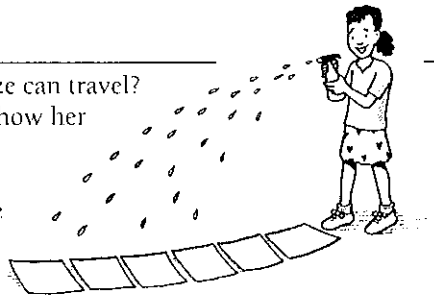
Tell a story

Ask your youngster to make up and solve story problems based on what he sees outside, perhaps bees buzzing from flower to flower. *Example:* "One day, Miss Bee buzzed around collecting pollen. She visited 240 flowers in 2 hours and spent the same amount of time on each flower. How many flowers did she visit per minute?" (240 flowers ÷ 120 minutes = 2 flowers per minute)

Add it up

Help your child use natural materials as place value tools. He might find small pebbles ("ones"), medium-size rocks ("tens"), and large rocks ("hundreds"). Then, let him arrange them to form an addition problem like 132 + 259. He can add them, trading tens for ones and hundreds for tens when necessary. He'll end up with 3 large rocks, 9 medium rocks, and 1 pebble—or 391.

Cover your sneeze!

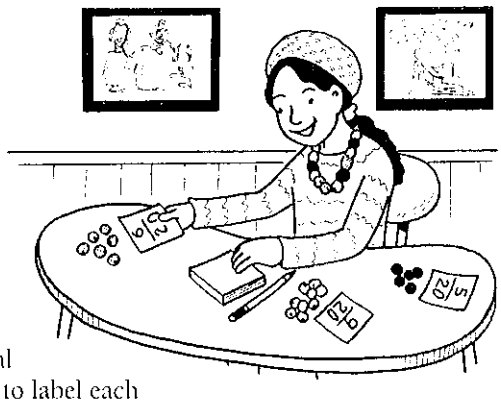


Does your child know how far a sneeze can travel? Easily 6 feet or more! This activity will show her why covering up a sneeze helps stop the spread of germs.

Have your youngster fill a spray bottle with water and line up six pieces of 9-inch by 12-inch construction paper on the floor, end to end. Now she can stand at one end of the 6-foot line of paper, spray the water, and see where droplets land. Are there wet spots on all the papers?

Let your child try again with fresh sheets of paper, this time covering the nozzle with her hand. The droplets don't go far at all. Now she'll see that she should cover her own sneezes with a tissue (or sneeze into her elbow if she doesn't have a tissue).

Part of a whole, part of a group



A fraction can describe part of a whole ("I ate $\frac{1}{6}$ of the pizza") or part of a group ("$\frac{3}{10}$ of the beads are green"). These activities will help your youngster work with both types of fractions.

Play dough. Let your child make a play-dough pizza and cut it into equal slices. Then, she can use a toothpick to label each piece with a fraction that tells what part of the whole it is. If her pizza has 8 slices, she would carve $\frac{1}{8}$ into each one. Now she can roll out the dough, divide it into a different number of slices, and write new fractions.

Beads. Have your youngster sort 20 beads by color. What fraction of the group is each color? She can find out by writing the number of each color (the numerator, or top number) over the number in the group (the denominator). Say she has 5 blue beads ($\frac{5}{20}$), 9 yellow beads ($\frac{9}{20}$), and 6 red beads ($\frac{6}{20}$). If she adds the three fractions, her answer will equal $\frac{20}{20}$, or 1—because all the parts together equal the group.

SCIENCE LAB Musical science

To tune a violin or cello, a musician must loosen or tighten the strings. How does that affect the instruments' sounds? Let your child make his very own string instrument to find out!

You'll need: empty rectangular tissue box, four identical rubber bands

Here's how: Let your child stretch the rubber bands around the box crosswise. Have him play the instrument by plucking the "strings" over the box opening, listening to the sound they make. Now he can remove the strings, stretch them lengthwise around the box, and pluck them again.

What happens? Plucking the looser strings (those stretched crosswise) creates a lower pitch than plucking the tighter ones (those that are stretched lengthwise).

Why? Plucking the strings causes vibrations that produce sound. Looser strings vibrate less frequently, while tighter ones vibrate more frequently. The more frequent the vibration, the higher the pitch.

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MATH CORNER Multiplication is in the cards

Watch the fun multiply in this game that lets your youngster practice multiplication facts.

1. Remove the face cards from a deck of playing cards and shuffle the rest (ace = 1). Arrange them faceup to create an S-shaped game-board path.

2. Start at one end of the path. Take turns rolling two dice (say, 3 and 4) and moving a game token that number of cards (7).

3. Multiply the sum of the dice by the value of the card you land on for your score. If you land on a 5, you would say "7 x 5 = 35" and score 35 points.

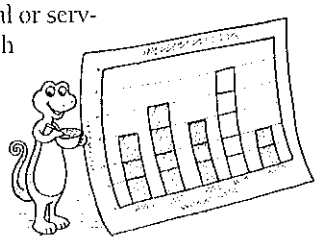
4. Keep rolling, multiplying, and adding to your score until everyone reaches the end of the path (exact count not required). High score wins.

Variation: For a bigger challenge, include jacks (11) and queens (12).

Q & A What can I graph?

Q: *My son always enjoys making graphs in school. Any suggestions for creating graphs at home?*

A: Your child can turn almost anything your family does into a graph! For one month, suggest that he track the foods everyone eats for breakfast or the kinds of exercises they do. He could make a tally mark for each bowl of cereal or serving of eggs eaten, or for each time someone runs or rides a bike.



As he collects data, he can put it into a bar graph. He should divide a sheet of paper into rows and columns and write breakfast foods or exercises across the bottom. Next, he'll need to decide what the scale will be (say, 1 square = 5 servings of a food) and write numbers (0, 5, 10, 15, 20, 25, 30) up the left side.

From time to time, ask your son questions like "Which kind of breakfast food have we eaten the most of so far?" or "How many more times did we run than ride bikes this week?" He'll see what's most common—and help you know what to buy at the grocery store.

September 2020

Central Middle School
Rex Crosnoe, Principal

Middle Years

Working Together for School Success

Short Stops

Family mood lifter

Want to learn about your tween's day while putting a smile on everyone's face? During dinner, pose upbeat questions like "What made you happy today?" or "What are you looking forward to this week?" *Idea:* Ask your child to come up with tomorrow's questions.

Clean = safer and healthier

Remind your middle schooler that she has a key role to play in keeping her environment (and herself) as clean as possible. That means washing her hands frequently—especially now. She should also toss trash in bins and wipe up anything she spills so she doesn't make extra work for busy parents or school custodians.

Rice and ratios

The kitchen is a great place for your tween to brush up on ratios and percentages. For example, while cooking rice, ask him what the ratio is of dry rice to liquid (1:2, or 1 cup uncooked rice to 2 cups water). Or suggest that he use percentages to mix up his perfect batch of trail mix. Maybe he'll use 50 percent nuts, 30 percent dried fruit, 10 percent seeds, and 10 percent chocolate chips.

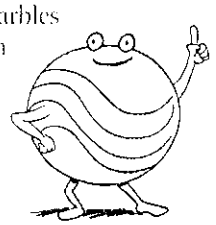
Worth quoting

"No matter what people tell you, words and ideas can change the world." *Robin Williams*

Just for fun

Q: How many marbles can you put in an empty jar?

A: One. After that, the jar isn't empty anymore.



Back-to-school questions, answered

The start of a new school year is an exciting time. But the disruptions this year may have left you wondering how to help your tween do her best. Here are answers to questions from parents like you.

Q: My tween is struggling to get back into learning mode this school year. What can I do?

A: Children—and adults—face many distractions in the era of COVID-19. Help your child get on track by showing enthusiasm for what he is learning, whether it's in school or online. You might watch a movie that's set in an era he's studying in history or ask him to explain an engineering project he's working on.

Q: With all the COVID-19 news, my daughter is a little nervous about school. What should I say?

A: Getting the facts may help your child feel better. Ask what, specifically, she's concerned about. If she has a question you can't answer, look it up together. Explain that by following rules—even hard ones for middle graders like social distancing from friends—she reduces her risk of getting sick or spreading germs to you, her grandparents, and others.

Q: My child is concerned that she won't remember what she learned last year. How can I help?

A: Explain to your tween that her classmates are in the same situation. Teachers know that students may need to review last year's work, such as math formulas or Spanish vocabulary, before moving on to new material. If your child doesn't understand something, encourage her to speak up. Her teacher will understand—and provide support.

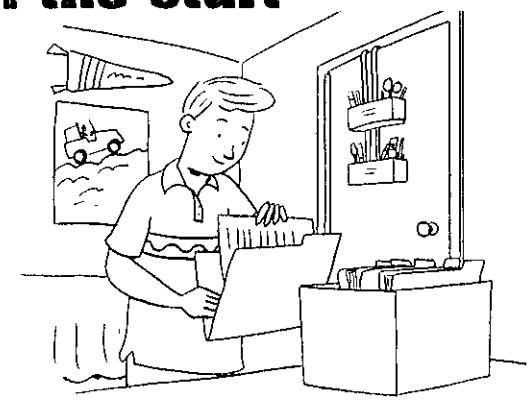
Q: When my tween does schoolwork online, how do I know he's doing what he's supposed to do?

A: Have your tween close any apps or tabs not related to his work. That will help him stay focused. Also, look over completed online work just as you might look at paper-and-pencil assignments and projects. You may be able to monitor grades online and see whether he has any missing work. And you can always contact teachers if you have questions about your child's progress.

Organized from the start

In middle school, staying organized is one of the most important steps to success. Help your child stay on top of his schoolwork with these strategies.

Use a planner. Make sure your tween has a planner—and takes advantage of it. He should write in assignment deadlines, study sessions, and test dates. Then he could estimate and enter the time he'll spend on each task. That will help him plan work sessions.



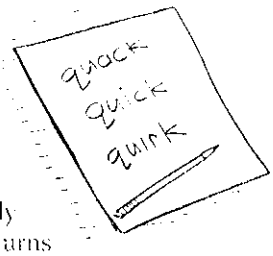
File everything. Setting up and using a filing system means your tween will always find what he needs. He might choose a different-color folder for each class. Or he could have one folder for notes and assignments and another for completed work. *Tip:* Suggest that he turn a shower caddy into a portable school-supply station.

Invest 10 minutes each day. Encourage your child to take five minutes before school to consult his planner and check that he has what he needs for that day. After school, he can spend five minutes filing papers and throwing away anything he doesn't need.

Word games

Word games are not only fun, they help build vocabulary and spelling skills. Here are two to try.

Word morph



Have your youngster write a five- or six-letter word at the top of a sheet of paper. Let family members take turns making a new word by changing one letter in the last word written. *Example: quack, quick, quirk.* When you can't make any more words, pick a new word and play again.

Word staircase

Each player writes the numbers 4 to 12 down the left side of her paper. One person picks a two-letter combination that often begins words (*en, cr, ph*) and sets a timer for five minutes. Next to each number, write a word with that many letters and beginning with the letters chosen. *Example:* For en, put *envy* beside 4 and *enact* by 5. To win, come up with the most words that no one else used.

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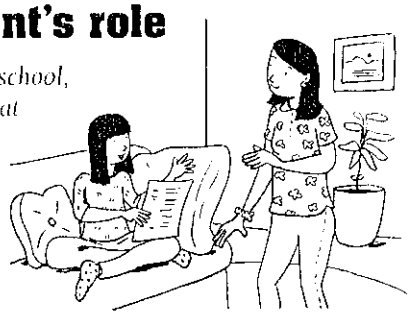
Q&A Middle school: A parent's role



Q *When my daughter was in elementary school, I was very active in her school life. Now that she's older, should I still be so involved?*

A Research shows that students of all ages do better when their parents are involved. But that involvement may look a little different now that your daughter is in middle school.

For instance, she's expected to take more responsibility for her learning. So you might offer to brainstorm ideas for a project, but let her choose the topic. Or if she's not sure how to approach an assignment, encourage her to ask her teacher for help rather than having you reach out for her.

On the other hand, some things will look the same. Attend back-to-school night and parent-teacher conferences, just as you did when she was in elementary school. Introduce yourself to your child's teachers, and ask how they prefer to be contacted. Finally, visit the school website and sign up to receive emails—then be sure to check the site and your inbox regularly for news.

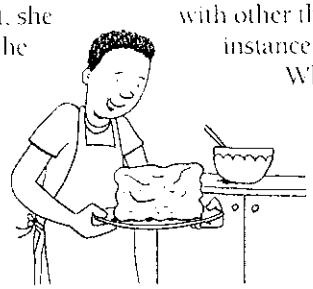
Parent to Parent Helping tweens bounce back

My son Matthew can be really hard on himself. When he was eliminated early during last year's spelling bee, he called himself a "failure" and said he wouldn't enter this year.

His English teacher told Matthew she hoped he'd try again. In fact, she encouraged him to look at the setback as an opportunity to build "resilience" (the ability to bounce back from tough situations).

Following the teacher's lead, I asked Matthew to tell me what he'd learned from the spelling bee. He said he had trouble with the words that came from French. Then he said he guessed he could spend more time studying those words for this year's bee.

To try to build up his resilience, I'm encouraging Matthew to take chances with other things that interest him. For instance, he recently took up baking. When he frosted his first cake before it cooled and the icing melted down the sides, he learned that slipups aren't the end of the world. That messy cake still tasted great!



INTERMEDIATE EDITION

ReadingConnection

Working Together for Learning Success

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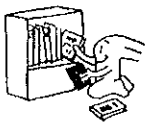
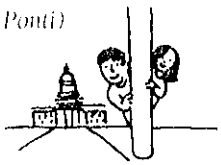


Book Picks

■ ***Crazy About Cats*** *(Owen Davey)*

From wild cats like ocelots and pumas to house cats, this nonfiction book from the About Animals series teaches readers all about cats. Your child will discover where cats live, what they eat, and the special features they have. (Also available in Spanish.)

■ ***Framed!*** *(James Ponti)*



Twelve-year-old Florian Bates is no ordinary middle schooler. When his family moves to Washington, DC, he starts his own spy agency with the help of his new friend Margaret. Follow along in this spy adventure as the young sleuths help the FBI solve a big case.

■ ***The House That Lou Built*** *(Mae Respicio)*

Lou loves her woodshop class, and for a school project, she's planning to build her own tiny house on a piece of land she's inherited. But she quickly realizes that building a new structure isn't as simple as it seems. Determined, Lou finds creative solutions to the many roadblocks she faces along the way.

■ ***Go Figure! Big Questions About Numbers*** *(Johnny Ball)*

Your youngster can learn about ancient numbers, explore "magic" numbers, and imagine a newspaper with no numbers in this nonfiction book. He'll also see how numbers are used in all aspects of life. Includes quiz questions and answers.

Strategies for a new year

As your youngster reads more complex stories and textbooks, she'll need new strategies for understanding and remembering new material. Help her start the year off right with these activities.

Fill a "thinking cap"

When your child needs to tackle a challenging chapter, have her get a baseball cap. Each time she finds a new fact or unfamiliar word, she can write it on a slip of paper and put the slip in the hat. After she finishes reading, she should reread everything in her thinking cap and look up definitions of words she doesn't know. Writing and reviewing the information will help her learn it.

Draw a comic strip

Suggest that your youngster create a comic strip about what she's studying (stick figures are okay!). Say she's reading about the water cycle in her science book. She could draw one panel with a character boiling a pot of water and explaining evaporation, and another panel with someone walking in the rain and talking about precipitation. This is a fun way for her to visualize the material.

Take a "commercial break"

Your child can pretend there's a commercial break at the end of each chapter in a novel she's reading. Her job is to write a "teaser"—a question to encourage the audience to stay tuned. If she's reading *Bunnicula* (Deborah and James Howe), she might write, "Will Bunnicula get caught in the vegetable garden?" Then, have her predict the answer. Asking questions and checking predictions let her monitor how well she understands a story.

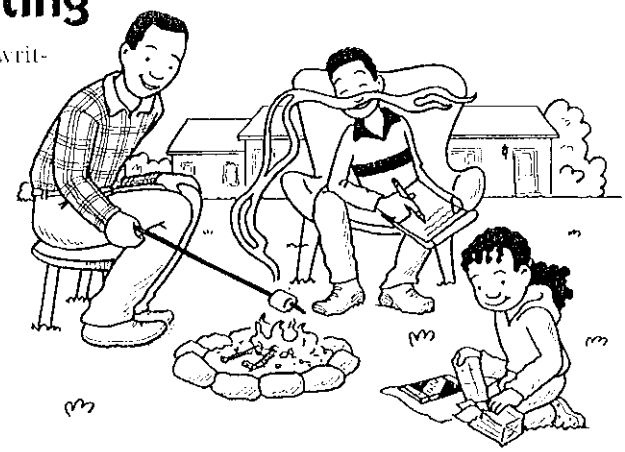
Fact or opinion?

"It's the best toothpaste for your family!" When your child reads a sentence like this in an advertisement, does he understand that it's an opinion? Distinguishing fact from opinion is an important reading skill. Suggest that he ask himself these questions to tell the difference:

- "Would most people agree?" A fact is true regardless of who wrote it ("Trees are plants"), while an opinion reflects the writer's feelings or beliefs ("Trees shouldn't be cut down").
- "Does it rely on adjectives?" Descriptive words ("Apple pie with ice cream is the *perfect* dessert") frequently indicate opinions, while facts are more likely to stand alone ("Apples are harvested in autumn").

Add details to writing

Vivid details make your youngster's writing come alive. And getting a firsthand look at something he's describing can help him be more specific. Share these ideas to use when he writes stories.



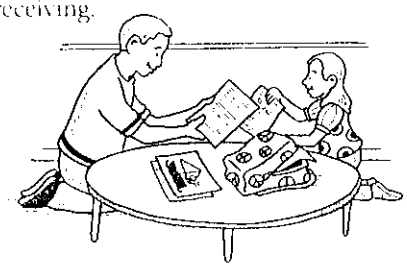
Specific verbs. Suggest that your child think of active verbs that illustrate what he sees rather than using bland verbs like *was* or *went*. When he's outside, he might notice how a tractor moves along a road. Later, he can incorporate the details into a story about a boy living on a farm: "The tractor crept slowly along the dirt road" (instead of "The tractor went down the road").

My five senses. Have your youngster use at least one of his senses (sight, hearing, taste, smell, touch) in his description. If he's writing about making s'mores, you could toast marshmallows together so he can notice how they smell and look. That may lead him to write, "A sweet, toasty scent filled the air as my marshmallow turned golden brown."

Q&A Is my child on track?

As the school year gets underway, how can I tell if my daughter is on track with reading and writing or if she needs help?

A The best way is to stay involved with what your child is doing in school. Go through her backpack with her daily, and look over her work. Review the teacher's comments on her assignments or tests, and monitor the grades she's receiving.



Also, notice what she's reading for pleasure—or *if* she's reading for pleasure. Take turns reading aloud to each other, and when it's her turn, listen for whether she reads smoothly or seems to stumble over words.

If you're concerned, contact your daughter's teacher. He can let you know if your child is on track, and if she's not, he'll work with you to provide help.

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Better listening = better learning

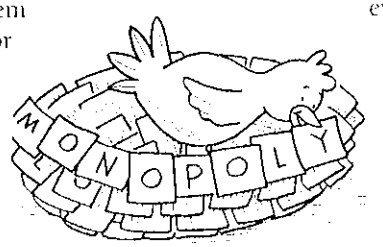
Good listening skills help your child learn information from lessons, class presentations, and videos. Encourage him to become a better listener with these challenges.

- **What's different?** Read a paragraph from a newspaper or magazine to your youngster. Then read it again, but switch a few details. For example, you might change the name of a person or a city. It's your child's job to listen closely and tell you what's different the second time around.
- **Listen and answer.** Together, listen to a podcast or an audiobook for five minutes. Each of you can jot down a question the other person should be able to answer—if you listened carefully. Then trade questions, and answer them. Replay the audio to check if you heard right.

Fun with Words Build a word

The word-making possibilities are almost endless in this vocabulary game.

Have your youngster write each letter, A–Z, on separate slips of paper and scatter them in a bowl. For each round, draw three letters, lay them faceup, and set a timer for three minutes. Each person writes words that contain all three letters in any order. The goal is for players to come up with the most words that no one else thought of *and* the longest possible word they can define. For M, L, and P, a player might write ***monopoly*** or ***planetarium***.



When time's up, read your words aloud to each other. Earn one point for every word that no one else wrote—and a bonus point for giving the correct definition of your longest word. *Tip:* Keep a dictionary on hand to check answers.