

Math+Science Connection

Building Understanding and Excitement for Children

November 2020



Cape Central Middle School

Mr. Rex Crosnoe, Principal

INFO BITS

Cookie symmetry

Your youngster will enjoy serving these symmetrical “cookies.” Let her flatten play dough and cut it into circles, stars, and hearts. How would she cut each cookie so each side is a mirror image of the other? (Down or across the middle.) If she flips one half over the *line of symmetry* (where she cut), it should match the other side exactly.

Teeth and soda

Let your child see for himself the effects of soda on his teeth. He can use baby teeth you might have saved or use



eggshells (rinsed, dried).

since they have calcium like teeth do. Have him soak one in water, one in orange juice, and one in cola. How do the teeth look after a week? A month?

Book picks

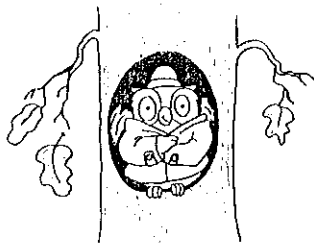
Get a kick out of math with *Riddliculous Math* (Joan Holub), a joke book of riddles and equations.

Through poetry, *Leaf Litter Critics* (Leslie Bulion) tells about earthworms, bacteria, and other creatures that live in leaf piles.

Just for fun

Q: What falls in autumn but never hits the ground?

A: The temperature.

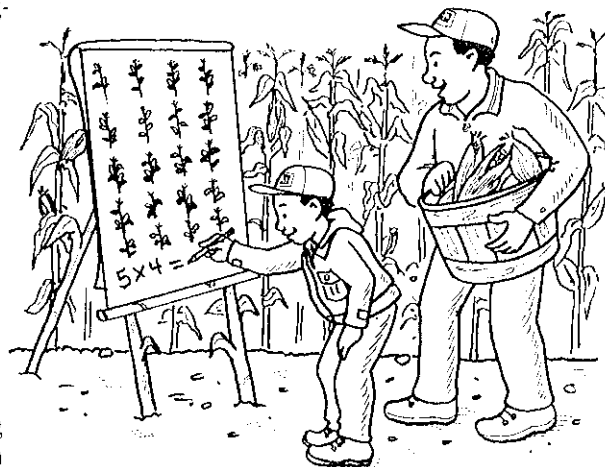


Thanksgiving multiplication

This month, your youngster can be thankful for multiplication! Share these Thanksgiving-themed ideas to let him learn multiplication facts in playful ways.

Turkey facts

Have your child draw a dozen turkeys, each with 12 tail feathers, on separate sheets of paper. He can number the turkeys 1–12 and write a matching multiplication fact on each feather. For instance, on turkey number 8, his “feather facts” would be $8 \times 1 = 8$, $8 \times 2 = 16$, and so on up to $8 \times 12 = 96$. You can quiz each other (“What is 7×6 ?”) and use the “feathers” to check the answer (42).



can draw the same number of stalks a different way (4 rows of 5 stalks) and give the problem ($4 \times 5 = 20$). How else could he make 20?

Mealtime equations

Suggest that your child write and illustrate scrumptious word problems to share at Thanksgiving dinner. *Example:* “We used 2 12-oz. bags of cranberries to make the cranberry sauce. How many ounces of cranberries did we use?” He can write the equation on the back: $2 \times 12 = 24$ oz. 🍷

Cornfield arrays

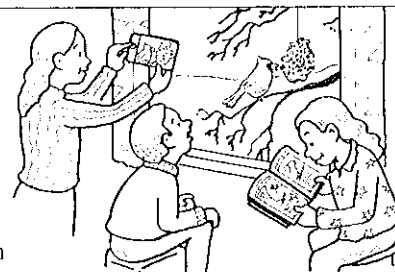
While the corn pudding is in the oven, your youngster can make cornfield arrays. Let him draw a cornfield with even rows and columns (perhaps 5 rows of 4 cornstalks) and say the equation shown ($5 \times 4 = 20$). Then he

Be a bird-watcher

“That bright red bird is a cardinal!”

Your youngster can observe and identify birds with this project. Let her make a bird feeder by spreading peanut butter or shortening on a pinecone or an empty cardboard tube and rolling it in birdseed or dry oats.

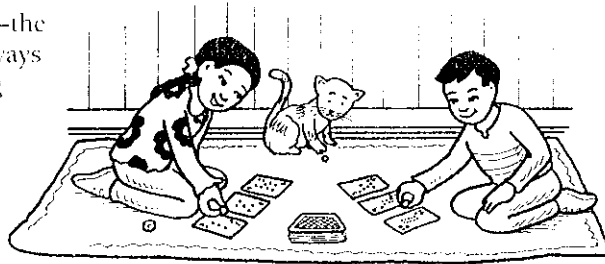
Then, she can hang it from a tree branch with yarn or string. When birds visit, have her take photos or draw pictures and identify her feathered friends. She might check out a field guide from the library, use a free app like Seek, or search the internet for “bird identification.” 📷



Number sense with decimals

Let's get straight to the point—the decimal point, that is! Here are ways for your child to practice reading and comparing decimals.

Mark the number line. Using sidewalk chalk outside, have your youngster draw a long horizontal line and add 11 short vertical lines to divide it into 10 equal parts. She should label the first mark 0 and the last mark 1. Then, counting each mark in between as 0.1, she can fill in her



number line (0.1, 0.2, 0.3). Now have her stand on any number and “hop” to math problems. If she's on 0.2, you might ask, “What is $0.2 + 0.3$?” (She would hop three tenths to 0.5.)

Place the decimal. Get a deck of cards (no face cards, ace = 1), one marble per player, and a die. For the die, cover 4, 5, and 6 with squares of masking tape, and mark 1, 2, and 3 on them. Stack the

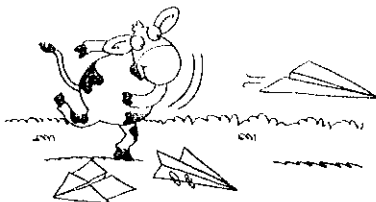
cards facedown. Each player draws three cards and lays them faceup in the order drawn (say, 9, 5, 3). Take turns rolling the die—roll 1 and put your marble (decimal point) before the first digit (0.953), roll 2 and place it before the second digit (0.53), or roll 3 and it goes before the third (95.3). Who made the biggest decimal? The smallest? 🎲

Q & A

Back to the drawing board

Q: My son mentioned that he's learning the engineering design process in school. How can he try it out at home?

A: The engineering design process is creative problem solving in five main steps: ask/identify, imagine/brainstorm, plan, create, and compare/improve.



Get your son's wheels turning by helping him identify an engineering problem. Perhaps he wants to create a paper airplane that will fly all the way across the room. He could brainstorm different designs, then choose one to make and test. Now how could he improve his design? Maybe he'll try different kinds of paper or folds. Or perhaps he'll add paper clips.

After each “flight,” ask questions like “What worked well?” or “Why do you think your plane nosedived?” You'll encourage him to analyze his design and see any flaws as areas for improvement. 🛩️

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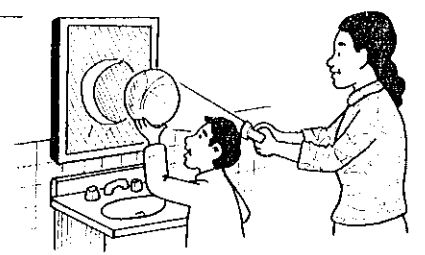
SCIENCE LAB

Watch the “moon” glow

The moon isn't a star—so why does it appear to shine? Your child will find out with this demonstration.

You'll need: washable marker, mirror, flashlight, soccer ball or basketball

Here's how: Have your child draw a big round moon on a bathroom mirror, close the bathroom door, and turn off the light. Now shine a flashlight (the “sun”) at the moon. Then, let him use the ball (the “Earth”) to partially block the sun. Can he create a crescent moon and a half moon?



What happens? Your youngster can't see the moon when the sun isn't shining on it. When he points the sun at the moon, the moon appears to shine. And the Earth casts a shadow on the moon.

Why? The moon reflects sunlight. When the Earth blocks the sun, all or part of the moon is dark. 🌑

MATH CORNER

Choose the best unit

Your youngster wouldn't use millimeters to measure an elephant—but she might for an ant. Help her pick the best measurement unit for the job with this idea.

Animals

Take turns naming animals and choosing the unit that makes sense for measuring their length. Your child might pick inches or centimeters for a chipmunk because smaller units would be more precise for tiny animals. And she'd use feet or meters for a

buffalo—it would take too long to measure a huge animal with small units.

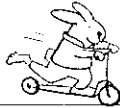
Household objects

Give your youngster a tape measure and a ruler, and send her on a mission to find the length or height of 10 items. She'll discover that either tool works for smaller things like a book or a remote control. But a tape measure is better for a bookcase or refrigerator so she doesn't have to keep moving the ruler. 📏



Middle Years

Working Together for School Success



Short Stops

Attendance matters
Missing even a few classes —whether they're in person or online—can have a snowball effect. Not only does being absent make it hard for your child to keep up, but chronic absenteeism is linked with a higher dropout rate. Make sure your middle grader knows you expect him to be in every class every day, unless he's sick or there's a family emergency.

Digital manners

Before your tween sends a text, post, or email, suggest that she ask herself, "Is this nice? Would I say it in person?" If the answer to either question is no, it's a good idea to reword. *Tip:* If she feels the need to type a disclaimer like "No offense, but ..." she probably shouldn't hit "send."

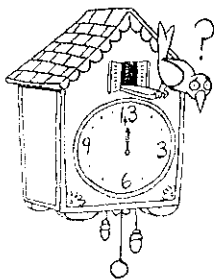
When parents disagree

Children who hear their parents arguing can feel stressed and insecure. Try to avoid topics that cause tension when your middle schooler is within earshot. If he does overhear an argument, offer reassurance: "We were upset, but we worked it out. And we still love each other and you."

Worth quoting

"Go confidently in the direction of your dreams!" *Henry David Thoreau*

Just for fun



Q: What time is it when the clock strikes 13?
A: Time to get a new clock.

Fine-tune your study routine

A good study routine helps your middle schooler manage her workload and make the best use of her time. Use these ideas to help her develop one that works for her.

Set the scene

For one week, challenge your tween to do "quality checks" of her study sessions. She can write down distractions (TV, text messages), note how she feels when she loses focus (fidgety, hungry), and pinpoint time wasters (searching for school supplies, choosing a snack). Together, brainstorm solutions. Maybe she can silence electronics, set a timer to take breaks, and gather supplies and snacks before she starts working.



Always have a plan

Your middle grader could find a regular time to study each day that fits with mealtimes and other activities. It might be at 5 p.m. most days and 7 p.m. on Wednesdays when your family eats dinner early. Then, she can start each session by listing specific tasks and how long she expects them to take. "Do 12

algebra practice problems (30 minutes)" instead of "Study for math test."

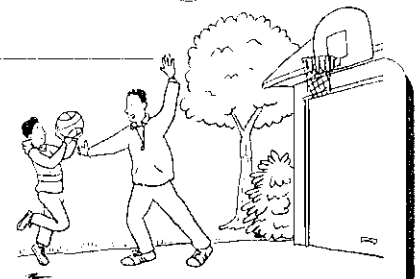
Personalize the approach

The "right" way to study is different for every student. Suggest that your child experiment with study methods to find her favorites. She might notice whether she stays on task better when she studies alone or if she learns more in a study group. Or maybe she'll try reading notes silently and out loud. She may realize that silent reading is faster but that she remembers more when she sees *and* hears the material. 🍌

On common ground

As your child gets older, you can stay close by discovering routines and activities to share. Here's how:

■ Choose things you do regularly, like eating and exercising, and try to do them with your tween. For instance, have breakfast together before he leaves for school. Or if he's doing online school, aim to sync your lunch breaks. Invite him to join you on your next run, or offer to shoot baskets with him.

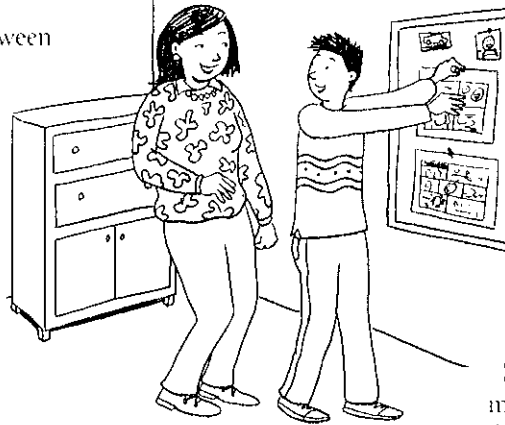


■ Look for common interests. Does your middle grader like music you enjoyed at his age? Play "Name That Tune" to see who can shout out titles and artists first. Or did he stream a TV series you loved when it originally aired? Make up trivia questions about the show, and try to stump each other. 🍌

Focus on mental health

Strong coping strategies can help your tween navigate difficult situations—including a pandemic. Share these techniques for boosting his mental health.

Let it out. If your middle grader feels anxious or sad, writing may make his feelings more manageable. Suggest that he keep a journal, write poetry or song lyrics, or jot concerns on slips of paper to drop in a “worry jar.” Also, talk to him regularly about his feelings, and



share your own thoughts. (“I miss working in the office with my colleagues, but it’s nice to work in comfy clothes.”)

Look for the good. When your tween is stressed, encourage him to close his eyes, take deep breaths, and visualize one positive thing that happened today. Maybe he got to video chat with a friend he hasn’t seen in a while. Thinking about good times can make worries seem less intense.

Find humor. Laughter is a proven mental health booster. Your middle schooler might decorate his bedroom wall with things that make him chuckle, such as comic strips or funny pictures. He could even draw his own comics or write silly captions for photos. Ask him to show you the jokes, and enjoy a good laugh together. ☺

Parent-teacher conferences

There are many great reasons to take part in conferences with your middle grader’s teachers. Here are four.

1. You’ll help your child succeed. Students do their best when parents and teachers work together. Making a personal connection sets the stage for a strong partnership.

2. You’ll get to share information. Hearing about life at home gives the teacher insight into your tween. (“Lucy’s two younger siblings are also doing remote learning.”)



3. You’ll learn what’s expected. Knowing what your middle schooler needs to master helps you support her. Ahead of time, ask if she has questions for her teachers.

4. You’ll send a good message. Taking time to attend conferences shows your tween that school is important to you. *Tip:* Share teachers’ nice comments with her. (“Mr. Walker said you make excellent points during class discussions.”) ☺



Parent to Parent

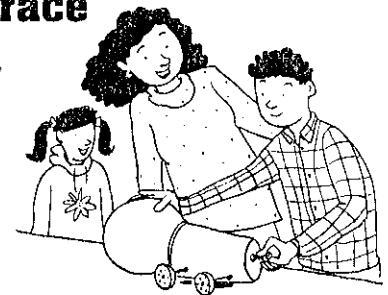
A STEM-powered race

My son Tony loves STEM club, and he asked if we could do STEM challenges at home. So we decided we’d hold a family competition to engineer the best balloon-powered car.

Tony used a paper cup for the body of his car, chopsticks for the axles, and wagon-wheel pasta noodles for the wheels. He poked a hole in the bottom of the cup and threaded an uninflated balloon through the hole. Then, he blew it up and let go—the car whizzed across the room as the air left the balloon.

I made my car out of an empty cream cheese tub, knitting needles, and thread spools. It didn’t go as far as any of my kids’ cars—but Tony helped me redesign it so it would go a lot farther.

Next, we’re going to see who can build the biggest house of cards that stands on its own. ☺



Raise a lifelong learner

Q My daughter told me I’m lucky that I don’t have to do school-work or take tests anymore. How can I help her understand that learning is lifelong?

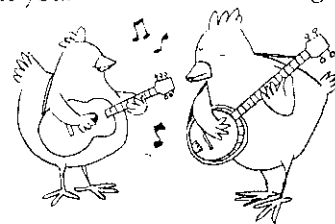
A Knowing that she’ll keep learning throughout life can motivate your daughter to do better in school.

Share with her what you learn each day. You might mention a new cash register system you’re being trained

on at work, an article you read about the Mars rover, or a podcast on food trends that you listened to in the car. Show enthusiasm for learning new things—it may rub off on your child!

Then, talk about how she’ll keep learning outside of class. If she wants to get a puppy, she’ll need to research training tips.

Or if she loves playing guitar, maybe she’ll teach herself to play other instruments like the ukulele and the banjo. ☺



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Reading Connection

Working Together for Learning Success

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Central Middle School

Rex Crosnoe, Principal

Book Picks



Liberty Porter, First Daughter (Julia DeVillers)

Liberty's life changes when her dad is elected president of the United States. Follow along as she gets used to living in the White House, attending a new school, and following all the rules that come with being the president's child. Book 1 in the First Daughter series.



Ostriches (Rachel Poliquin)

From the Superpower Field Guide series, this nonfiction book is filled with fascinating facts about ostriches. Your child will meet an ostrich named Eno and learn how this grumpy two-toed animal survives in the African savanna,



what special features he has, and much more. Includes illustrations and a glossary with science terms.

Poetry for Young People: Langston Hughes (David Roessel and Arnold Rampersad)

Young readers are introduced to a famous African American poet in this illustrated collection. The compilation contains Hughes's poems about hopes and dreams, plus an introduction and a biography of his life.

The Vanishing Coin (Kate Egan)

When fourth-grader Mike and his new friend Nora discover the local magic shop, owner Mr. Zerlin teaches Mike his first magic trick. From that point on, Mike is hooked! Find out how Mike's life changes—and learn magic tricks—in this first book in the Magic Shop series.



Subject-area writing

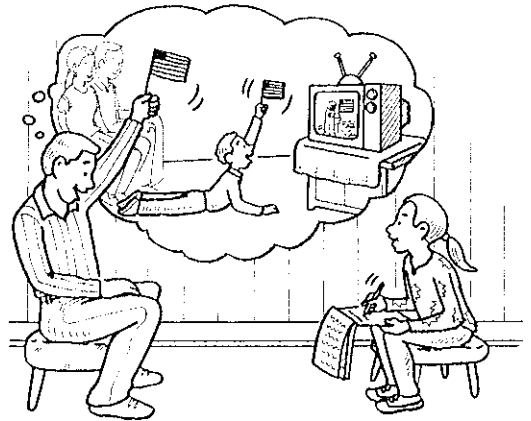
When your youngster answers questions in her social studies book, explains how she solved a math problem, or completes a science lab report, she needs strong writing skills. Encourage her to practice writing with these at-home activities for each subject.

Social studies

Suggest that your child interview a relative or family friend about a historical event she studied in class. A grandparent, an aunt, or an uncle might remember watching the first moon landing or the fall of the Berlin Wall. Your youngster could write about the event through that person's eyes and include details like names, dates, and places.

Math

Hooray! Your child figured out the math problem that had her stumped. Before she moves on to the next one, have her write a step-by-step description of how she did it. She'll practice explaining her math thinking and putting her



thoughts in logical order. Plus, she'll have a handy reference when she needs to solve similar math problems.

Science

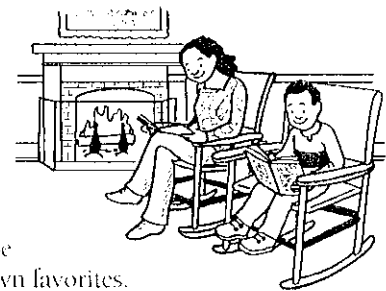
Which brand of stain remover or lint roller works best? Ask your youngster to do a science experiment using household products. She can write an explanation of her procedure and record the results, just like she does in science class. *Tip:* Let her post the write-up, complete with photos, on the refrigerator so family members can learn which product "won."

Hooked on classic fiction

Spark your child's interest in fiction by steering him toward tales you enjoyed at his age or ones he liked listening to when he was younger. Here are two ideas.

1. Read classics. Suggest books from your childhood. He might like Michael Ende's *The Neverending Story* or Fred Gipson's *Old Yeller*, for instance. Perhaps he'll be inspired to read more classics and find his own favorites.

2. Rediscover fairy tales. Different cultures have their own versions of various fairy tales. Have your youngster type a familiar title (*Cinderella*) into a library database. He may be surprised by the differences in *Yeh-Shen: A Cinderella Story from China* by Ai-Ling Louie or *The Rough-Face Girl*, an Algonquin Indian version by Rafe Martin.



A reading checklist

Good readers use many different strategies to help them understand books. Share this checklist with your child. He can monitor his comprehension—and get back on track if things don't make sense.

- Before I begin reading, I ask myself what I already know about the topic. I use this knowledge to help me learn new information in the text.
- When I read difficult material, I stop and think after each paragraph or section to make sure I understand it. I might summarize it in my head or on paper.



- I reread parts that are confusing. If I'm still stuck, I ask a teacher or parent for help.
- I read between the lines to figure out events or information that the author didn't come right out and explain.
- I jot down questions when I read nonfiction. I check to see whether my questions are answered later in the text.

Mark it, flag it

A bookmark that's also a tracking tool? We have just the thing! Your youngster can make this simple bookmark and use it to learn and get ideas from what he reads.

First, have him cut a bookmark-size strip from cardboard and decorate it with crayons or markers. Then he could glue a small pad of sticky notes to the top. As he reads, he can use the sticky notes to:



- Write down unfamiliar words to look up later.
- Flag passages to share in class.
- Think of character names or details for a story of his own.
- Mark names of cities or countries he'd like to visit.
- Note a new sport or hobby to try.
- Jot down a personal experience, a movie, or another book that he's reminded of.

- I predict what's going to happen next in a novel. Then I read on to see whether my prediction was accurate.



Q&A How to give—and get—feedback

Q During "writing workshop," my daughter's classmates give each other feedback on their stories. Nicole feels uncomfortable giving and receiving criticism. How can I help?

A Encourage your daughter to think of feedback not as criticism but as making the writing the best it can be. It's a good idea to start by saying something nice about her classmate's story, such as, "I really like this plot twist." Then, if she sees something that could be improved, she might try, "I got confused here" or "I'm not sure what you meant when you said ..."



Meanwhile, getting feedback will show your child how others view her writing. If a classmate says, "I don't understand why your character would do that," Nicole may decide to change the character's action. With time, she'll get more comfortable giving and getting feedback—and see its value. And this experience will serve her well in the future, since giving and receiving criticism is often part of a job.



Don't make a word!

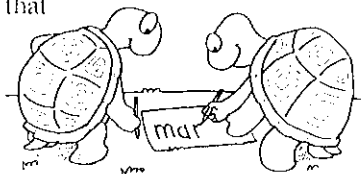
Force your opponent to add the last letter to a word in this game that boosts spelling and vocabulary skills.

To start, think of a word (*moment*), and write the first letter (*m*) on a sheet of paper. Your child should come up with a word that begins with *m* (it will probably be different from yours) and write the second letter of her

word (add *a* to *m* for *match*). On your turn, think of a word that starts with *ma* and add the next letter (*r* for *marble*).

Continue until a player is forced to complete a word that has four or more letters. For example, if your youngster adds *e* to *mar*, she spells *mare* and loses.

Note: A player must have a real word in mind when adding a letter. If someone is challenged, she has to say the word she's thinking.



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