

TABLE OF CONTENTS

Subject	Page
Math tips	2-3
Technology tips	4
Literacy tips	5-6
Social studies tips	7
Science tips	8-10

MATH

Ratios and Proportions: Double Dessert!



What better way to get kids excited about ratios and proportions than dessert?

Invite your sixth grader to find a baking recipe from your recipe box, a favorite cookbook, or online. Then challenge them to adapt the recipe to increase or decrease the number of servings it creates. For example, if the recipe makes 6 servings, increase it to 18 servings. If your favorite recipe doesn't have serving numbers specified, they can double, triple, halve, or quarter the recipe. This involves using ratios to calculate proportional increases or decreases of the ingredient measurements. For example, if they are increasing the number of servings from 6 to 18, they are tripling the recipe, and need to multiply all of the measurements by three.

Tying abstract math concepts to real, tangible tasks is a helpful way to strengthen your child's math skills. Not only do they practice what they are learning in the classroom, but they also see math's real-world applications, which makes them more motivated to learn.

And if you want to take this exercise to the next level, challenge your sixth grader to make the recipe they have adapted as a way to "check their work." If they did the math correctly, it should taste delicious!

Statistics and Probability: Find the Median and Mean

Get a deck of regular playing cards, remove all the face cards (the jacks, queens, kings, and jokers), then have your child deal out seven cards face up.

First, ask your child to organize the cards in numerical order. Then have them write down the median of the set of numbers on paper. You can find the median of a series of numbers by putting the numbers in numerical order and then identifying the number in the center.

After your child writes down the median, ask them to find the mean by adding all the numbers in the series together and then dividing by how many numbers there are.

Encourage your child to total the numbers mentally and check by recording the addition on paper. For this game, they will divide the sum by seven.

When they have found both the median and the mean, deal a new set of seven cards and play another round!

To make this activity more challenging, have your child deal an even number of cards instead of an odd number. This will affect the way you identify the median. If a set of numbers has an even number of terms, there will be two numbers in the center. The median of an even group of numbers is equal to the mean of those two numbers. When you get to the point in the activity where your child identifies the median, guide them to add the two numbers and divide the sum by two.

Geometry: Find the Volume—with Marshmallows!

Get a bag of mini marshmallows, liquid glue, and some construction paper. Have your child create rectangular prisms of different sizes with marshmallows, then count the marshmallows to calculate and compare their volumes.

Begin by asking your child to write the formula for volume on the top of the construction paper. The volume of a rectangular prism is: $\text{Volume} = \text{length} \times \text{width} \times \text{height}$.

Then, have your child make their first rectangular prism with the marshmallows. One marshmallow equals one cubic unit. Have them glue each marshmallow onto the paper side by side. The number of marshmallows per column is the length, and the number of marshmallows per row is the width. When your child has determined how long and wide they want the rectangular prism to be, have them glue another layer of the same number of marshmallows on top of the first marshmallows. The number of times the marshmallows are stacked on top of each other is the rectangular prism's height.

When your child is done constructing their rectangular prism, have them plug in the prism's length, width, and height into the formula for volume. To check their work, they can count each marshmallow in the rectangular prism. The numbers should match.

Calculating volume via a physical activity will help your child better comprehend the concept of volume in the real world. Using concrete objects allows your child to physically manipulate the variables to create rectangular prisms of varying sizes. Your child will be able to compare the rectangular prisms visually and see how changing their lengths, widths, and heights impact their volumes.

TECHNOLOGY

Design your own website!

Have your child design a website for a fictional company or organization that they are the leader of. Help them brainstorm the content of the website by asking questions like:

- What is the company called?
- What does the company do?
- Who is the company's audience? If the company makes something, who might buy the product?
- What features does the company's website need?
- What is the most important information the company should communicate on its website?
- What information should visitors to the website see first?

Guide your child map out the website's home page on paper, a tablet, or the computer and to sketch out the graphic user interface (GUI). The GUI is the visual part of a website or computer program that uses icons and menus to communicate functions to the user. Encourage your child to refer to websites they like for ideas.

As your child works, check in and ask questions about their draft GUI, like:

- Is the information communicated clearly?
- Will the page be easy to read? How can you make it easier to read?
- What icons could you add to give visual clues to the reader about how to interact with the webpage?
- What illustrations or photos would help communicate your message and make the page look more interesting?



LITERACY

Literature Comprehension: Guess Who?

Play this literary guessing game the next time you need a fun activity to keep your sixth grader engaged.

Take turns selecting characters from books you've both read (or movies and television shows you've both watched). One person thinks of the character, and the other figures out who it is by asking questions that can be answered with only one word.

Possible questions include:

- Is this character from a graphic novel?
- Are they a superhero?
- What is their most defining physical characteristic?
- Where do they live?
- Do they have a pet?
- Do they have magical powers?
- What genre is the book they are from?



The guesser can ask as many questions as they want, but they only have five chances to guess the character before losing the round.

Put your own spin on the game by making categories for what kind of characters you can think of. Possible categories include characters from a specific series or genre, protagonists, or characters that are kids.

This is a fun way to help sixth graders strengthen their comprehension and recall skills outside of the classroom and make connections among the books they've read. This game also encourages them to think deeply about literary characters, which can inform their own writing as well.

Research and Analysis: Media Literacy for all!

Children are exposed to a variety of electronic media throughout the day—they're commenting on social media, watching videos, and viewing online advertising. We can teach media literacy to kids to help them become critical thinkers rather than passive consumers of this content.

Media literacy is an expansion of traditional literacy (reading and writing skills). It is the ability to access, analyze, evaluate, create, and act on all forms of communication. You can help your child become a savvy, responsible media consumer by teaching them to ask these questions about media messages:

- WHO made this?
- WHY was it made?
- WHAT is missing from this message?
- HOW might different people interpret this message?
- WHO might benefit from this message?
- WHO might be harmed by this message?

Talk to your child about what they're reading and watching. Model asking yourself these questions about the content you consume. Choose an article online to read with your child, then discuss it and answer the questions above together. Stress the importance of thinking critically about all media, not just messages you disagree with.



SOCIAL STUDIES

Geography: Road Trip!

The United States has a diverse landscape—everything from deserts to bayous, mountains to grass prairies, mesas to glaciers—and a wide array of national parks, monuments, historical sites, museums, and cities. At Mesa Verde National Park, in southwest Colorado, you can visit remains of ancient dwellings built into cliffsides by the Pueblo people as early as 500 CE. At the Harriet Tubman National Historic Park in western New York, you can tour the house where Tubman lived after retiring as an Underground Railroad conductor. In Gettysburg, Pennsylvania, you can touch the side of a building that still has bullets from the infamous Civil War battle embedded in the brick.

There is so much to see and learn from in the United States. Help your sixth grader plan a dream road trip, hitting at least three historical sites, important cities, national parks, or national monuments in the US. Where do they want to visit? What can that site teach them about US history?

Here are some things your child can do to plan a US history road trip:

- Map out a route and determine how long the trip will take.
- Create a daily itinerary detailing what they would do at each site.
- Research regional foods near the places you would visit and make a plan to try some.
- Challenge them to include one or two little-known places, or places they have never heard of before.

Learning that it is possible to travel around and visit iconic national landmarks and places where monumental events occurred is empowering for kids. And who knows, maybe this itinerary can become a real family road trip one day



SCIENCE

Gummy Bear Osmosis

Turn a sweet treat into a sweet science experiment with ingredients you already have around the house!

This experiment involves soaking gummy bears in water and other liquids to observe the effects of osmosis. You can decrease the complexity of the experiment by only using some of the liquids instead of all of them. Sixth graders can easily run the experiment independently, but you can help prepare liquids or gather materials to save time.

Materials:

- Gummy bears (enough for experimenting and munching!)
- 1/2 cup each of as many liquids as you want to use:
- Water
- Salt water (1 tablespoon salt dissolved in 1/2 cup water)
- Sugar water (1 tablespoon sugar dissolved in 1/2 cup water)
- Vinegar
- Sparking water or soda
- Milk
- Glass vessels (cups, jars, whatever you have)
- Paper and pencil
- Ruler
- Paper towels
- Kitchen scale (optional)
- Timer



Help your child fill each glass with 1/2 cup of a solution—plain water, sugar water, salt water, vinegar, sparkling water, and/or milk. Label each glass to remember which solution is which.

Drop one gummy bear in each solution. Set a timer for twelve hours. You can check on the gummy bears from time to time, but don't touch them or remove them from the liquids.

While they wait, ask your child to observe a fresh gummy bear. Use a ruler to measure its length and a kitchen scale to measure its weight (if available). Have them record these measurements along with predictions and preliminary observations. Here are some prompts to get them started:

- What color is the gummy bear?
- What is the texture?
- What do you think will happen to the gummy bears when they soak in the solutions?
- Do you think they will get bigger or smaller?
- Do you think they will weigh more or less?
- Do you think they will change color?

When the time is up, kids can gently remove the gummy bears from the liquids and lay them out on paper towels. You'll notice the gummy bears have grown, some more than others. Invite your child to record the new length and weight of each gummy bear. Compare these gummy bears to the measurements of the fresh gummy bear they took at the start of the experiment. Here are some questions to help them reflect on the changes they observed:

- How did the gummy bears change?
- Are the gummy bears still all the same size?
- Which gummy bear grew the most? Which grew the least?
- Did the gummy bears hold their shape?
- Did the gummy bears change color?
- Did the liquids change? How?
- What other kind of solutions would you like to try this experiment with?
- What do you think would happen with a different kind of candy, such as a stick of gum?

Once they have recorded their observations, you can explain the science behind what happened to put their observations in context.

Because a gummy bear is made of solid gelatin, with no water, it absorbs the liquid it is submerged in instead of dissolving. This process is called osmosis. Osmosis is the movement of a liquid through a membrane, from a place of high-water concentration (the liquid) to a place of low-water concentration (inside the gummy bear). When the water concentration level is the same inside and outside the membrane, the water will stop moving. The substances have reached equilibrium—the same concentration of water on each side of the membrane. Some gummy bears got bigger than others because they had to absorb more water to reach equilibrium.

Actively engaging in the scientific method, with simple materials kids are familiar with, is a powerful way to help them connect to the scientific concepts they are learning about in school, and to get kids thinking like scientists. Plus, including them in every step of the process empowers kids to be curious, practice flexible thinking, and develop problem-solving skills.