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Fifth Grade
Math

Week of May 11, 2020
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5th Grade Math Week 6

In this lesson, you will use what you know about measurement and data to solve real-world problems. Look at this problem and one solution.

Salad Dressing

Sweet T needs to make salad dressing for an event. He knows that 2 gallons is not enough and 3 gallons is too much. Sweet T finds 2 quarts of vinegar and 2 gallons of oil in the cabinet. Read the salad dressing recipe.

Salad Dressing Recipe

- Mix equal parts of water, lemon juice, and vinegar.
- Add an amount of oil equal to the other three ingredients combined.
- Mix in your favorite herbs and spices and shake.

Sweet T wants to know how much water, lemon juice, vinegar, and oil he needs to make the dressing. He also wants to know how much oil and vinegar will be left over.

Look at Sweet T's solution on the right to see how he did it. Can you do it a different way?

Sweet T's Solution

Hi, I'm Sweet T. Here's how I solved this problem.

- **I know** the four different ingredients and how the amounts compare.
- **I have to decide** what units to use to find the amount of each ingredient and the amount left over. The information in the problem has both quarts and gallons. I think it will be easier to convert all amounts to cups.

  There are 16 cups in a gallon.
  2 gallons = 2 × 16, or 32 cups
  3 gallons = 3 × 16, or 48 cups

  There are 4 cups in a quart.
  2 quarts = 2 × 4, or 8 cups

  I can also use quarts, but I might end up using cups to find leftover amounts anyway.

- **Now I know** that the total amount is greater than 32 cups and less than 48 cups.
- **One way to think about** the amounts is that half of the dressing is oil and half is a combination of water, lemon juice, and vinegar. I'll look for half of a number between 32 and 48.
- **I'll use 36** for the total.
  $\frac{1}{2} \times 36 = 18$ so I need 18 cups of oil.
  Then divide by 3 to find the other amounts.
  18 ÷ 3 = 6 so I need 6 cups of each of the other ingredients.

  I multiplied 36 by $\frac{1}{2}$ but I also could have divided by 2.

- **I can check by adding.**
  18 cups + 6 cups + 6 cups + 6 cups = 36 cups
  36 > 32 and 36 < 48
- **Now I can write** the amount of each ingredient and find the leftovers.

Amount for dressing	Amount left over
18 c oil	32 c – 18 c = 14 c leftover oil
6 c vinegar	8 c – 6 c = 2 c leftover vinegar
6 c water	
6 c lemon juice	

I used the abbreviation for cups since I had to write it so many times!

Read the problem. Write a solution on a separate sheet of paper.
Remember, there can be lots of ways to solve a problem!

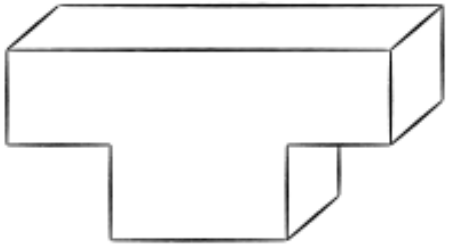
Goldfish Pool

Sweet T is helping design a small goldfish pool to be built in front of his friends' bakery store.

The pool will be shaped like the diagram shown below. The two ends are the same depth. The middle section is deeper.

Pool Plans

- The total length is between 10 and 16 feet.
- The width is between 6 and 8 feet.
- The deepest part of the pool is no more than 4 feet deep.
- The total volume is 300 cubic feet or less.



What should the dimensions of the pool be?
What will the volume of the pool be?

Plan It and Solve It **Find a solution to the Goldfish Pool problem.**

Use the Goldfish Pool Activity Sheet.

- Fill in all the missing dimensions.
- Verify that the lengths, widths, and depths you chose meet all of the requirements in the pool plans.
- Find the volume of the pool.

Reflect

Use Mathematical Practices As you work through the problem, discuss these questions with a partner.

- **Use a Model** How can the model help you find appropriate dimensions?
- **Be Precise** What measurement units will you use when you work out the solution? Explain.

Read the problems. Write a solution on a separate sheet of paper.
Remember, there are many different ways to solve a problem.

Backyard Barbecue

Sweet T is planning a barbecue for 50 people. There will be 2 different kinds of protein and 3 side dishes on the menu. Here are his choices, including amounts to estimate per person.

Protein

- Choose from ground beef, chicken, steak, or salmon.
- Estimate 6 to 8 ounces per person.

Sides

- Baked beans: 2 to 3 ounces per person
- Coleslaw: 3 to 4 ounces per person
- Potato salad: 4 to 5 ounces per person
- Grilled vegetables: 3 to 4 ounces per person
- Rice: 1 to 2 ounces per person

What food and how much of each should Sweet T make?

Solve It **Suggest a menu for Sweet T.**

- Choose the items for the menu.
- Tell how many pounds and ounces are needed for each dish. Explain.

Reflect

Use Mathematical Practices After you complete the task, choose one of these questions to discuss with a partner.

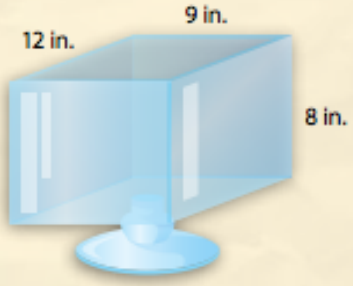
- **Make Sense of Problems** What was the first step you took to find your solution? Why?
- **Reason Mathematically** What operations did you use to find your solution? Explain why.

Layered Dessert

Sweet T is making his favorite layered dessert. Read his notes.

Layered Dessert Notes

- Cut brownies, marshmallows, and cake into cubes.
- First layer is brownie cubes.
- Second layer is marshmallow cubes.
- Third layer is cake cubes.
- Use more than 3 layers.
- You choose the thickness of each layer.
- Repeat layers as many times as you want to fill the bowl.



The picture above shows the container Sweet T uses to make the dessert. How many layers should Sweet T use? How thick should each layer be?

Solve It **Help Sweet T make a plan.**

- Tell which item is in each layer.
- Give the length, width, and volume of each layer.
- Find the total volume of the completed dessert.

Reflect

Use Mathematical Practices After you complete the task, choose one of these questions to discuss with a partner.

- **Use a Model** What models did you use and how did they help you find a solution?
- **Persevere** What did you do to get through any difficult parts of the solution?

Possible Solutions

*Remember that with our Math in Action lessons there may be multiple solutions!

Salad Dressing

I need to find how much vinegar, water, oil, and lemon juice to use and how much is left over. Half the recipe is oil and the other ingredients make up the rest.

If I use 1 quart each of vinegar, lemon, and water, half the recipe would be 1×3, or 3 quarts and the total recipe would be 3×2, or 6 quarts. Since 2 gallons is 8 quarts, 6 quarts is not enough for the total recipe.

If I use 2 quarts each of vinegar, lemon, and water, half the recipe would be 6 quarts and the total recipe would be 12 quarts. This total amount is too much.

I can try $1\frac{1}{2}$ quarts each of vinegar, lemon, and water.

vinegar, lemon, and water:

$1\frac{1}{2} \times 3 = \frac{3}{2} \times 3 = \frac{9}{2}$ qt, or $4\frac{1}{2}$ qt

whole recipe: $\frac{9}{2} \times 2 = \frac{18}{2}$, or 9 qt

9 qt $>$ 8 qt and 9 qt $<$ 12 qt, so 9 quarts works.

Use $1\frac{1}{2}$ qt vinegar, $1\frac{1}{2}$ qt lemon, $1\frac{1}{2}$ qt water, and $4\frac{1}{2}$ qt oil.

Amount left over:

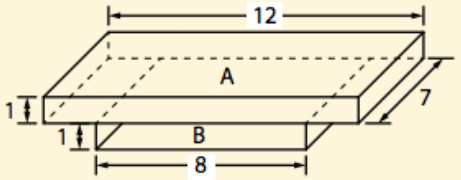
8 qt $- 4\frac{1}{2}$ qt $= 3\frac{1}{2}$ qt oil left over

2 qt $- 1\frac{1}{2}$ qt $= \frac{1}{2}$ qt vinegar left over

Goldfish Pool

I need to choose dimensions for the pool sections that fit the requirements. I broke the shape into 2 rectangular prisms. The deepest part is 2 feet deep, which is less than 4 feet. The shallow part is 1 foot deep. The whole pool is 12 feet long, which is between 10 and 16. The width is 7 feet, which is between 6 and 8 feet.

Volume = length $\times$ width $\times$ depth



The volume of prism A is $12 \times 1 \times 7 = 84$ cubic feet. The volume of prism B is $1 \times 8 \times 7 = 56$ cubic feet. The total volume is $84 + 56 = 140$ cubic feet. This is less than 300 cubic feet.

Backyard Barbecue

I need to write and evaluate expressions that show the cost of two combinations of discounted snacks.

Two-item Discount

Popcorn and Trail Mix	Sandwich and Pizza
$\frac{1}{2} \times (2 + 3) = \frac{1}{2} \times 5$ $\frac{5}{2} = 2\frac{1}{2}$ Cost = \$2.50.	$\frac{1}{2} \times (6 + 8) = \frac{1}{2} \times 14$ $\frac{14}{2} = 7$ Cost = \$7.00

Four-item Discount

Popcorn, Trail Mix, Hot Dog, and Sandwich	Pizza, Popcorn, Trail Mix, and Sandwich
$\frac{1}{4} \times (2 + 3 + 4 + 6)$ $\frac{1}{4} \times 15 = \frac{15}{4}$, or $3\frac{3}{4}$ Cost = \$3.75.	$\frac{1}{4} \times (8 + 2 + 3 + 6)$ $\frac{1}{4} \times 19 = \frac{19}{4}$, or $4\frac{3}{4}$ Cost = \$4.75

Layered Dessert

I need to make a dessert with more than 3 layers and it has to fit in a pan that is 12 inches long, 9 inches wide, and 8 inches deep. I will make 5 layers.

Layer	Thickness	Length	Width	Volume
Brownie Cubes	2 in.	12 in.	9 in.	216 cu. in.
Marshmallow Cubes	1 in.	12 in.	9 in.	108 cu. in.
Cake Cubes	2 in.	12 in.	9 in.	216 cu. in.
Brownie Cubes	1 in.	12 in.	9 in.	108 cu. in.
Marshmallow Cubes	2 in.	12 in.	9 in.	216 cu. in.

Total volume: $216 + 108 + 216 + 108 + 216 = 864$ cu. in.

Find the volume of the container to check: $12 \times 9 \times 8 = 864$ cu. in.

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Fifth Grade
Social Studies

Week of May 11, 2020
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5th Grade Social Studies

Now that you have reviewed all about our state history, let's dive deeper and create! Use the workbook pages that were provided in last week's packet as a first resource, then use the internet if you can.

Task 1- Create a timeline, video, or comic of our statehood starting with the Lost State of Franklin and ending with our Statehood in 1796. You can create this task by either going online and finding pictures and information, using the video as a resource, or referring to the textbook pages provided in the packet.

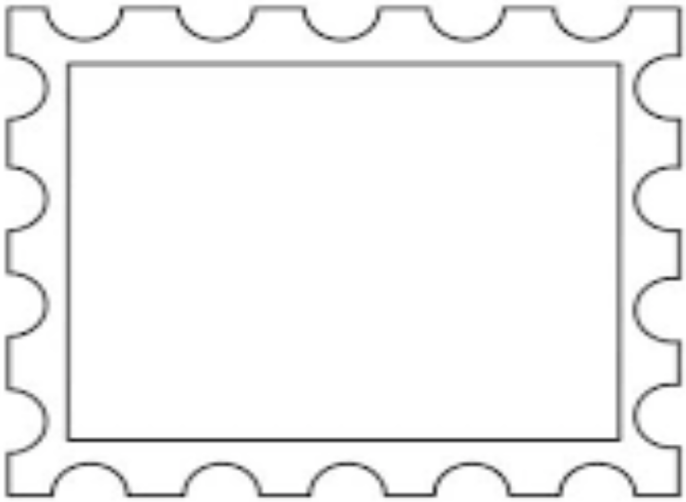
Task 2- Analyze and read the primary source, then answer the questions and follow the directions below.

Primary Source

This is a postage stamp issued by the state of Tennessee in 1946 to commemorate the 150th anniversary of Tennessee's statehood. Look at the stamp and answer the questions.

1. Who is pictured on the left side? What is his relationship to Tennessee, and why do you think he was put on the stamp? _____
   _____
2. Who is the man on the right? What is his relationship to Tennessee, and why do you think he was put on the stamp? _____
   _____
3. What building is pictured in the center? Why do you think it was put on the stamp?
   _____
   _____

Tennessee was admitted to the Union on June 1, 1796, as the 16th state. That means June 1 is Tennessee's 224th birthday! Create a commemorative stamp (one to mark or honor the event) like the one above to celebrate the anniversary of Tennessee. You can use the stamp template below, or the back of this paper.



Fourth Grade
ELA

Week of May 11, 2020
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GRADE 5 ELA WEEK 6 – ADAPTING

A video lesson of a Knox County 5th grade teacher that accompanies this text is available on KCS YouTube Channel and KCS TV.

In this week's text, your child will be looking for specific clues about:

TOPIC: Adapting

ESSENTIAL QUESTION: How do animals adapt to survive?

BUILDING BACKGROUND KNOWLEDGE:

- Tell them as they read this week, they'll be looking for clues to explain different ways animals use their "coats" to survive in their environment. Students will also be able to explain how animals develop the ability to use camouflage?

READING THE TEXT: *A "Coat" of Many Colors*

- You may choose to take turns reading the text with your child, read the text at the same time, or have your child read independently.

GATHER EVIDENCE:

- Find information in the text that explains different ways animals disguise themselves.

EXEMPLAR WRITING:

There are many ways animals use camouflage to survive. One way an animal uses camouflage is blending in to its surroundings. For example, a lion's coat or coloring helps it disappear in tall grass which allows it to approach its prey unnoticed. Secondly, reptiles, amphibians, and fish can change or alter the pigment of their scales using biochromes. One sea creature, the Nudibranch, camouflages by changing their diet, which means their bodies change color according to the coral they consume. In contrast, some birds camouflage as a result of the changing seasons. Their feathers turn different colors due to the varying temperatures or hours of daylight. In conclusion, the ability to camouflage helps animals survive in their environment.

EXTENSION IDEAS:

1. Analyze writing from last week's "Make Your Case" using the success criteria. Label the elements of success criteria in your paragraph. If you find something missing, add it to your paragraph.
2. Find out more information about natural selection. What are some other examples of natural selection?
3. Think of four questions you have about animal camouflage. Ask someone else to ask you the questions and answer them based on what you learned either from our text or from additional research.

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Fifth Grade
Science

Week of May 11, 2020
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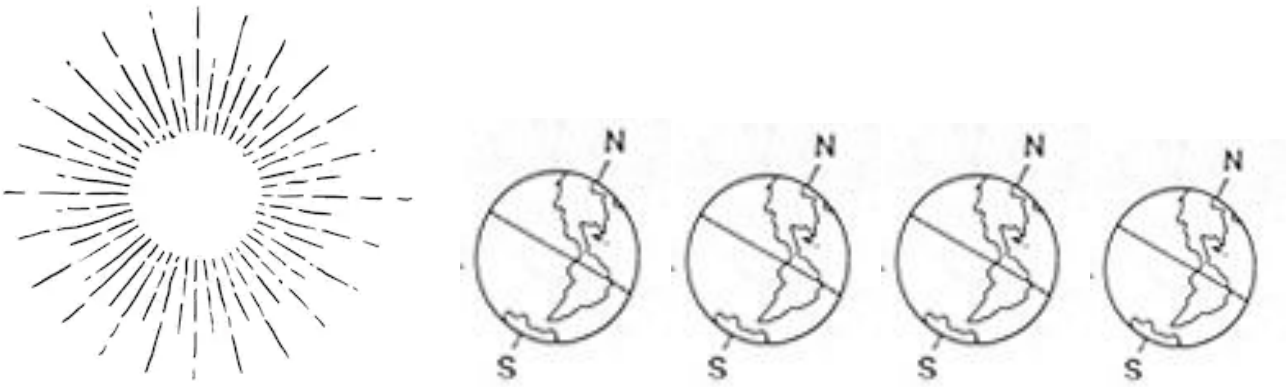
5th Grade Science: Week 6, May 11
Why do we experience seasons?

Directions: This handout can also accompany a KCS at Home Teacher Video. If you have access to the video, watch the video before doing this activity. You can find the videos at https://www.knoxschools.org/Page/21816

Seasons on Earth: After reading or watching the video, create your own Seasons model using the provided figures, labels, and directions *or* think of a way to create a three-dimensional model using materials you have at home like balloons, balls, and a lamp or flashlight.

Extra Materials: Paper plate or any round piece of paper, Scissors, Crayons, Glue or Tape
Provided Materials: Sun and Earth figures and labels



Summer Solstice	Winter Solstice	Spring Equinox	Autumnal Equinox
January	February	March	April
May	June	July	August
September	October	November	December
Longest Day- highest sun	Shortest Day- lowest sun	Equal Day- middle sun	Equal Day- middle sun

Directions to make your model: (Model will not be to scale.)

1. Neatly color and carefully cut out each sun, Earth, label box.
2. Attach the sun in the middle of your paper plate.
3. Add one Earth in each location: above, below, and to each side of the sun. Leave room for your labels.
4. Find the earth tilted toward the sun and label it using the summer Solstice box. Move to the opposite side of the sun and add earth to label the Winter Solstice.
5. Next, add the Equinox labels in the correct position.
6. Add the months of the year around the edge of the plate to represent the Earth's revolution pattern around the sun.
7. Add the Length of Day for each earth according to how high the sun would appear in the sky.

Investigation- Use your model to help answer questions and complete the data table about seasons.

1. What causes the four main seasons in the Northern Hemisphere?

   _____

   _____

2. When the Earth is angled toward the sun what effect will this have to the surface?

_____

_____

3. What is different about the angle of sunlight at noon in winter compared to summer?

_____

_____

4. How is the length of day affected along the equator as the Earth moves through its revolution pattern? _____

_____

5. Why does the Sun travel higher in the sky during the summer months in the Northern Hemisphere?

_____

_____

6. *Circle the correct word or phrase* in each box of the table to make it true for each season.

Season	Relation to Sun	Direction of Tilt in relation to Sun	Amount of Daylight Hours
Summer	Solstice or Equinox	Toward Away Neither	Longer daytime Shorter daytime Equal day and night
Fall	Solstice or Equinox	Toward Away Neither	Longer daytime Shorter daytime Equal day and night
Winter	Solstice or Equinox	Toward Away Neither	Longer daytime Shorter daytime Equal day and night
Spring	Solstice or Equinox	Toward Away Neither	Longer daytime Shorter daytime Equal day and night

DID YOU KNOW?

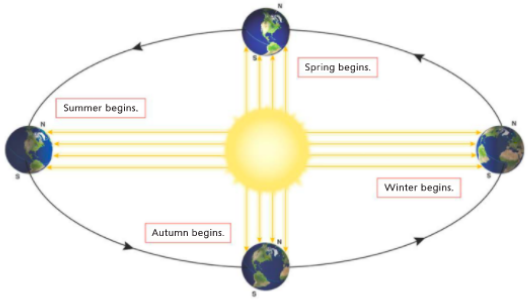
Every four years is a "leap" year—a year in which a 366th day is added to the calendar. This day is necessary because Earth takes slightly less than 365¼ days to orbit the Sun. Adding an extra day every four years keeps the calendar in line with the seasons.

Earth's Revolution

Earth revolves around the Sun. To revolve means to move around another object. Earth makes one **revolution** around the Sun every 365¼ days, or one year. The path a revolving object follows is its **orbit**. Earth's orbit is shaped like an oval, or a circle stretched out more in one direction than the other.

Recall that Earth's axis, the imaginary line about which it rotates, is tilted. It is tilted at an angle of 23.5°. The tilt causes sunlight to strike different parts of Earth at different angles. At any given time, each hemisphere, or half, of Earth gets more or less sunlight than the other. The seasons result from both Earth's tilted axis and its revolution around the Sun.

How Seasons Change in the Northern Hemisphere during a Year



Seasons

As Earth revolves around the Sun, the tilted axis always points in the same direction. When the Northern Hemisphere is tilted away from the Sun, the surface of that hemisphere does not receive as much energy, and temperatures are lower. It is winter in the Northern Hemisphere when this happens.

At the same time, it is summer in the Southern Hemisphere. The Southern Hemisphere is angled toward the Sun, so the energy of sunlight is more concentrated. The surface receives more energy, and temperatures are warmer.

Because the tilt of Earth's axis always points in the same direction, the seasons in the Northern Hemisphere and the Southern Hemisphere are always opposite. In spring and autumn, both hemispheres receive equal energy from the Sun, making temperatures mild.

FACT CHECKER

Seasons do not have anything to do with how close Earth is to the Sun at any point in time. In fact, Earth is closer to the Sun in January than in July. Seasons occur because of Earth's tilted axis.

The Four Seasons in the Northern Hemisphere

Winter	Spring	Summer	Autumn
late December – late March	late March – late June	late June – late September	late September – late December

Bill Brooks/Alamy

WORD STUDY

The word *equinox* means "equal night."

Earth's Revolution—Seasons and the Sun

The Sun's apparent path changes from season to season. The diagram shows the Sun's apparent path across the sky during the day. Each yellow circle represents the Sun's position at midday. Notice that the Sun rises much higher in the sky during a summer day. The day on which the Sun appears highest in the sky is known as the summer solstice. In the Northern Hemisphere, the summer solstice occurs around June 21 each year. During this time of year, the Northern Hemisphere is tilted more toward the Sun.

In winter, the Sun appears much lower in the sky. In the Northern Hemisphere, the winter solstice occurs around December 21. This is the day on which the Sun appears lowest in the sky. At this time, the Northern Hemisphere is tilted away from the Sun.

Halfway between the solstices, neither hemisphere is tilted toward the Sun. During an equinox, day and night are each about 12 hours long. In the Northern Hemisphere, the spring equinox occurs around March 21. The fall, or autumnal, equinox occurs around September 22.

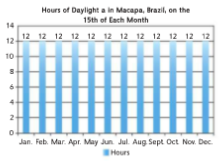
Apparent Path of the Sun

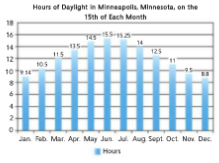
Note that the diagram showing the Sun's apparent path does not apply to all parts of the world. At the equator, the Sun's apparent path changes much less during the year. The farther away you travel from the equator, the greater the change in the Sun's height throughout the year. For example, near the poles in summer, there are more hours of daylight. During winter, the Sun hardly appears above the horizon. Examine the three graphs, which show the number of daylight hours throughout the year for three cities in the Northern Hemisphere. The height of the bars indicates the number of daylight hours on the 15th of each month throughout the year.

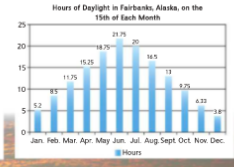
SKILL BUILDER

Read a Bar Graph
Macapá, Brazil, is very close to the equator. Minneapolis is 45° north of the equator. Fairbanks is near the North Pole. Note how distance from the equator changes the number of daylight hours.

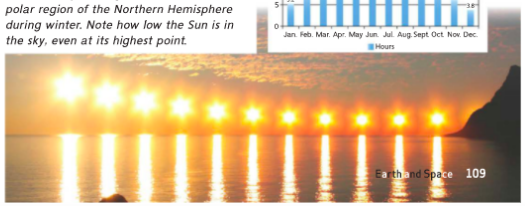
Hours of Daylight







This time-lapse image was taken in the polar region of the Northern Hemisphere during winter. Note how low the Sun is in the sky, even at its highest point.



Vladimir Burmistrov/Shutterstock.com

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