Lewis County Schools

5th Grade

NTI Day 21

The American Civil War

by ReadWorks

Source: United States Marines

The American Civil War lasted from 1861 to 1865 and was the result of a period of many tense years between the Northern states and the Southern states. The major issue between the North and the South was slavery. Starting in the 1850s, Northerners became more and more hostile to the idea of slavery on moral grounds, while slavery continued to be an accepted fact of life in the South.

In the early- to mid-1800s, large farms called plantations were the backbone of the Southern economy. Cotton, a cheap material used often in everyday life all over the world, was one of the most important crops grown on the plantations. As a result, cotton plantations multiplied throughout the region. Soon the South had become the main grower and exporter of cotton for Europe and a powerful economic force. Many people were required to work on plantations, and Southern plantation owners relied on slaves as the cheapest form of labor to work the fields. Slaves who worked in the fields typically lived in shacks in the slave quarters at a distance from the main house where the owners' families lived. They were given very little free time and were required to be answerable to the plantation owner. Some slaves even worked inside the homes of plantation owners, cleaning the house, or as a nanny to the children.

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Slaves were considered property-they worked on plantations, in shops, in towns and cities, and in the construction of railroads. In the South, slaves were just another part of the landscape.

A different understanding of slavery, however, was beginning to take shape in the North. Taking the most progressive stand of the day, the Vermont Constitution of 1777 insisted that "all men are born equally free and independent," and added a clause prohibiting slavery based on this belief. The Declaration of Independence, in stating that all men are created equal, inspired Vermont to prohibit slavery in its constitution in 1777. By 1804, all states north of Maryland had voted to abolish slavery, many through a process of gradual emancipation, which set deadlines by which a slave must be freed, depending on the work done or the age reached. Also, during the antebellum period (1815 - 1860), the North began a process of modernization and industrialization. Industrial advances allowed for the development and expansion of new industries, like transportation (roads, canals, and railroads), communications (magazines and newspapers), and finance (banking and insurance). These industries fueled a demand for wage labor, which was partially met by the influx of immigrants from Europe. Refugees from European political and economic conditions sought the freedoms of American life, and many settled in the northern states.

By the 1850s, the majority of people in the North were opposed to the expansion of slavery and against allowing new states to join the United States as slave states. Some people were opposed to slavery for moral reasons, and they formed a movement in the North called "abolitionism," which called for the legal end to slavery in all of the United States. The wealthy Southern states saw abolitionism as a threat to their way of life and fought against the Northern states politically whenever there was a chance. When Abraham Lincoln, a Republican from Illinois who believed firmly in the Union, as opposed to states' rights to choose their own practices (regarding slavery, taxes, and other issues), was elected President in 1860, it was just too much for the Southern states. And so, soon after Lincoln took office, seven Southern states-South Carolina, Mississippi, Florida, Alabama, Georgia, Louisiana, and Texas-seceded from the United States of America and formed the Confederate States of America so that they could rule themselves as they saw fit.

President Lincoln knew that the Confederacy was a rebellion that would have to be brought back into the federal government. On April 12, 1861, the first shots of the American Civil War were fired upon Union (Northern) soldiers at Fort Sumter in Charleston, South Carolina. The Northern troops were defeated quickly, and they retreated. Soon afterward, four more states -Virginia, Arkansas, Tennessee, and North Carolina-joined the Confederacy and entered the fight.

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The American Civil War lasted four years and claimed the lives of approximately 620,000 soldiers. Fierce battles were fought throughout the country, and many lost their lives due to the wounds suffered and diseases spread from poor sanitary conditions. The war was bitter, with most young men leaving home to join the fight, sometimes clashing with family members from the other side on the battlefields. The North was at an advantage. With access to more soldiers, as well as factories that could quickly churn out wartime materials, they were often able to fight harder and longer.

Some of the most famous battles of the Civil War took place in Gettysburg, Pennsylvania; Bull Run, Virginia; and Antietam, Maryland. Although one side or the other was technically victorious after these battles, each battle (and the war in general) could be considered a pyrrhic victory: there were such devastating costs on both sides of the war that the victory felt like a defeat.

After many long years and battles, the Confederates surrendered. On April 9, 1865, General Robert E. Lee of the Confederacy surrendered to General (and future president) Ulysses S. Grant of the Union at the Appomattox Court House in Virginia.

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Name: _____ **Date:** _____

1. What was the major issue between the North and the South starting in the 1850s?

A. industry

B. cotton

C. slavery

D. women's rights

2. The passage explains the sequence of events that led to the Civil War. What happened after seven Southern states seceded from the Union?

A. The American Civil War began.

B. Abraham Lincoln was elected president.

C. Vermont abolished slavery in its constitution.

D. The North began a process of industrialization.

3. Slave labor was important for the economy of the Southern states. What evidence from the passage best supports this statement?

A. In the early- to mid-1800s, large farms called plantations were the backbone of the Southern economy.

B. Soon the South had become the main grower and exporter of cotton for Europe and a powerful economic force.

C. Cotton, a cheap material used often in everyday life all over the world, was one of the most important crops grown on the plantations.

D. Southern plantation owners relied on slaves as the cheapest form of labor to work the fields.

4. The passage states, "Slaves were considered property." Based on this information, what conclusion can you make about how slaves were treated?

A. Slaves were treated well by some people.

B. Slaves were treated as less than people.

C. Slaves were mostly ignored by most people.

D. Slaves were cared for like a prized possession.

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5. What is this passage mostly about?

A. the role of slavery in the start of the Civil War

B. the use of slaves on Southern cotton plantations

C. why Northern states voted to abolish slavery by 1804

D. cultural differences between the northern and southern states

6. Read the following sentences: "In the early- to mid-1800s, large farms called plantations were the **backbone** of the Southern economy. Cotton, a cheap material used often in everyday life all over the world, was one of the most important crops grown on the plantations. As a result, cotton plantations multiplied throughout the region."

What does the author mean by calling plantations the "**backbone**" of the Southern economy?

A. Plantations were a metaphorical pain in the back to the Southern states.

B. Plantations were the weakest link in the strong Southern economy.

C. Plantations were built on the bones of the slaves who worked on them.

D. Plantations were the most important part of the Southern economy.

7. Choose the answer that best completes the sentence below.

In the Southern states, slavery was supported because it fueled the economy. _____, the Northern states viewed slavery as morally wrong.

A. Therefore

B. Ultimately

C. In contrast

D. Primarily

8. What was abolitionism?

9. Explain why the Southern states saw abolitionism as a threat to their way of life.

10. Explain how the issue of slavery and the abolitionism movement helped to start the American Civil War. Support your answer using information from the passage.

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Chapter 9 Vocabulary

Keep for future use

Day #21

coordinate grid

cuadrícula de coordenadas

9

data

datos

10

interval

intervalo

31

line graph

gráfica lineal

35

line plot

diagrama de puntos

36

ordered pair

par ordenado

45

origin

origen

46

scale

escala

61

Information collected about people or things, often to draw conclusions about them

Example:

Time	Temp. (in °F)
6:00 am	38°
8:00 am	41°
10:00 am	49°
12:00 pm	59°
2:00 pm	62°

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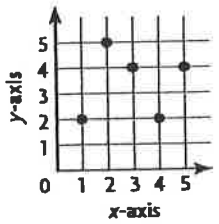
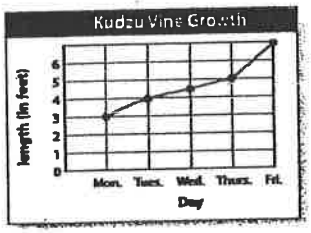
A grid formed by a horizontal line called the *x*-axis and a vertical line called the *y*-axis

Example:



A graph that uses line segments to show how data change over time

Example:



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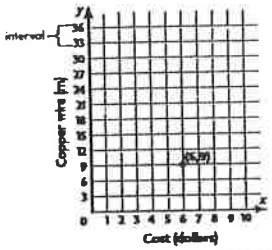
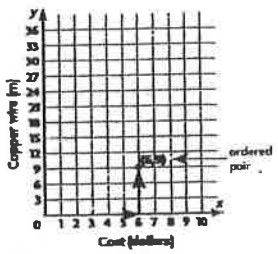
The difference between one number and the next on the scale of a graph.

Example:



A pair of numbers used to locate a point on a grid. The first number tells the left-right position and the second number tells the up-down position.

Example:



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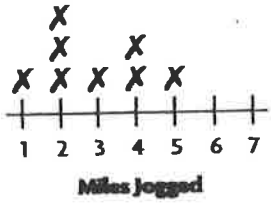
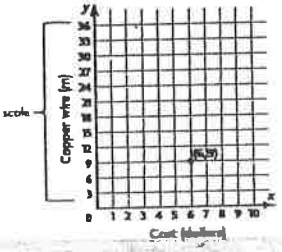
A graph that shows frequency of data along a number line

Example:



A series of numbers placed at fixed distances on a graph to help label the graph

Example:



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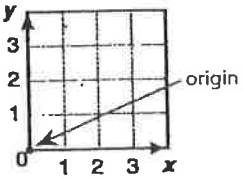
The point where the two axes of a coordinate grid intersect; (0, 0)

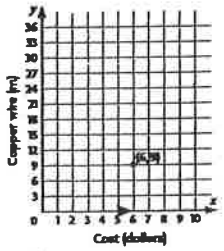
Example:



x-axis eje de la x 72	**x-coordinate** coordenada x 73
y-axis eje de la y 74	**y-coordinate** coordenada y 75

The first number in an ordered pair; tells the distance to move right or left from (0, 0)

Example:



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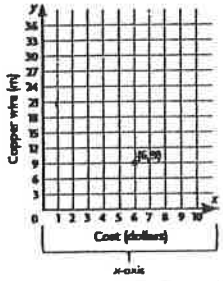
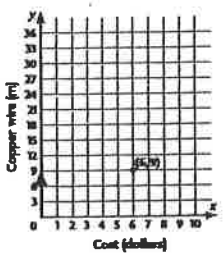
The horizontal number line on a coordinate plane

Example:



The second number in an ordered pair; tells the distance to move up or down from (0, 0)

Example:



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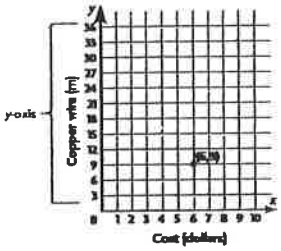
The vertical number line on a coordinate plane

Example:



Day 21

Common Core State Standard: 5.MD.2

Line Plots

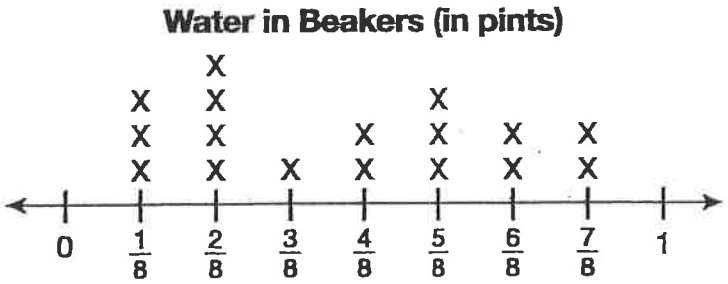
Read to Understand

Getting the Idea

A **line plot** uses a number line and Xs or dots to organize data. The number of Xs above each number indicates how many times that value occurs in a data set.

Example 1

The line plot shows beakers of water in a lab.



How many beakers contain less than $\frac{1}{2}$ pint of water?

Strategy **Find the total number of beakers that contain less than $\frac{1}{2}$ pint of water.**

Step 1 Look at the line plot to find all the fractions that are less than $\frac{1}{2}$.

$\frac{1}{2} = \frac{4}{8}$

So 0, $\frac{1}{8}$, $\frac{2}{8}$, and $\frac{3}{8}$ are less than $\frac{4}{8}$.

Step 2 Identify the number of Xs above $\frac{1}{8}$, $\frac{2}{8}$, and $\frac{3}{8}$ pints.

There are no Xs above 0.

There are 3 Xs above $\frac{1}{8}$.

There are 4 Xs above $\frac{2}{8}$.

There is 1 X above $\frac{3}{8}$.

Step 3 Add to find the total number of beakers.

$0 + 3 + 4 + 1 = 8$

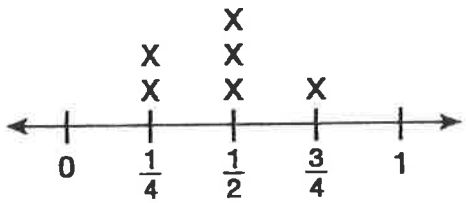
Solution **8 beakers contain less than $\frac{1}{2}$ pint of water.**

Duplicating any part of this book is prohibited by law.

Example 2

The line plot below shows the different amounts of bagged trail mix that Miranda bought at a health food store.

Trail Mix in Bags (in pounds)



How many pounds of trail mix did Miranda buy?

Strategy **Add to find the total number of pounds.**

Step 1 There are 2 Xs above $\frac{1}{4}$ pound.

Each X represents one $\frac{1}{4}$-pound bag.

Add to find the total number of pounds of the $\frac{1}{4}$-pound bags.

$\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$ pound

Step 2 There are 3 Xs above $\frac{1}{2}$ pound.

Each X represents one $\frac{1}{2}$-pound bag.

Add to find the total number of pounds of the $\frac{1}{2}$-pound bags.

$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \frac{3}{2}$ pounds

Step 3 There is 1 X above $\frac{3}{4}$ pound.

Each X represents one $\frac{3}{4}$-pound bag.

The total number of pounds for bags weighing $\frac{3}{4}$ pound is $\frac{3}{4}$ pound.

Step 4 Find the total number of pounds.

Write an equation: $\frac{2}{4} + \frac{3}{2} + \frac{3}{4} = \square$

Step 5 Find equivalent fractions.

The common denominator is 4.

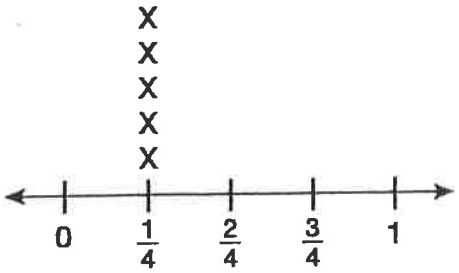
$\frac{2}{4} + \frac{3}{2} + \frac{3}{4} = \frac{2}{4} + \frac{6}{4} + \frac{3}{4} = \frac{11}{4} = 2\frac{3}{4}$

Solution **Miranda bought $2\frac{3}{4}$ pounds of trail mix.**

Example 3

The line plot shows the number of snack bags in the vending machine at the end of the week.

Snack Bags in Vending Machine (in pounds)



How many ounces of snacks are in the vending machine?

Strategy **Find the total number of pounds.**

Step 1 There are 5 Xs on the line plot.

Each X represents one $\frac{1}{4}$-pound bag.

Step 2 Multiply to find the total pounds.

$\frac{1}{4} \times 5 = \frac{5}{4}$ pounds

Step 3 Simplify.

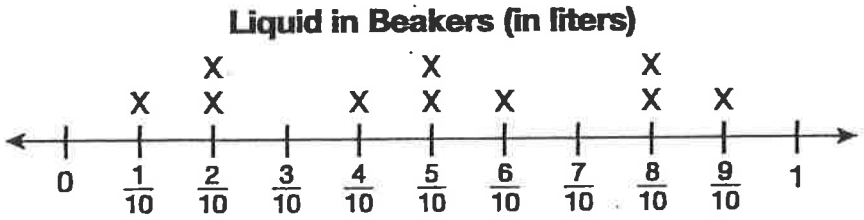
$\frac{5}{4} = \frac{4}{4} + \frac{1}{4} = 1\frac{1}{4}$

Solution **There are $1\frac{1}{4}$ pounds of snacks in the vending machine.**

Duplication any part of this book is prohibited.

Example 4

The line plot shows beakers of liquid.



How much liquid would be in each beaker if the total amount in all the beakers was redistributed equally?

Strategy **Find the total amount of liquid. Then divide by the number of beakers.**

Step 1 Find the total number of liters.

$$\frac{1}{10} + \left(2 \times \frac{2}{10}\right) + \frac{4}{10} + \left(2 \times \frac{5}{10}\right) + \frac{6}{10} + \left(2 \times \frac{8}{10}\right) + \frac{9}{10}$$

$$\frac{1}{10} + \frac{4}{10} + \frac{4}{10} + \frac{10}{10} + \frac{6}{10} + \frac{16}{10} + \frac{9}{10} = \frac{50}{10}$$

There are $\frac{50}{10}$ liters of liquid in all the beakers.

Step 2 Divide to redistribute the liquid equally.

There are 10 beakers, so divide by 10.

$$\frac{50}{10} \div 10 = \frac{50}{10} \times \frac{1}{10} = \frac{50}{100}$$

Step 3 Simplify.

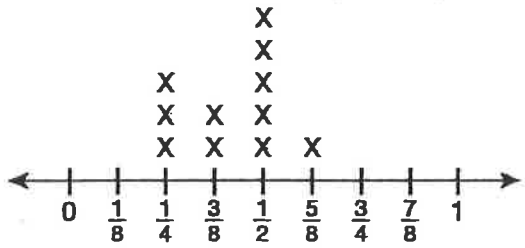
$$\frac{50}{100} = \frac{50 \div 50}{100 \div 50} = \frac{1}{2}$$

Solution **There would be $\frac{1}{2}$ liter in each beaker if the liquid was redistributed equally.**

Coached Example

The line plot shows the weight of each piece of fruit that Logan bought today.

Pieces of Fruit (in pounds)



What is the total weight of the fruit that Logan bought?

There are 3 pieces of fruit that weigh $\frac{1}{4}$ pound.

$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$

The total weight of the pieces of fruit that weigh $\frac{1}{4}$ pound is $\frac{3}{4}$ pound.

There are 2 pieces of fruit that weigh $\frac{3}{8}$ pound.

$\frac{3}{8} + \frac{3}{8} = \frac{6}{8}$

The total weight of the pieces of fruit that weigh $\frac{3}{8}$ pound is $\frac{6}{8}$ pound.

There are 5 pieces of fruit that weigh $\frac{1}{2}$ pound.

$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \frac{5}{2} = 2\frac{1}{2}$

The total weight of the pieces of fruit that weigh $\frac{1}{2}$ pound is $2\frac{1}{2}$ pounds.

There is 1 piece of fruit that weighs $\frac{5}{8}$ pound.

The total weight of the piece of fruit that weighs $\frac{5}{8}$ pound is $\frac{5}{8}$ pound.

Find the total number of pounds.

Write an equation. $\frac{3}{4} + \frac{6}{8} + \frac{5}{2} + \frac{5}{8} = \frac{6}{8} + \frac{6}{8} + \frac{20}{8} + \frac{5}{8} = \frac{37}{8} =$

Find equivalent fractions.

The common denominator is 8.

An equivalent fraction with a denominator of 8 for $\frac{3}{4}$ ($\times 2$) is $\frac{6}{8}$.

An equivalent fraction with a denominator of 8 for $\frac{5}{2}$ ($\times 4$) is $\frac{20}{8}$.

$\frac{6}{8} + \frac{6}{8} + \frac{20}{8} + \frac{5}{8} = \frac{37}{8} = 4\frac{5}{8}$

The total weight of the fruit that Logan bought is $4\frac{5}{8}$ pounds.

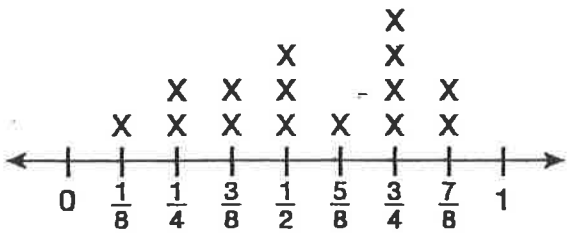
Lesson Practice

Choose the correct answer.

Use the line plot for questions 1–3.

The line plot shows the distance in miles that students in Mr. Becker's class walk to school.

Distance Walked to School (in miles)



1. How many students walk to school?

   A. 8 **C.** 12

   B. 10 **D.** 15

2. How many students walk more than $\frac{1}{2}$ mile to school?

   A. 7 **C.** 9

   B. 8 **D.** 10

3. What is the greatest distance that any student walks to school?

   A. $\frac{1}{2}$ mile

   B. $\frac{5}{8}$ mile

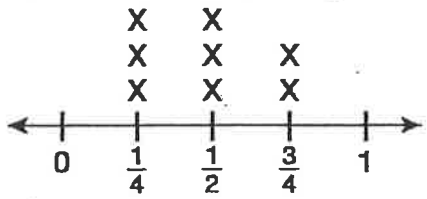
   C. $\frac{3}{4}$ mile

   D. $\frac{7}{8}$ mile

Use the line plot for questions 4–6.

The line plot shows the bags of jelly beans that Betty bought.

Jelly Beans in Bags (in pounds)



4. How many bags of jelly beans did Betty buy?

   A. 3 **C.** 8

   B. 6 **D.** 9

5. How many bags weigh $\frac{1}{2}$ pound or more?

   A. 2 **C.** 4

   B. 3 **D.** 5

6. What is the total weight of the bags of jelly beans?

   A. 3 pounds

   B. $3\frac{1}{4}$ pounds

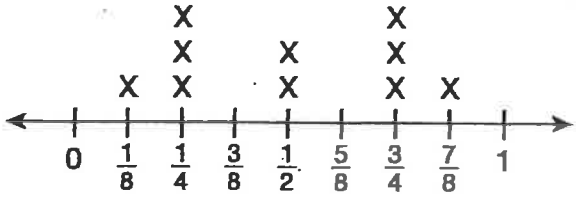
   C. $3\frac{1}{2}$ pounds

   D. $3\frac{3}{4}$ pounds

Use the line plot for questions 7 and 8.

The line plot shows the amounts of juice in glasses after a breakfast meeting.

Juice in Glasses (in cups)



7. What is the total number of cups of juice?

   A. 3 cups

   B. 4 cups

   C. 5 cups

   D. 6 cups

8. How much juice would be in each glass if the total amount in all the glasses was redistributed equally?

   A. $\frac{1}{10}$ cup

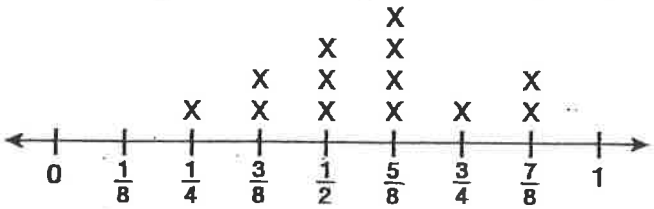
   B. $\frac{1}{2}$ cup

   C. $\frac{1}{8}$ cup

   D. 1 cup

9. Suri planted some seedlings. After one week she measured the heights of the seedlings and made a line plot showing the results. After looking at the line plot, Suri said that the greatest number of seedlings had a height of $\frac{7}{8}$ inch.

Heights of Seedlings (in inches)



A. Suri's analysis of the line plot was incorrect. What was the height of the greatest number of seedlings?

B. Explain why Suri thought that $\frac{7}{8}$ inch was the height of the greatest number of seedlings.

Name _____

Line Plots

COMMON CORE STANDARD—5.MD.B.2
Represent and interpret data.

Use the data to complete the line plot. Then answer the questions.

A clerk in a health food store makes bags of trail mix. The amount of trail mix in each bag is listed below.

$\frac{1}{4}$ lb, $\frac{1}{4}$ lb, $\frac{3}{4}$ lb, $\frac{1}{2}$ lb, $\frac{1}{4}$ lb, $\frac{3}{4}$ lb,
$\frac{3}{4}$ lb, $\frac{3}{4}$ lb, $\frac{1}{2}$ lb, $\frac{1}{4}$ lb, $\frac{1}{2}$ lb, $\frac{1}{2}$ lb

1. What is the combined weight of the $\frac{1}{4}$-lb bags? 1 lb

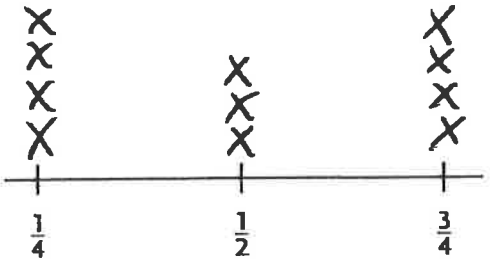
   Think: There are four $\frac{1}{4}$-pound bags.

2. What is the combined weight of the $\frac{1}{2}$-lb bags? $1\frac{1}{2}$
   $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}=\frac{3}{2}=1\frac{1}{2}$

3. What is the combined weight of the $\frac{3}{4}$-lb bags? 3
   $\frac{3}{4}+\frac{3}{4}+\frac{3}{4}+\frac{3}{4}=\frac{12}{4}=3$

4. What is the total weight of the trail mix used in all the bags? $5\frac{1}{2}$ $1+1\frac{1}{2}+3=5\frac{1}{2}$

5. What is the average amount of trail mix in each bag? $\frac{1}{2}$



Weight of Trail Mix (in pounds)

Julie uses crystals to make a bracelet. The lengths of the crystals are shown below.

Complete the Line Plot

$\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in., $\frac{1}{2}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{3}{4}$ in.,
$\frac{3}{8}$ in., $\frac{3}{4}$ in., $\frac{5}{8}$ in., $\frac{1}{2}$ in., $\frac{3}{8}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in.

Lengths of Crystals (in inches)

6. What is the combined length of the $\frac{1}{2}$-in. crystals? _____

7. What is the combined length of the $\frac{5}{8}$-in. crystals? _____

8. What is the total length of all the crystals in the bracelet? _____

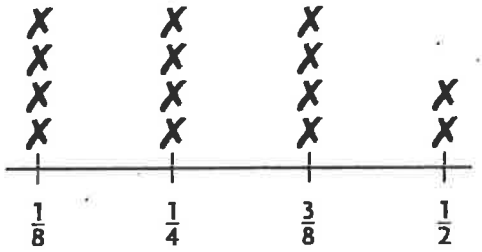
9. What is the average length of each crystal in the bracelet? _____

10. WRITE ▸ *Math* Describe the steps you can use to find an average of fractional amounts.

_____

Lesson Check (5.MD.B.2)

A baker uses different amounts of salt when she bakes loaves of bread, depending on which recipe she is following. The amount of salt called for in each recipe is shown on the line plot.



Amount of Salt (in teaspoons)

1. Based on the line plot, how many recipes call for more than $\frac{1}{4}$ tsp of salt?

2. What is the average amount of salt called for in each recipe?

Spiral Review (5.NBT.A.4, 5.NF.A.1, 5.NF.B.4a, 5.NF.B.7c)

3. Ramona had $8\frac{3}{8}$ in. of ribbon. She used $2\frac{1}{2}$ in. for an art project. How many inches of ribbon does she have left? Find the difference in simplest form.

4. Ben bought $\frac{1}{2}$ pound of cheese for 3 sandwiches. If he puts the same amount of cheese on each sandwich, how much cheese will each sandwich have?

5. What is 92.583 rounded to the nearest tenth?

6. In Yoshi's garden, $\frac{3}{4}$ of the flowers are tulips. Of the tulips, $\frac{2}{3}$ are yellow. What fraction of the flowers in Yoshi's garden are yellow tulips?

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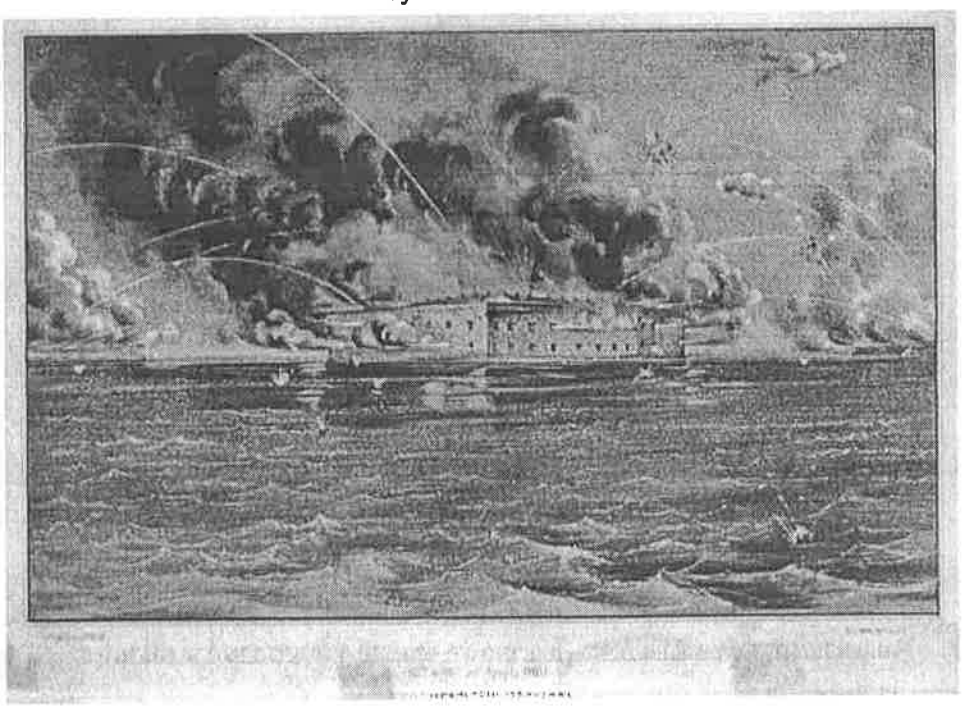
Lewis County Schools

5th Grade

NTI Day 22

Slavery, the Civil War & Reconstruction: Fort Sumter and the First Shots of the Civil War

by ReadWorks



Bombardment of Fort Sumter

In 1860, Lincoln was elected President. Not one single Southern state voted for him. Between the time he was elected and the time he took office, seven Southern states seceded from the union. South Carolina left first. Not long afterwards, Florida, Alabama, Georgia, Mississippi, Louisiana, and Texas joined South Carolina.

In his first address to the country, Lincoln reminded everyone of his main goal: to preserve the Union. He said that his duty was to keep the states united. Everyone knew that this would mean war. The Northern states would fight to win the Southern states back. Lincoln was telling the *rebel* states that they could not simply leave the Union without any consequences.

However, four Southern states had not yet left the Union. These were Virginia, Arkansas, Tennessee, and North Carolina. Lincoln wanted them to stay a part of the Union. He wanted to buy time for himself and avoid any conflict for as long as possible. Once conflict began, he knew these states would probably join the Confederacy. But Lincoln did not have as much time as he had hoped.

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A United States fort was located in South Carolina. Fort Sumter had not received supplies for a long time. The men there had very little left to eat. South Carolina would not even allow food to be brought to the fort because South Carolina believed that Fort Sumter no longer belonged to the U.S. Lincoln knew he could not let this fort collapse. It was one of the last strongholds of Northern power in the South. He had to send a supply ship.

South Carolina saw the ship coming. The state decided to interpret the move as an act of aggression, even though the supply ship had no intention of firing. Before the ship even arrived in South Carolina, the South Carolina troops fired on Fort Sumter. South Carolina demanded that the fort surrender. Because of this event, the Civil War had begun. In the months to come, United States would confront its biggest war yet - a war over slavery, unity, and identity.

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Name: _____ Date: _____

1. A **rebel** is someone who

A. fights for their country.

B. tries to find peaceful solutions.

C. fights against the government.

D. runs for government office.

2. Why didn't South Carolina allow food to be brought to Fort Sumter?

A. South Carolina thought it was poisoned.

B. Fort Sumter didn't want to accept food from President Lincoln.

C. South Carolina felt the fort should no longer belong to the government of the North.

D. They actually did allow food to be brought to Fort Sumter.

3. What is considered to be the beginning of the Civil War?

A. When Abraham Lincoln was elected President

B. When seven southern states left the union

C. When South Carolina fired on Fort Sumter

D. When President Lincoln declared war

4. Which of the following events happened first?

A. South Carolina fires on the Fort Sumter supply ship.

B. Florida, Alabama, Georgia, Louisiana and Texas seceded from the Union.

C. The supply ship arrives in Fort Sumter.

D. Lincoln was elected President.

5. The passage "Fort Sumter and the First Shots of the Civil War" is mostly about

A. military strategy during the Civil War

B. a speech Lincoln gave at Fort Sumter

C. how the Civil War started

D. slavery in South Carolina

6. Why did Lincoln decide to send a supply ship to Fort Sumter?

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7. Explain why, during the Presidential election of 1860, none of the southern states voted for President Lincoln.

8. The question below is an incomplete sentence. Choose the word or phrase that best completes the sentence.

Though President Lincoln wanted to avoid war, _____ he decided to fight.

A. sometimes

B. never

C. likely

D. ultimately

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Day 22

Common Core State Standard: 5.G.2

Ordered Pairs

Read to Understand

Getting the Idea

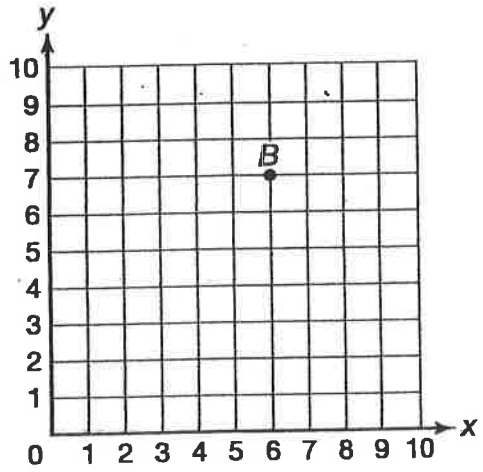
An **ordered pair** is used to name a point on a coordinate plane. The first number in an ordered pair is the *x*-coordinate. The second number is the *y*-coordinate. The point where the two axes meet is the origin (0, 0).

To locate a point on the part of the coordinate plane that is shown in Example 1, you follow these steps:

- Start at the origin.
- For the *x*-coordinate, move to the right.
- For the *y*-coordinate, move up.

Example 1

What is the location of point *B* shown on the coordinate plane below?



Strategy **Start at the origin. Find the distance from 0 on each axis.**

Step 1 Start at the origin (the place where the *x*-axis and *y*-axis meet).

Count the number of units needed to move along the *x*-axis to be directly below point *B*.

You must move 6 units, so the *x*-coordinate is 6.

Step 2 Start at 6 on the *y*-axis. Count the number of units needed to move up to point *B*.

You must move up 7 units, so the *y*-coordinate is 7.

Step 3 Write the ordered pair.

(*x*-coordinate, *y*-coordinate)

(6, 7)

Solution **The location of point *B* is (6, 7).**

You can plot a point on a coordinate plane using an ordered pair.

Example 2

Plot a point at (5, 8) on the coordinate plane.

Strategy **Use each number in the ordered pair to find the exact location on the coordinate plane.**

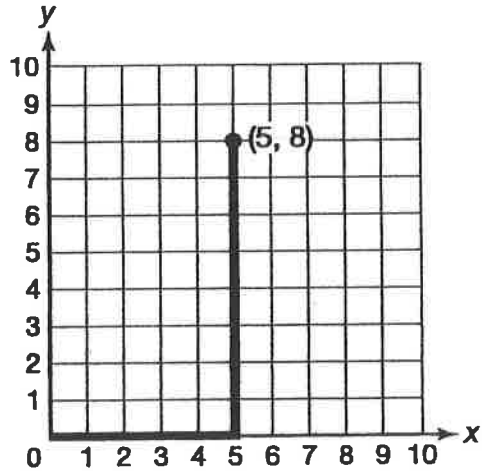
Step 1 Start at the origin.

Step 2 Look at the *x*-coordinate and the *y*-coordinate.

The *x*-coordinate is 5, so move 5 units to the right of the origin.

The *y*-coordinate is 8, so move 8 units up.

Step 3 Label the point (5, 8).

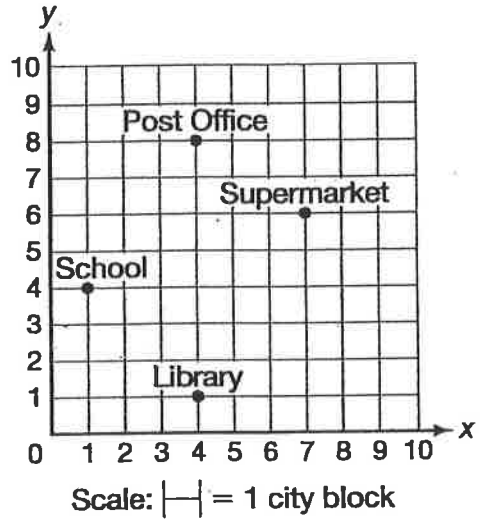


Solution **The coordinate plane with a point plotted at (5, 8) is shown in Step 3.**

To find the distance between two points, count the number of units to the left or right (west and east) and the number of units up or down (north or south).

Example 3

Emile made the map below.



What is the distance from the post office to the library?
You can only go right and left and up and down.

Strategy **Name the ordered pairs. Then use subtraction.**

Step 1 Find the location of the post office and the library.

The post office is located at (4, 8).

The library is located at (4, 1).

Step 2 Find the distance between the post office and the library.

Both the post office and the library have the same x-coordinate.

They have different y-coordinates.

Step 3 Subtract the y-coordinates of each ordered pair.

$8 - 1 = 7$

The post office is 7 city blocks from the library.

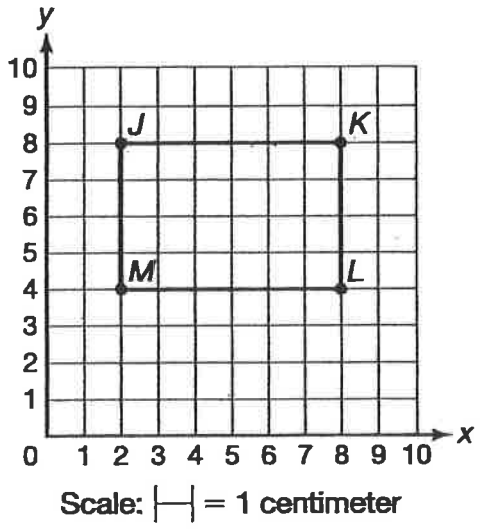
Solution **The distance from the post office to the library is 7 city blocks.**

Duplicating any part of this book is prohibited by law.
Duplicating any part of this book is prohibited by law.

In Example 3, you could also have solved the problem by counting the units between the post office and the library. There are 7 units between the post office and the library.

Coached Example

Rectangle *JKLM* is shown on the grid below.



What is the length of side *JK*?

Look for point *J*.

Point *J* is located at (2 , 8).

Look for point *K*.

Point *K* is located at (8 , 8).

Count the number of units between points *J* and *K*.

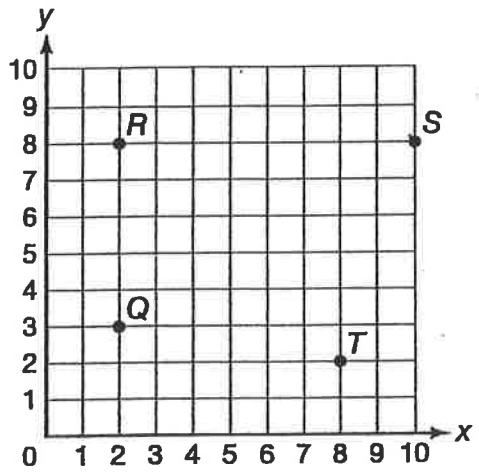
There are 6 units between points *J* and *K*.

The length of side *JK* is 6 centimeters.

Lesson Practice

Choose the correct answer.

Use this coordinate grid for questions 1 and 2.



1. What are the coordinates of point *S*?

   A. (2, 8)

   B. (10, 8)

   C. (8, 10)

   D. (8, 2)

2. What are the coordinates of point *Q*?

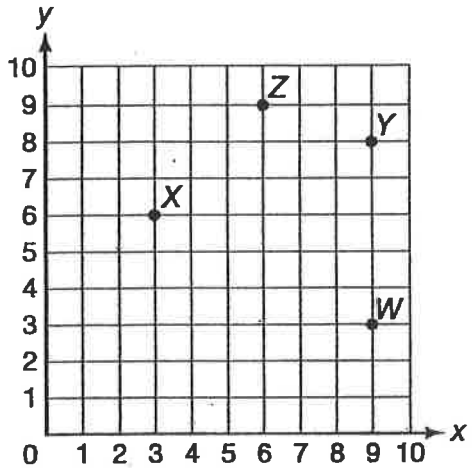
   A. (2, 3)

   B. (2, 8)

   C. (3, 2)

   D. (8, 2)

Use this coordinate grid for questions 3 and 4.



3. Which point is located at (9, 8)?

   A. point *W*

   B. point *X*

   C. point *Y*

   D. point *Z*

4. What are the coordinates of point *X*?

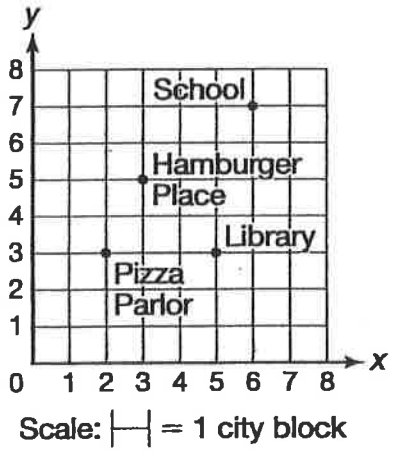
   A. (6, 3)

   B. (4, 7)

   C. (3, 5)

   D. (3, 6)

5. What is the distance between the pizza parlor and the library?



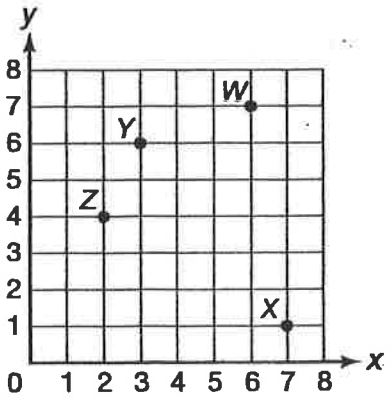
A. 5 blocks

B. 3 blocks

C. 2 blocks

D. 1 block

6. Look at the grid below.



What are the coordinates of point *W*?

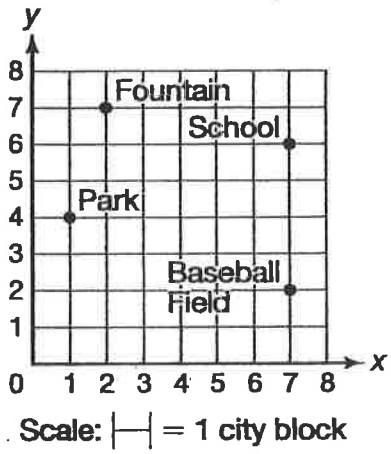
A. (3, 6)

B. (7, 6)

C. (6, 7)

D. (7, 1)

7. Look at the grid below.



A. What is located at (2, 7)? Explain your answer.

B. What is the distance between the school and baseball field? Explain your answer.

Name _____

Share and Show MATH BOARD

Use Coordinate Grid A to write an ordered pair for the given point. (x, y)

✓ 1. C (6, 3)

2. D _____

3. E _____

✓ 4. F _____

Plot and label the points on Coordinate Grid A.

✓ 5. $M(0, 9)$

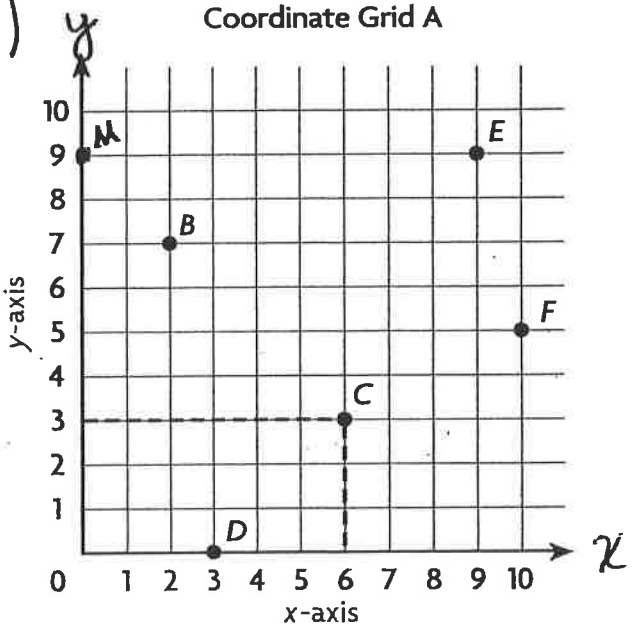
6. $H(8, 6)$

7. $K(10, 4)$

8. $T(4, 5)$

9. $W(5, 10)$

✓ 10. $R(1, 3)$



On Your Own

Use Coordinate Grid B to write an ordered pair for the given point. (x, y)

✓ 11. G (6, 4)

12. H _____

13. I _____

14. J _____

15. K _____

16. L _____

Plot and label the points on Coordinate Grid B.

✓ 17. $W(8, 2)$

18. $E(0, 4)$

19. $X(2, 9)$

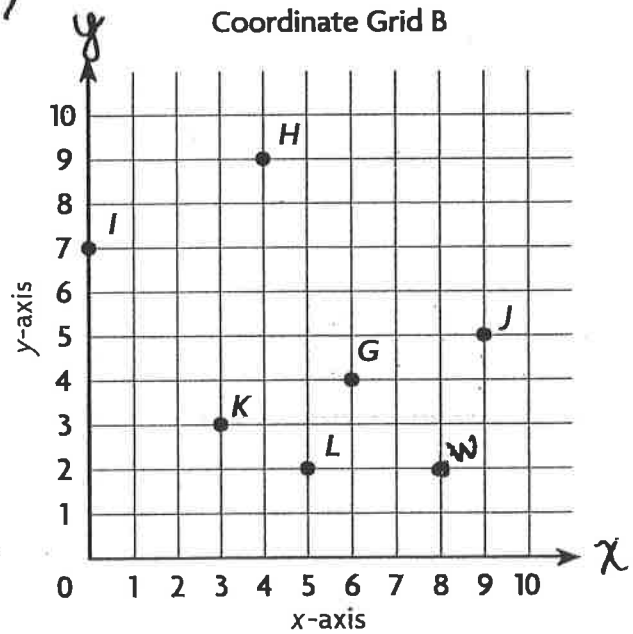
20. $B(3, 4)$

21. $R(4, 0)$

22. $F(7, 6)$

23. $T(5, 7)$

24. $A(7, 1)$



25. WRITE Math Explain how to find the distance between point F and point A.

_____

_____

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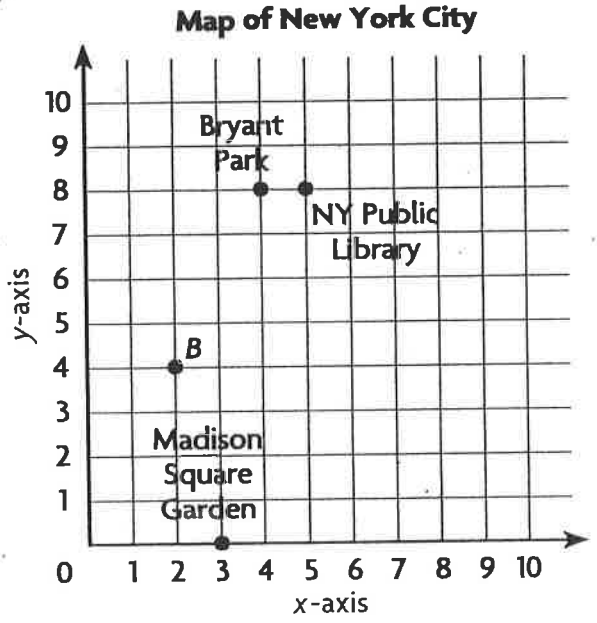
Problem Solving • Applications

Nathan and his friends are planning a trip to New York City. Use the map for 26–30. Each unit represents 1 city block.



26. What ordered pair gives the location of Bryant Park?

_____

27. MATHEMATICAL PRACTICE 4 **Use Graphs** The Empire State Building is located 5 blocks right and 1 block up from (0, 0). Write the ordered pair for this location. Plot and label a point for the Empire State Building.

_____

28. THINK SMARTER **What's the Error?** Nathan says that Madison Square Garden is located at (0, 3) on the map. Is his ordered pair correct? Explain.

_____

_____

29. GO DEEPER Paulo walks from point *B* to Bryant Park. Raul walks from point *B* to Madison Square Garden. If they only walk along the grid lines, who walks farther? Explain.

_____

_____

Personal Math Trainer

30. THINK SMARTER+ Look at the map of New York City above. Suppose a subway station is located at (6, 5). Which of the following accurately describes the location of the subway station? Mark all that apply.

(A) The station is 2 blocks right and 3 blocks down from Bryant Park.

(B) The station is 4 blocks right and 1 block down from point B.

(C) The station is 1 block right and 3 blocks down from the library.

(D) The station is 5 blocks right and 3 blocks up from Madison Square Garden.

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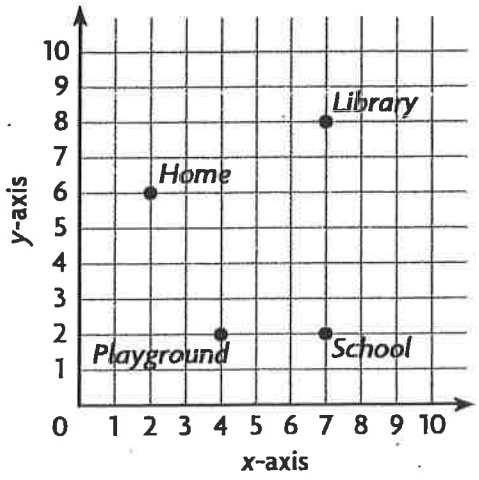
Lesson Check (5.G.A.1)



1. What ordered pair describes the location of the playground?

2. What is the distance between the school and the library?

Spiral Review (5.NBT.A.1, 5.NBT.B.5, 5.NBT.B.6)

3. What is the value of the underlined digit?

   45,7<u>6</u>9,331

4. Andrew charges $18 for each lawn he mows. Suppose he mows 17 lawns per month. How much money will Andrew make per month?

5. Harlow can bicycle at a rate of 18 miles per hour. How many hours would it take him to bicycle a stretch of road that is 450 miles long?

6. Molly uses 192 beads to make a bracelet and a necklace. It takes 5 times as many beads to make a necklace as it does to make a bracelet. How many beads are used to make the necklace?

FOR MORE PRACTICE GO TO THE Personal Math Trainer

Lewis County Schools

5th Grade

NTI Day 23

Slavery, the Civil War & Reconstruction: Gettysburg and the Gettysburg Address

by ReadWorks

Abraham Lincoln at Gettysburg, Pennsylvania

In the summer of 1863, Southern and Northern troops clashed in one of the bloodiest battles of the Civil War. After the Confederate, or Southern, Army won a battle in northern Virginia, it invaded the North and headed into Pennsylvania. It hoped to collect more supplies and weaken the North. Meanwhile, the Union Army of the North was pursuing the Confederate troops. The two sides met and fought near the town of Gettysburg, Pennsylvania. The battle at Gettysburg has been called "the most crucial battle in American history."

Before the Battle of Gettysburg, the Confederacy had been doing very well in the Civil War. But at Gettysburg, the North defeated the South. The battle was bloody. The Union Army suffered 23,000 casualties, while the Confederate Army suffered 28,000. A casualty is someone who is killed, wounded, or captured in battle. The Battle of Gettysburg turned the tide of the war and marked the beginning of the success of the North in defeating the South.

In the fall of 1863, President Lincoln visited the battlefield at Gettysburg for a ceremony

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dedicating the field to all the soldiers who had died. He reminded people why Americans must stand up for their values. His speech, the Gettysburg Address, has become one of the most famous speeches of American history. Lincoln said:

> "Four score and seven years ago our fathers brought forth on this continent a new nation, conceived in Liberty, and dedicated to the [idea] that all men are created equal.
>
> Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated, can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.
>
> But, in a larger sense, we can not dedicate-we can not consecrate-we can not hallow-this ground. The brave men, living and dead, who struggled here, have consecrated it, far above our poor power to add or detract. The world will little note, nor long remember what we say here, but it can never forget what they did here. It is for us the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced. It is rather for us to be here dedicated to the great task remaining before us-that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion-that we here highly resolve that these dead shall not have died in vain-that this nation, under God, shall have a new birth of freedom-and that government of the people, by the people, and for the people, shall not perish from the earth."

Lincoln's words were never forgotten. The government of the people, by the people, and for the people remains.

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Name: _____ Date: _____

1. Why has the Battle of Gettysburg been called "the most crucial battle in American history"?

A. It was a turning point in the Civil War.

B. It was the first time the North was invaded.

C. It was the bloodiest battle in American history.

D. It was won by the Confederate Army.

2. The passage sequences the events that led up to the Gettysburg Address. Which of the following events happened first?

A. The Union and Confederate Armies met near Gettysburg, Pennsylvania.

B. The Confederate Army invaded the North and headed into Pennsylvania.

C. President Lincoln delivered the Gettysburg Address.

D. The Confederate Army won a battle in northern Virginia.

3. The Gettysburg Address shows Lincoln's determination to have a unified country once more. What sentence from the speech best supports this conclusion?

A. "It is for us the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced."

B. "It is rather for us to be here dedicated to the great task remaining before us...and that government of the people, by the people, and for the people, shall not perish from the earth."

C. "Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated, can long endure."

D. "We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that that nation might live."

4. Based on Lincoln's speech, how can the men who fought in the Battle of Gettysburg best be honored?

A. by giving a powerful speech that reminds people of their values

B. by creating a whole new government that includes the North and the South

C. by consecrating the battlefield on which the soldiers fought

D. by working to unite the American nation once more

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5. What is the passage, "Gettysburg and the Gettysburg Address" mostly about?

A. the casualties suffered by the Union and Confederate Armies

B. an important Civil War battle and Lincoln's address

C. how the Battle of Gettysburg impacted the tide of the Civil War

D. how Lincoln was involved in the Battle of Gettysburg

6. What is the purpose of the paragraphs provided before the text of the Gettysburg Address?

A. to explain how the South defeated the North

B. to examine the dedication of the battlefield

C. to criticize Lincoln's speech

D. to provide historical context for the Address

7. Choose the answer that best completes the sentence below.

In the summer of 1863, the Confederate Army of the South invaded the North _____ it hoped to collect more supplies and weaken the North.

A. sometimes

B. however

C. because

D. although

8. How did the Battle of Gettysburg impact the outcome of the Civil War?

9. What is the "great task" described in the Gettysburg Address?

10. What does Lincoln's description of the "great task" show about his attitude toward the war? Use information from the passage to support your answer.

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Name _____

Day #23

Share and Show

MATH BOARD

For items 1–3, graph the data on the coordinate grid.

1. Write the ordered pairs for each point.

(1, 30) (,) (3,) (, 41) (,)

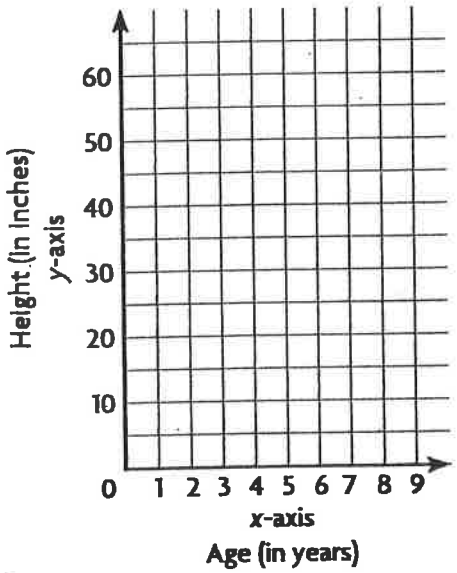
Ryan's Height					
Age (in years)	1	2	3	4	5
Height (in inches)	30	35	38	41	44

2. What does the ordered pair (3, 38) tell you about Ryan's age and height?

3. Why would the point (6, 42) be nonsense?

* Hint: Think about height in relation to age.

Ryan's Height



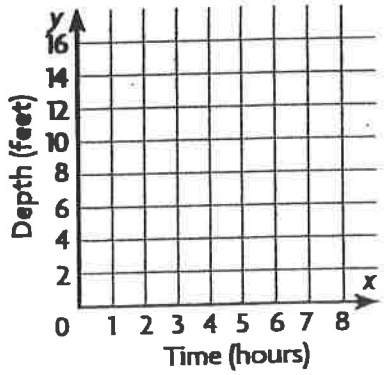
Problem Solving • Applications

4. THINK SMARTER The table shows the depth of the Dakota River at different times during a rainstorm.

Dakota River					
Time (hours)	1	2	3	4	5
Depth (feet)	7	8	10	12	15

Graph the ordered pairs from the tiles on the coordinate grid.

River Depth



(1, 7)

(2, 8)

(3, 10)

(4, 12)

(5, 15)

Name _____

Graph Data

COMMON CORE STANDARD—5.G.A.2
Graph points on the coordinate plane to solve real-world and mathematical problems.

Graph the data on the coordinate grid.

1.

Hour	1	3	5	7	9
Temperature (°F)	61	65	71	75	77

a. Write the ordered pairs for each point.

_____

_____

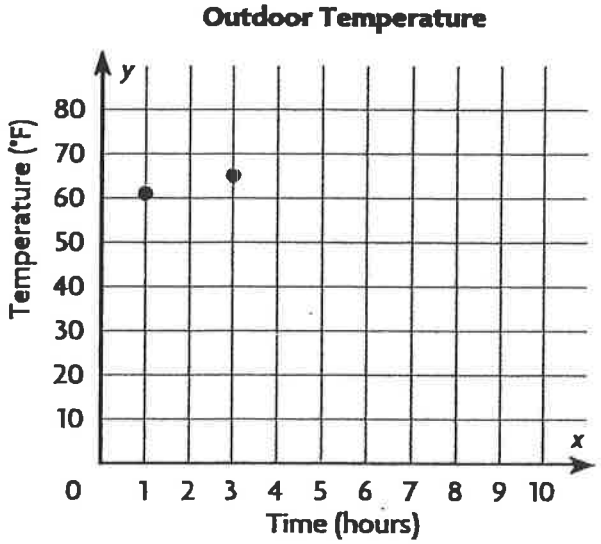
b. How would the ordered pairs be different if the outdoor temperature were recorded every hour for 4 consecutive hours?

_____

_____

_____

_____



Problem Solving Real World

2.

Day	1	2	3	4	5
Total Number Repaired	14	30	45	63	79

a. Write the ordered pairs for each point.

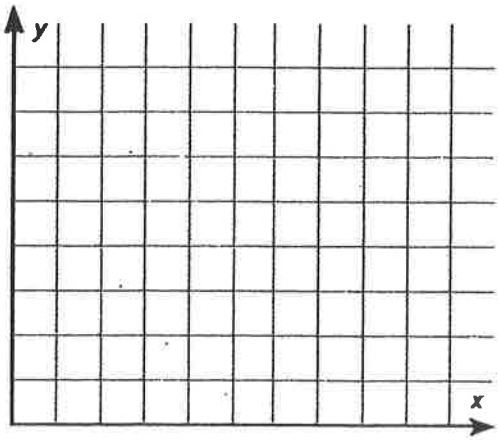
_____

_____

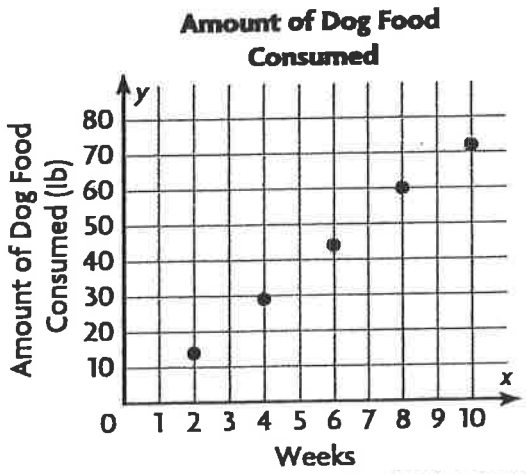
b. What does the ordered pair (2, 30) tell you about the number of windows repaired?

_____

_____



Lesson Check (5.G.A.2)



1. About how many weeks did it take for the dog to consume 45 pounds of food?

2. By the end of Week 8, how much food had the dog consumed?

Spiral Review (5.OA.A.2, 5.NBT.B.6, 5.NF.A.2)

3. A restaurant chain ordered 3,940 pounds of rice in 20-pound bags. About how many 20-pound bags of rice did the chain order?

4. The population of Linton is 12 times as great as the population of Ellmore. The combined population of both towns is 9,646 people. What is the population of Linton?

5. Timothy needs $\frac{1}{2}$ cup of bread crumbs for a casserole and $\frac{1}{3}$ cup of bread crumbs for the topping. How many cups of bread crumbs does Timothy need?

6. Jessie bought 3 T-shirts for $6 each and 4 T-shirts for $5 each. What expression can you use to describe what Jessie bought?

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FOR MORE PRACTICE GO TO THE Personal Math Trainer

MINUTE 70

NAME _____

1. Write $\frac{1}{2}$ as a percent. _____%

2. $\begin{array}{r} \$6.52 \\ -\ \$4.76 \\ \hline \end{array}$

3. Circle the fraction equivalent to $\frac{1}{2}$: $\frac{2}{3}$ $\frac{3}{6}$ $\frac{4}{6}$

*Remember: Multiply straight across numerator and denominator

*4. $\frac{2}{3} \times \frac{1}{6} =$

5. $7\frac{1}{3} - 4 =$

6. $\begin{array}{r} 5.18 \\ \times\ \ 7 \\ \hline \end{array}$

7. $\begin{array}{r} 10.08 \\ +\ 0.516 \\ \hline \end{array}$

8. Draw what comes next in the pattern.

_____

9. 3 years = _____ months

10. Circle the least common multiple of 3 and 6:

6 9 12 18

Eight-Minute Math Minutes © 2002 Creatively Teaching Press

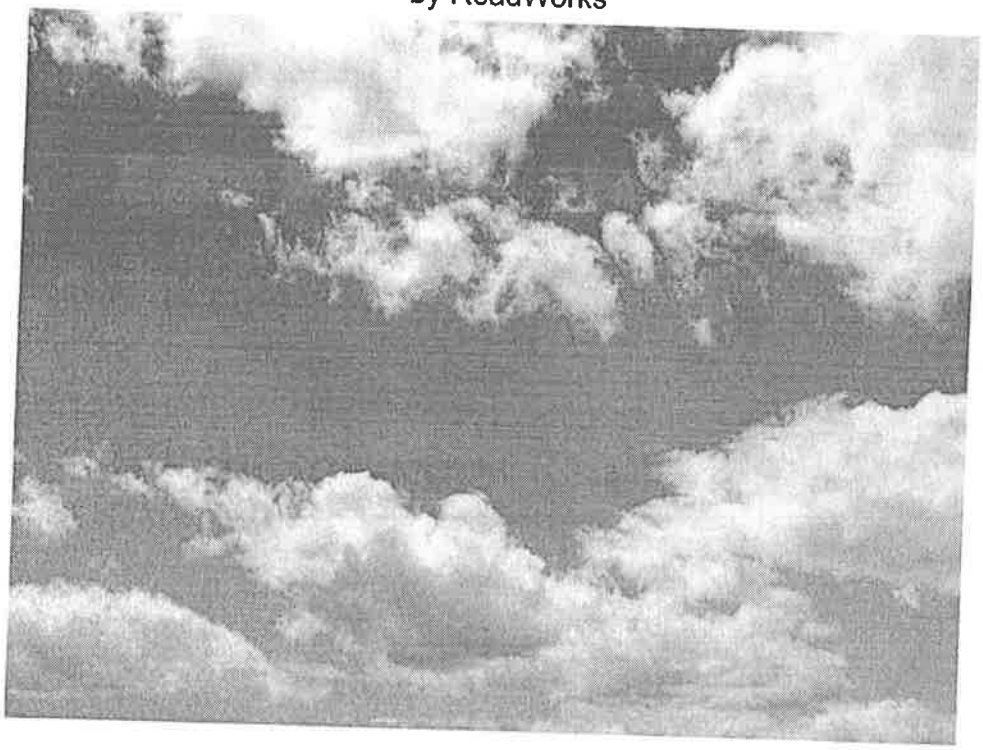
Lewis County Schools

5th Grade

NTI Day 24

Earth Science - The Weather

by ReadWorks



Weather is made up of several different components. In order to understand weather, you must understand air temperature, clouds, wind, and precipitation (rain and snow). Weather is never exactly the same everywhere. It is always changing, and depending on what climate you live in, weather can change drastically from mile to mile.

In America we use the Fahrenheit scale to measure air temperature. When the temperature rises on the Fahrenheit scale, it shows us that the temperature is hotter. When the temperature goes down, it means that it is getting cooler.

Low-pressure systems are associated with clouds and precipitation, while high-pressure systems are normally associated with dry weather and mostly clear skies. Clouds are made up of millions of tiny ice crystals. Clouds high up in the sky are very cold, and look very fluffy. Lower clouds in warmer air look sharper. From clouds, we get rain and snow. Humidity is the measure of water vapor in the air. On a beautiful day, there is low humidity. On a foggy day there is high humidity. On a rainy day there is 100% humidity.

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Name: _____ Date: _____

1. In America, what scale do we use to measure air temperature?

A. Fahrenheit

B. Celsius

C. Watts

D. liters

2. How is the passage organized?

A. There are descriptions how each weather component works, then he or she introduces all of the weather components

B. Some of the weather components are first listed and then only a few of these components are explained

C. All the weather components are listed and then shown how each one works all at the same time

D. Only the weather and how it impacts the land is described

3. On a very foggy day, humidity would probably reach around

A. 20%

B. 30%

C. 10%

D. 80%

4. Read the following sentence: "Low-pressure systems are associated with clouds and precipitation, while high-pressure systems are normally associated with dry weather and mostly clear skies."

The word **associated** most nearly means

A. linked with

B. free from

C. broken with

D. unlinked

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5. This passage is mainly about

A. why places are sunny all the time

B. weather and its different components

C. why places can change weather quickly

D. how Fahrenheit and Celsius work

6. Use details from the text to describe clouds.

7. If there was a high pressure system in your area and a bunch of clouds were blown in from a different direction, how would the pressure system in your area change?

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Humidity is the measure of water vapor in the air, _____ on a rainy day there is 100% humidity.

A. for

B. so

C. yet

D. but

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Name _____

Line Graphs

Essential Question How can you use a line graph to display and analyze real-world data?

Common Core Geometry— 5.G.A.2

MATHEMATICAL PRACTICES
MP4, MP6

Day #24

Unlock the Problem (Real World)

A **line graph** is a graph that uses line segments to show how data changes over time. The series of numbers placed at fixed distances that label the graph are the graph's **scale**. The **interval**, or difference between one number and the next on the scale, should be equal.

Graph the data. Use the graph to determine the times between which the greatest temperature change occurred.

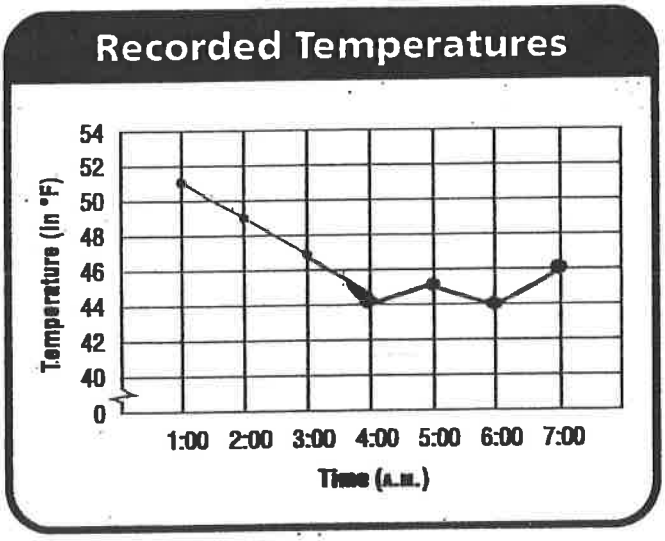
Recorded Temperatures							
Time (A.M.)	1:00	2:00	3:00	4:00	5:00	6:00	7:00
Temperature (in °F)	51	49	47	44	45	44	46

- Write related number pairs of data as ordered pairs.

(1:00, 51) (___, 45)
(2:00, 49) (6:00, 44)
(3:00, 47) (7:00, ___)
(4:00, ___)

STEP 1 For the vertical axis, choose a scale and an interval that are appropriate for the data. You can show a break in the scale between 0 and 40, since there are no temperatures between 0°F and 44°F.

STEP 2 For the horizontal axis, write the times of day. Write a title for the graph and name each axis. Then graph the ordered pairs. Complete the graph by connecting the points with line segments.



Look at each line segment in the graph. Find the line segment that shows the greatest change in temperature between two consecutive points.

The greatest temperature change occurred between 3:00 and 4:00.

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Try This! Jill used a rain gauge to collect data on the total rainfall during 6 days at her home in Miami. She read the amount of rain collected in the rain gauge each day and did not pour it out. Her data is shown in the table. Make a line graph to display Jill's data.

You need to Complete

STEP 1 Write related pairs of data as ordered pairs.

(Mon, 2) (Tues ___) (___, 3)

(Thurs, 6) (___, 8) (Sat, 9)

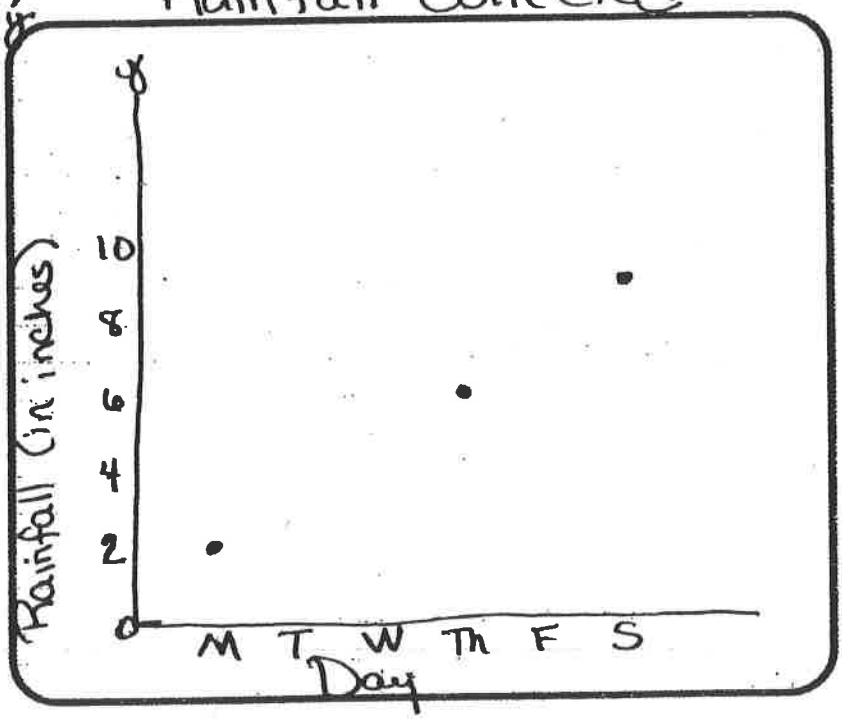
STEP 2 Choose a scale and an interval for the data.

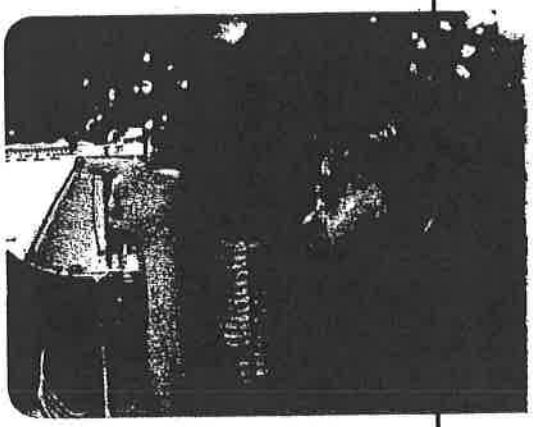
STEP 3 Label the horizontal and vertical axes. Write a title for the graph. Graph the ordered pairs. Connect the points with line segments.

Rainfall Collected	
Day	**Rainfall (in inches)**
Mon	2
Tue	2
Wed	3
Thu	6
Fri	8
Sat	9

title →

Rainfall Collected





Math Talk MATHEMATICAL PRACTICES 4

Model Mathematics How could you use the graph to identify the two readings between which it did not rain?

*Finish the Line Graph above

Use the graph to answer the questions.

1. On which day was the total rainfall recorded the greatest?

2. On which day did Jill record the greatest increase in rainfall collected from the previous day?

From Thurs to Fri was the greatest increase.
Rainfall increased by 2 inches.

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Name _____

Share and Show

MATH BOARD

Use the table at the right for 1–3.

Month	Jan	Feb	Mar	Apr	May
Temperature (in °F)	40	44	54	62	70

1. What scale and interval would be appropriate to make a graph of the data?

Counted by 10

2. Write the related pairs as ordered pairs.

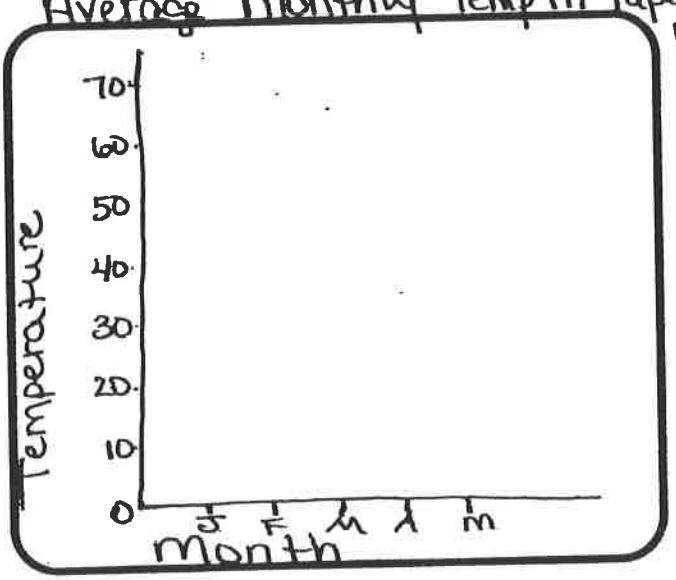
(Jan, 40) (Feb, ___) (March, ___)
(___, 62) (___, ___)

3. Make a line graph of the data. Plot the points.

4. Use the graph to determine between which two months the least change in average temperature occurs.

_____

Average Monthly Temp in Tupelo, Mis



On Your Own

Use the table at the right for 5–7.

Plant Height				
Month	1	2	3	4
Height (in inches)	20	25	29	32

5. Write the related number pairs for the plant height as ordered pairs.

_____

6. What scale and interval would be appropriate to make a graph of the data?

_____

7. Make a line graph of the data.

8. DEEPER Use the graph to find between which two months the plant grew the most? the least?

_____

_____

9. THINKSMARTER Use the graph to estimate the height at $1\frac{1}{2}$ months.

_____

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Name _____

Line Graphs

Common Core

COMMON CORE STANDARD—5.G.A.2
Graph points on the coordinate plane to solve real-world and mathematical problems.

Use the table for 1–5.

Time	10 A.M.	11 A.M.	12 noon	1 P.M.	2 P.M.	3 P.M.	4 P.M.
Temperature (°F)	8	11	16	27	31	38	41

1. Write the related number pairs for the hourly temperature as ordered pairs.

   (10, 8); _____

2. What scale would be appropriate to graph the data?

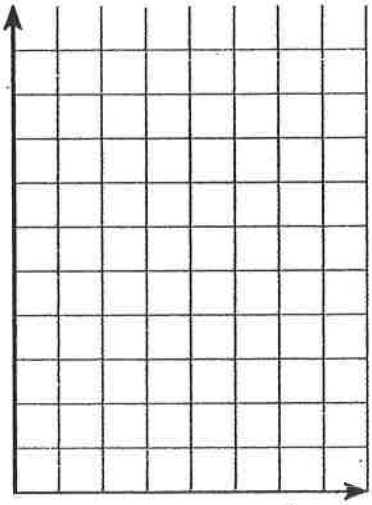
   _____

3. What interval would be appropriate to graph the data?

   _____

4. Make a line graph of the data.

   _____



5. Use the graph to find the difference in temperature between 11 A.M. and 1 P.M.

   _____

Problem Solving Real World

6. Between which two hours did the least change in temperature occur?

   _____

7. What was the change in temperature between 12 noon and 4 P.M.?

   _____

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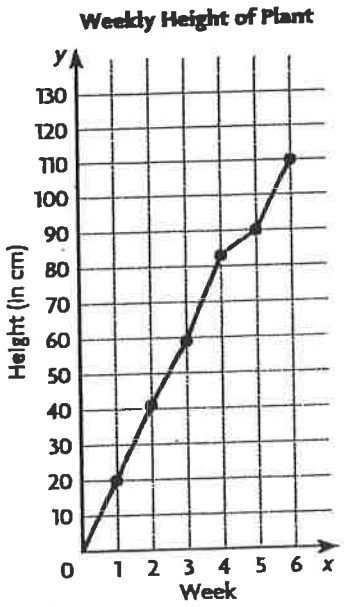
Lesson Check (5.G.A.2)



1. About how many centimeters did the plant grow in the first three weeks?

2. Between which two weeks did the plant grow the least?

Spiral Review (5.OA.A.2, 5.NBT.B.6, 5.NF.B.6, 5.NF.B.7c)

3. Write an expression using the Distributive Property to find the product of 7×63.

4. Lexi needs to buy 105 vases for a party. Each package has 6 vases. How many packages should Lexi buy?

5. A student athlete runs $3\frac{1}{3}$ miles in 30 minutes. A professional runner can run $1\frac{1}{4}$ times as far in 30 minutes. How far can the professional runner run in 30 minutes?

6. A recipe for salad dressing calls for $\frac{1}{4}$ cup of vinegar. You have 4 cups of vinegar. How many batches of salad dressing could you make with the vinegar?

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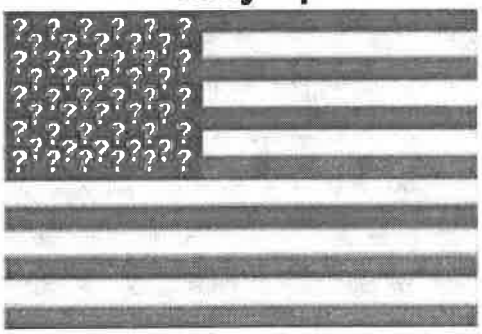
Lewis County Schools

5th Grade

NTI Day 25

Who Are Citizens of the United States?

United States citizens need to study up on their country.



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Are you a master at math? A rock star at reading? What about civics? If you are like millions of Americans, your government know-how might be more of a "know-little."

Civics is the study of the rights and duties of citizens. A good citizen needs to know at least basic information about the nation, such as how the government is run. He or she also needs to know about the country's history and the problems and challenges facing the nation today.

However, studies have found that a lot of Americans don't know enough about the United States. In one study, only one in three Americans could name the three branches of U.S. government. In another, less than 4 percent of teens in Arizona could pass a U.S. citizenship test. That is a test people from other countries need to pass to become U.S. citizens.

Those findings could make Uncle Sam want to move to Canada! After all, if U.S. citizens don't know about their country, they can't help run it, said former U.S. Supreme Court Justice Sandra Day O'Connor. "We are [very lucky] to have a stable ... government," she told *WR News*. "But ... it is the citizens of our nation who must preserve our system of government, and we cannot forget that."

Citizens Rule!

When the country's founders wrote the U.S. Constitution in 1787, they gave the power to the people! They thought U.S. citizens should have a say in how the nation is run.

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One of the most important responsibilities Americans have is voting. U.S. citizens elect many of the people who run the country, from city officials to the U.S. president. Those elected officials make and enforce, or put into effect, laws that affect the whole country.

That's why it's so important that U.S. citizens get clued in on U.S. civics, according to Syd Golston. She was the president of the National Council for the Social Studies. "People who vote need to be informed [or educated] because they're really making the decisions," Golston told *WR News*.

Civics in Motion

Corbis

Uncle Sam wants you to learn more about civics!

Some U.S. education experts say schools spend less time teaching civics now than they did in the past. "It used to be a subject that was taught ... so many minutes a day," says Margaret Branson. She is the associate director of the Center for Civic Education. "The teaching of civics and government has just dropped off dramatically."

O'Connor has tried to change that. She has spoken out in TV interviews, stressing the value of learning about the United States. She also works with Our Courts, a website that teaches people about U.S. civics.

Other star citizens have spoken out on Uncle Sam's behalf. Actor Richard Dreyfuss crafted a national plan for civics education. Former Supreme Court Justice David H. Souter stepped up U.S. civics talk in schools in his home state of New Hampshire.

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Name: _____ Date: _____

1. According to the passage, what is civics?

A. Civics is reading newspapers and watching the news.

B. Civics is studying to pass a citizenship test.

C. Civics is the study of rights and duties of citizens.

D. Civics is the voting process Americans must follow.

2. This passage discusses the problem that most Americans do not have a lot of civics knowledge. What is one solution people have proposed to solve this problem?

A. ignore civics in schools

B. make everyone read newspapers

C. increase civics education in schools

D. make everyone take a citizenship test

3. Based on the passage, it is likely that Sandra Day O'Connor

A. thinks that the U.S. should change how people are elected

B. thinks that kids should watch more TV and spend more time on the internet

C. thinks civics is an important part of education for students

D. thinks students do not need to know about civics

4. Read the following sentences: "'It used to be a subject that was taught ... so many minutes a day.' [. . .] 'The teaching of civics and government has just dropped off **dramatically**.'"

As used in the passage, what does "**dramatically**" mostly mean?

A. a lot

B. the same

C. a little

D. colorfully

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5. What is this passage mostly about?

A. what Sandra Day O'Connor thinks about United States civics

B. some solutions to the lack of civics knowledge in the United States

C. some solutions to the election process in the United States

D. how much time is spent on civics in United States classrooms

6. What are some ways the passage recommends for learning more about civics?

7. Based on the passage, what power does the Constitution give to United States citizens?

8. Choose the word that best completes the sentence.

United States citizens must have a civics education _____ they need to be informed in order to make important decisions when voting.

A. but

B. because

C. though

D. after

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Name _____

Numerical Patterns

Essential Question How can you identify a relationship between two numerical patterns?

Common Core — Operations and Algebraic Thinking—5.OA.B.3

MATHEMATICAL PRACTICES MP6, MP7, MP8

Day #25

Unlock the Problem (Real World)

On the first week of school, Joel purchases 2 movies and 6 songs from his favorite media website. If he purchases the same number of movies and songs each week, how does the number of songs purchased compare to the number of movies purchased from one week to the next?

- How many movies does Joel purchase each week?

  2 movies

- How many songs does Joel purchase each week?

  6 songs

STEP 1 Use the two rules given in the problem to generate the first 4 terms in the sequence for the number of movies and the sequence for number of songs.

- The sequence for the number of movies each week is:

+2 +2 +2

2, 4, 6, 8, ...

- The sequence for the number of songs each week is:

+6 +6 +6

6, 12, 18, 24, ...

STEP 2 Write number pairs that relate the number of movies to the number of songs.

Week 1: 2, 6 Week 2: 4, 12

Week 3: 6, 18 Week 4: 8, 24

STEP 3 For each number pair, compare the number of movies to the number of songs. Write a rule to describe this relationship.

Think: For each related number pair, the second number is 3 times as great as the first number.

Rule: movies x 3 = songs

So, from one week to the next, the number of songs Joel purchased is 3 times as many as the number of movies purchased.

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Example

When Alice completes each level in her favorite video game, she wins 3 extra lives and 6 gold coins. What rule can you write to relate the number of gold coins to the number of extra lives she has won at any level? How many extra lives will Alice have won after she completes 8 levels?

Add 3.

Add 6.

Level	0	1	2	3	4	...	8
Extra Lives	0	3	6	9	12	...	24
Gold Coins	0	6	12	18	24	...	48

Multiply by 2 or divide by 2.

STEP 1 To the left of the table, complete the rule for how you could find the number of extra lives won from one level to the next.

3 3 3 3 ← difference between consecutive terms

0, 3, 6, 9, 12

From one level to the next, Alice wins 3 more extra lives.

STEP 2 To the left of the table, complete the rule for how you could find the number of gold coins won from one level to the next.

6 6 6 6 ← difference between consecutive terms

0, 6, 12, 18, 24

From one level to the next, Alice wins 6 more gold coins.

STEP 3 Write number pairs that relate the number of gold coins to the number of extra lives won at each level.

Level 1: 6, 3 Level 2: 12, 6

Level 3: 18, 9 Level 4: 24, 12

STEP 4 Complete the rule to the right of the table that describes how the number pairs are related. Use your rule to find the number of extra lives at level 8.

Think: For each level, the number of extra lives is as great as the number of gold coins.

Rule: extra lives x 2 = gold coins
Or gold coins ÷ 2 = extra lives

So, after 8 levels, Alice will have won 24 extra lives.

Math Talk MATHEMATICAL PRACTICES 7

Identify Relationships How would your rule change if you were relating extra lives to gold coins instead of gold coins to extra lives?

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Name _____

Share and Show

MATH BOARD

Use the given rules to complete each sequence. Then, complete the rule that describes how nickels are related to dimes.

1.

Add 5.

Add 10.

Number of coins	1	2	3	4	5
Nickels (¢)	5	10	15	20	25
Dimes (¢)	10	20	30	40	50

Multiply by 2.

Complete the rule that describes how one sequence is related to the other. Use the rule to find the unknown term. Complete

✓ 2. Multiply the number of books by 4 to find the amount spent.

Day	1	2	3	4	...	8
Number of Books	3	6	9	12	...	24
Amount Spent ($)	12	24	36	48	...	

✓ 3. Divide the weight of the bag by 3 to find the number of marbles.

Bags	1	2	3	4	...	12
Number of Marbles	10	20	30	40	...	
Weight of Bag (grams)	30	60	90	120	...	360

On Your Own

Complete the rule that describes how one sequence is related to the other. Use the rule to find the unknown term.

4. Multiply the number of eggs by _____ to find the number of muffins.

Batches	1	2	3	4	...	9
Number of Eggs	2	4	6	8	...	18
Muffins	12	24	36	48	...	

5. Divide the number of meters by _____ to find the number of laps.

Runners	1	2	3	4
Number of Laps	4	8	12	
Number of Meters	1,600	3,200	4,800	6,400

6. MATHEMATICAL PRACTICE 6 **Make Connections** Suppose the number of eggs used in Exercise 4 is changed to 3 eggs for each batch of 12 muffins, and 48 eggs are used. How many batches and how many muffins will be made?

_____

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Name _____

Numerical Patterns

COMMON CORE STANDARD—5.OA.B.3
Analyze patterns and relationships.

Complete the rule that describes how one sequence is related to the other. Use the rule to find the unknown term.

1. Multiply the number of laps by 50 to find the number of yards.

   Think: The number of yards is 50 times the number of laps.

Swimmers	1	2	3	4
Number of Laps	4	8	12	16
Number of Yards	200	400	600	800

2. Multiply the number of pounds by _____ to find total cost.

Beans	1	2	3	4	6
Number of Scoops	3	6	9	12	18
Total Cost ($)	12	24	36	48	

3. Multiply the number of hours by _____ to find the number of miles.

Cara	1	2	3	4
Number of Hours	2	4	6	8
Number of Miles	130	260	390	

4. Multiply the number of hours by _____ to find the amount earned.

Myra	1	2	3	4	7
Number of Hours	8	16	24	32	56
Amount Earned ($)	96	192	288	384	

Problem Solving (Real World)

5. A map's key shows that every of 5 inches on the map represents 200 miles of actual distance. Suppose the distance between two cities on the map is 7 inches. What is the actual distance between the two cities? Write the rule you used to find the actual distance.

_____

_____

_____

_____

6. To make each costume, Rachel uses 6 yards of material and 3 yards of trim. Suppose she uses a total of 48 yards of material to make several costumes. How many yards of trim does she use? Write the rule you used to find the number of yards of trim.

_____

_____

_____

_____

7. Write ▸ *Math* Give an example using the subject of time to describe how two number patterns are related. _____

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Lesson Check (5.OA.B.3)

Use the table below to answer questions 1 and 2.

Term Number	1	2	3	4	...	6
Sequence 1	4	8	12	16	...	24
Sequence 2	12	24	36	48	...	?

1. What rule could you write that relates Sequence 2 to Sequence 1?

2. What is the unknown number in Sequence 2?

Spiral Review (5.OA.A.1, 5.NBT.A.1, 5.NF.A.2, 5.NF.B.3)

3. What is the value of the following expression?

$$40 - (3 + 2) \times 6$$

4. What is the value of the digit 9 in the number 597,184?

5. What is the best estimate for the sum of $\frac{3}{8}$ and $\frac{1}{12}$?

6. Terry uses 3 cups of pumpkin seeds to decorate the tops of 12 loaves of bread. She puts an equal amount of seeds on each loaf. How many cups of pumpkin seeds does she put on each loaf of bread?

FOR MORE PRACTICE GO TO THE Personal Math Trainer

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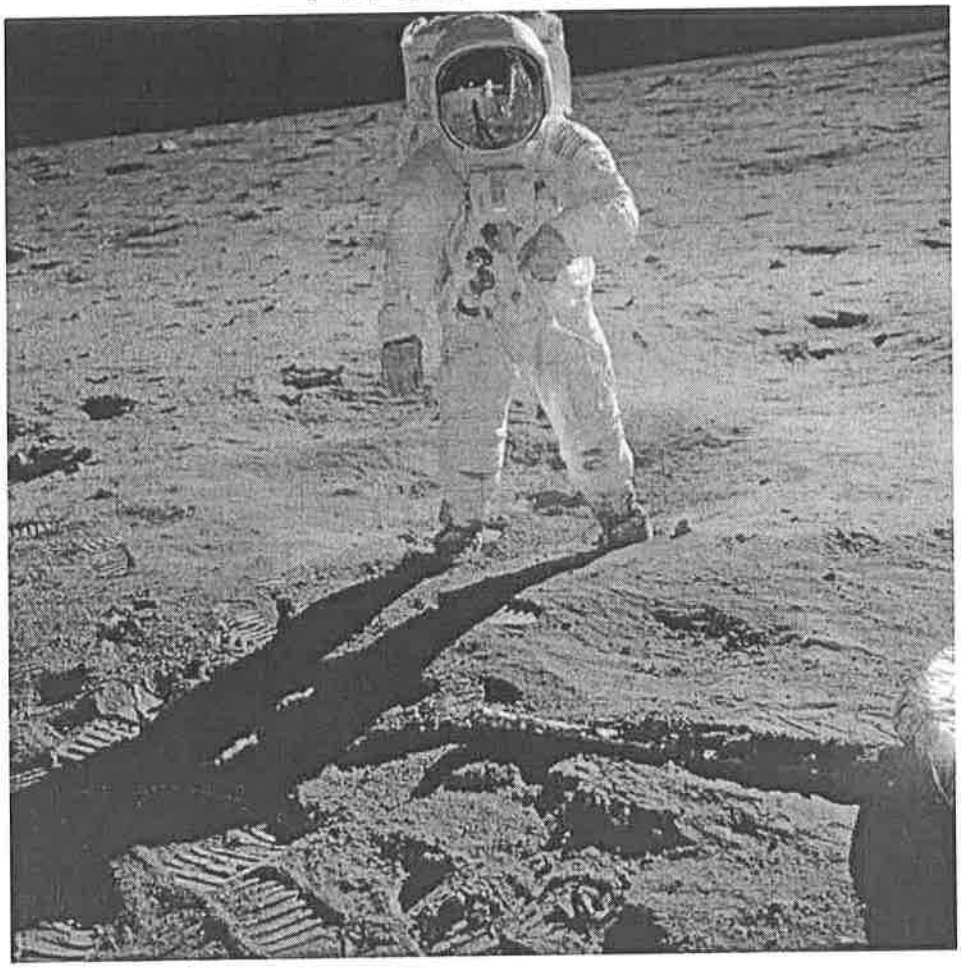
Lewis County Schools

5th Grade

NTI Day 26

All the 'Buzz'



Buzz Aldrin on the moon

In 1969, Neil Armstrong and Edwin "Buzz" Aldrin made history as the first people on the moon. *Weekly Reader (WR)* spoke to Buzz Aldrin about NASA's planned return to the moon, a future on Mars, and his children's book, *Reaching for the Moon*, which was featured at the National Book Festival in Washington, D.C.

***WR:* What does it feel like to walk on the moon?**

Aldrin: You knew that you were there, but it was unreal at the same time. It's so different and unusual that it's almost dreamlike.

***WR:* What was the most memorable part of walking on the moon?**

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Aldrin: There are two moments that are not recorded on film. They're recorded in my mind. One was just the second or two after we shut the engine down and we realized that the spacecraft was on the moon. That really was the major achievement. When I was outside seeing the Earth, my other thought was that there were only three human beings who were not on Earth. [The third was Michael Collins, who was orbiting the moon in a craft that would take the astronauts back to Earth.]

***WR:* Your children's book is about following your dreams. Did you dream of being an astronaut?**

Aldrin: Well, there wasn't any such thing as an astronaut until about 1958 or 1959. *Sputnik* [the Soviet space satellite] didn't go up until 1957, so thinking of human beings in space was not at all common.

***WR:* Will returning to the moon have the same impact as it did when you and Mr. Armstrong first set foot on the moon?**

Aldrin: No, I don't think there is any way you can replace that competitiveness [to reach the moon first] that existed, that pioneering spirit. The moon is a proving ground in our backyard. We've been there before, but it's preparing us to visit another planet.

***WR:* You've been a supporter of a piloted mission to Mars. Why do you think it's so important that we send humans to Mars?**

Aldrin: Now we can send robots to Mars, but that just wouldn't satisfy the human desire to want to expand our horizons. We've always done that. I can't answer by saying that there is going to be something profitable that will be returned from Mars, other than perhaps storytelling or making movies en route.

***WR:* Your sister gave you the name "Buzzer" when you were young-and then it got shortened to Buzz. And that stuck?**

Aldrin: It certainly did. It made it very recognizable and unique.

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Name: _____ Date: _____

1. According to the passage, when did the Neil Armstrong and Buzz Aldrin make history as the first people on the moon?

A. 1969

B. 1956

C. 1957

D. 1999

2. How does Buzz Aldrin describe the experience of walking on the moon?

A. It felt just like walking on Earth.

B. It felt unreal and dreamlike.

C. It was fun to float in the air.

D. The ground was filled with craters.

3. Based on the passage, what is a main reason why NASA might want to send humans into space?

A. because humans have a desire to make movies about space

B. because humans have a desire to expand their horizons

C. because humans have a desire to compete with robots

D. because thinking of human beings in space is not common today

4. Read this sentence from the passage:

"No, I don't think there is any way you can replace that competitiveness [to reach the moon first] that existed, that pioneering spirit."

As used in the sentence, the word **pioneering** most nearly means

A. traveling to the moon

B. traveling across the country in a covered wagon

C. feeling proud of something you've done

D. doing something that has never been done before

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5. This passage is mostly about

A. Buzz Aldrin's trip to the moon

B. traveling to Mars

C. what Buzz Aldrin's book is like

D. how to become an astronaut

6. What is one memorable moment that Buzz remembers from walking on the moon?

7. In paragraph 5, what do you think Buzz Aldrin means when he says, "There are two moments that are not recorded on film. They're recorded in my mind"?

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Buzz Aldrin is famous _____ he is one of the first men to walk on the moon.

A. because

B. but

C. after

D. so

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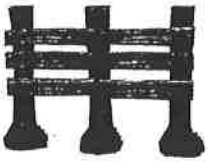
Name _____ Day #26

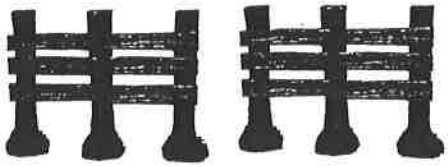
Share and Show MATH BOARD

1 Section

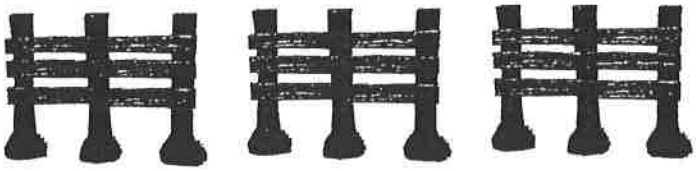


1. Max builds rail fences. For one style of fence, each section uses 3 vertical fence posts and 6 horizontal rails. How many rails does he need for a fence that has 27 posts?

2 Sections



3 Sections



First, think about what the problem is asking and what you know. As each section of fence is added, how does the number of posts and the number of rails change?

Next, make a table and look for a pattern. Use what you know about 1, 2, and 3 sections. Write a rule for the number of posts and rails needed for 9 sections of fence.

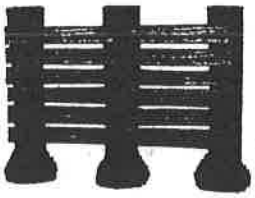
Number of Sections	1	2	3	...	9
Number of Posts	3	6	9	...	27
Number of Rails	6	12	18	...	

Complete

Possible rule for posts: half the # of rails

Possible rule for rails: 2 x the number of posts

Finally, use the rule to solve the problem.



2. THINK SMARTER What if another style of rail fencing has 6 rails between each pair of posts? How many rails are needed for 27 posts? Complete

[illegible]	1	2	3	...	9
Post [illegible]	3	6	9	...	27
Rails [illegible]	12	24	36	...	

Possible rule: post x ___ = rails

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On Your Own

3. MATHEMATICAL PRACTICE 7 **Look for a Pattern** Jane works as a limousine driver. She earns $50 for every 2-hour shift that she works. How much does Jane earn in one week if she works 40 hours per week? Write a rule and complete the table.

Shift	1	2	3	...	20
Hours Worked	2	4	6	...	40
Jane's Pay ($)	50	100	150	...	

Possible rule: _____

4. THINK SMARTER Rosa plays games at a fair. She can buy 8 game tokens for $1. Each game costs 2 tokens. How many games can she play with 120 tokens? Write a rule and complete the table.

Cost ($)	1	2	3	4	...	15
Tokens	8	16	24	32	...	120
Games	4	8	12	16	...	

Possible rule: _____

_____

5. DEEPER Janelle is making snacks for her classmates. There are two cups of raisins in one batch. For every 2 cups of raisins, Janelle adds 4 cups of oats. How many cups of oats will she need if she has 10 cups of raisins? Draw a table and write a possible rule.

Possible rule: _____

Personal Math Trainer

6. THINK SMARTER+ Look for a pattern.

Figure 1

2 squares

Figure 2

6 squares

Figure 3

10 squares

Figure 4

What is a rule? _____

How many squares will there be in Figure 5? _____ squares

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Name _____

Problem Solving • Find a Rule

Common Core **COMMON CORE STANDARD—5.OA.B.3**
Analyze patterns and relationships.

Write a rule and complete the table. Then answer the question.

1. Faye buys 15 T-shirts, which are on sale for $3 each. How much money does Faye spend?

T-shirts
$

[redacted]	1	2	3	5	10	15
[redacted]	3	6	9			

Possible rule:
Multiply the number of T-shirts by 3.

The total amount Faye spends is $45.

2. The Gilman family joins a fitness center. They pay $35 per month. By the 12th month, how much money will the Gilman family have spent?

Month
$

[redacted]	1	2	3	4	5	12
[redacted]	35	70				

Possible rule:

The Gilman family will have spent _____.

3. Hettie is stacking paper cups. Each stack of 15 cups is 6 inches high. What is the total height of 10 stacks of cups?

Cups
Height

[redacted]	1	2	3	10
[redacted]	6	12	18	

Possible rule:

The total height of 10 stacks is _____.

4. [redacted] *Math* You have a table that shows a pattern. Describe two ways that you could find the 15th entry in the table.

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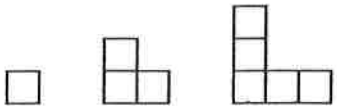
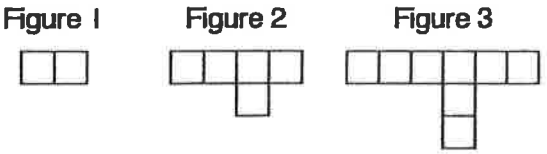
Lesson Check (5.OA.B.3)

1. How many squares are needed to make the eighth figure in the pattern?



2. What expression could describe the number of squares in the next figure in the pattern, Figure 4?



Spiral Review (5.NBT.A.2, 5.NBT.B.6, 5.NBT.B.7, 5.NF.A.2)

3. Talia stores her collection of stickers equally in 7 sticker albums. If she has 567 stickers, how many stickers are in each album?

4. Ms. Angelino made 2 pans of lasagna and cut each pan into twelfths. Her family ate $1\frac{1}{12}$ pans of lasagna for dinner. How many pans of lasagna were left?

5. What is the next number in this pattern?

0.54, 0.6, 0.66, 0.72, ■, . . .

6. How do you write 100 as a power of 10?

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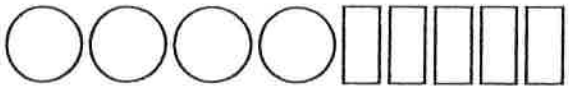
MINUTE 71

NAME _____

1. Circle the digit in the thousandths place: 16.6001

2. $3 + 3\frac{3}{8} =$

3. Write the ratio of circles to rectangles. _____ : _____



4. $\frac{3}{4} \times \frac{4}{6} =$

5. $15.1 \times 100 =$

6. $\begin{array}{r} 14.15 \\ -\ 10.018 \\ \hline \end{array}$

7. Write $2\frac{3}{4}$ as an improper fraction. _____

8. The greatest common factor of 20 and 25 is 5. Circle: True or False

9. $\frac{1}{4}$ of 20 is _____. Circle the answer: 2 4 5 10

10. Write $\frac{7}{2}$ as a mixed number. _____

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Chapter 10 Vocabulary Keep for future use Day # 27

capacity capacidad 3	**decimeter (dm)** decímetro (dm) 13
dekameter (dam) decámetro 14	**mass** masa 37
milligram (mg) miligramo (mg) 38	**milliliter (mL)** mililitro (mL) 39
ton (T) tonelada (T) 68	**weight** peso 71

A metric unit used to measure length or distance; 10 decimeters = 1 meter

about 1 decimeter

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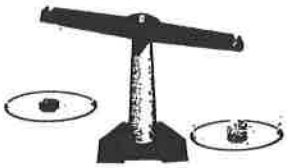
The amount a container can hold when filled

Customary Units of Capacity
1 cup (c) = 8 fluid ounces (fl oz)
1 pint (pt) = 2 cups
1 quart (qt) = 2 pints
1 gallon (gal) = 4 quarts

1 cup (c)

The amount of matter in an object

Example:



The item on the right has more mass than the item on the left.

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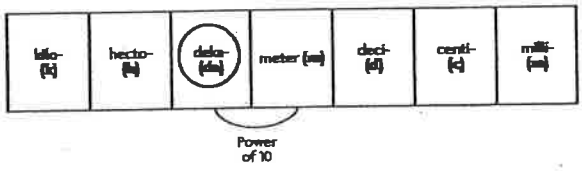
A metric unit used to measure length or distance; 10 meters = 1 dekameter



A metric unit used to measure capacity; 1,000 milliliters = 1 liter

1 milliliter

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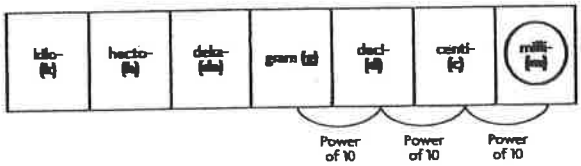
A metric unit used to measure mass; 1,000 milligrams = 1 gram



How heavy an object is

Example:

The item on the right weighs more than the item on the left.

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A customary unit used to measure weight; 2,000 pounds = 1 ton

about 1 ton

Keep for future Use

Standard length

12 inches = 1 foot
3 feet = 1 yard

Weight

16 ounces = 1 pound
2000 pounds = 1 ton

Fluid/Liquid

4 quarts = 1 gallon
8 ounces = 1 cup
2 pints = 1 quart
2 quarts = 1/2 gallon
2 cups = 1 pint

Time

1 hr = 60 mins
60 seconds = 1 minute
24 hrs = 1 day
365 days = 1 year
12 months = 1 year

List the months of the year in order

1. January
2. February
3. March
4. April
5. May
6. June
7. July
8. August
9. September
10. October
11. November
12. December

Keep for future use

Name Date

MATH CONVERSION CHART – LENGTHS

1 centimeter	=	10 millimeters	1 cm	=	10 mm
1 meter	=	100 centimeters	1 m	=	100 cm
1 kilometer	=	1000 meters	1 km	=	1000 m

1 foot	=	12 inches	1 ft	=	12 in
1 yard	=	3 feet	1 yd	=	3 ft
1 yard	=	36 inches	1 yd	=	36 in
1 mile	=	1760 yards	1 mi	=	1760 yd

1 millimeter	=	0.03937 inches	1 mm	=	0.03937 in
1 centimeter	=	0.39370 inches	1 cm	=	0.39370 in
1 meter	=	39.37008 inches	1 m	=	39.37008 in
1 meter	=	3.28084 feet	1 m	=	3.28084 ft
1 meter	=	1.09361 yards	1 m	=	1.09361 yd
1 kilometer	=	1093.6133 yards	1 km	=	1093.6133 yd
1 kilometer	=	0.62137 miles	1 km	=	0.62137 mi

1 inch	=	2.54 centimeters	1 in	=	2.54 cm
1 foot	=	30.48 centimeters	1 ft	=	30.48 cm
1 yard	=	91.44 centimeters	1 yd	=	91.44 cm
1 yard	=	0.9144 meters	1 yd	=	0.9144 m
1 mile	=	1609.344 meters	1 mi	=	1609.344 m
1 mile	=	1.609344 kilometers	1 mi	=	1.609344 km

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Keep for future use

Name Date

MATH CONVERSION CHART – LIQUID VOLUME (US)

Please note that these conversions work for US liquids only!

1 centiliter	=	10 milliliters	1 cl	=	10 ml
1 liter	=	1000 milliliters	1 l	=	1000 ml

1 tablespoon	=	3 teaspoons	1 Tbsp	=	3 tsp
1 fluid ounce	=	2 tablespoons	1 fl oz	=	2 Tbsp
1 fluid ounce	=	8 drams	1 fl oz	=	8 drams
1 gill	=	4 fluid ounces	1 gi	=	4 fl oz
1 cup	=	8 fluid ounces	1 cup	=	8 fl oz
1 pint	=	2 cups	1 pt	=	2 cups
1 pint	=	16 fluid ounces	1 pt	=	16 fl oz
1 quart	=	2 pints	1 qt	=	2 pt
1 gallon	=	4 quarts	1 gal	=	4 qt
1 gallon	=	128 fluid ounces	1 gal	=	128 fl oz
1 gallon = 4 quarts = 8 pints = 16 cups = 128 fluid ounces					

1 milliliter	=	0.033814 fluid ounces	1 ml	=	0.033814 fl oz
1 liter	=	33.814022 fluid ounces	1 l	=	33.814022 fl oz
1 liter	=	2.113376 pints	1 l	=	2.113376 pints

1 fluid ounce	=	29.57353 milliliters	1 fl oz	=	29.57353 ml
1 pint	=	473.17648 milliliters	1 pt	=	473.17648 ml
1 pint	=	0.47318 liters	1 pt	=	0.47318 l
1 gallon, liquid	=	3.7854 liters	1 gallon	=	3.7854 l

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Lewis County Schools

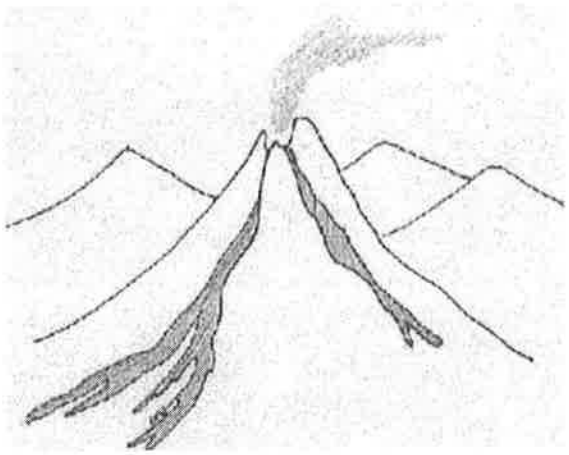
5th Grade

NTI Day 27

Earth Science - Volcanoes

by ReadWorks

In Hawaii, there is an active volcano named Kilauea (*kill-a-waya*). It is one of the most active volcanoes in the world.



Lynn M. Hanousek

Illustration by Lynn M. Hanousek

When plates in the Earth spread apart, molten lava comes up from the planet's inner layers. It then spits out of the mouth of the volcano. Lava is very hot. It is 10 times as hot as boiling water. If you stand too close to flowing lava, your eyelashes and eyebrows will instantly burn off.

Lava spews out of a volcano. Sometimes it shoots high up into the air. Lava rivers quickly form and travel down the sides of the volcano. They are a grave danger to those who live on or around the volcano. Lava sets trees and houses on fire. If the flow is fast, people can die if they don't get out of the way in time.

Kilauea is a special volcano because it is on what used to be a small island. As lava rivers run into the ocean, it cools, hardens, and becomes earth, expanding the size of the island. In fact, all Hawaiian Islands were formed from the eruption of volcanoes.

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Name: _____ Date: _____

1. What comes out of a volcano when it erupts?

A. melted rock

B. burnt plants

C. hot water

D. pure fire

2. Volcano eruptions are caused by

A. growing islands.

B. underground lava rivers.

C. plates in the Earth moving.

D. the Earth's core exploding.

3. Based on the passage, the reader can infer that

A. Living close to a volcano can be dangerous.

B. Volcanoes usually destroy islands when they erupt.

C. Touching molten lava would not hurt as much as boiling water.

D. Kilauea is the only volcano on the Hawaiian islands.

4. Read the following sentences: "They are a grave danger to those who live on or around the volcano. Lava sets trees and houses on fire."

The word **grave** means

A. small

B. strange

C. silent

D. serious

5. What is the main idea of this passage?

A. Hawaii is in constant danger from the destruction of flowing lava.

B. Volcanoes spew dangerous, molten lava and can create islands.

C. Volcanoes only exist on islands because that is where lava is located.

D. Kilauea is one of the most active volcanoes in the world.

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6. What dangers does lava cause?

7. Explain how volcanoes both create and destroy things.

8. The question below is an incomplete sentence. Choose the answer that best completes the sentence.

Lava hardens when it cools, so _____ the rock can form new land.

A. before

B. on the other hand

C. previously

D. as a result

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Day #27

Common Core State Standard: 5.MD.1

onvert Customary Units

Read to Understand

Getting the Idea

When you want to know how long or tall something is, you measure its **length.** Units of length in the customary system include **inches, feet, yards,** and **miles.**

When measuring the length of an object, more units are needed when smaller units are used. For example, a piece of paper that is 12 inches long also has a length of 1 foot. More inches than feet are used to measure the length of the paper. This is because a foot is a longer unit than an inch.

You can convert units if you know their equivalent measures. For example, since there are 24 hours in a day, 48 hours is equivalent to 2 days. The table shows the conversions for length in the customary system.

Customary Units of Length

1 foot (ft) = 12 inches (in.)
1 yard (yd) = 3 feet
1 mile (mi) = 5,280 feet

To convert a smaller unit to a larger unit, divide.

Example 1

Ms. Richards's car is 198 inches long. How many feet and inches is that?

Strategy **Divide to convert a smaller unit to a larger unit.**

Step 1 Write the relationship between feet and inches.

1 foot = 12 inches

Step 2 Divide the number of inches by 12 to find the number of feet.

198 ÷ 12 = 16 R6

Step 3 Interpret the remainder.

The remainder means there are 6 inches left over.

Solution **Ms. Richards's car is 16 feet 6 inches long.**

If the quotient of 198 ÷ 12 is written with the remainder as a fraction, the quotient is $16\frac{1}{2}$. So the length of the car can also be written as $16\frac{1}{2}$ feet, because 6 inches is $\frac{1}{2}$ foot.

When you want to know how heavy something is, you measure its **weight**. Units of weight in the customary system include **ounces, pounds,** and **tons.**

The table shows the conversions for weight in the customary system.

Customary Units of Weight

1 pound (lb) = 16 ounces (oz)
1 ton (T) = 2,000 pounds

To convert a larger unit to a smaller unit, multiply.

Example 2

Henry weighed 7 pounds 9 ounces when he was born. How many ounces is that?

Strategy **Multiply to convert a larger unit to a smaller unit. Then add.**

Step 1 Write the relationship between ounces and pounds.

1 pound = 16 ounces

Step 2 Multiply the number of pounds by 16.

$7 \times 16 = 112$ ounces.

Step 3 Add the extra ounces to the product.

$112 + 9 = 121$ ounces.

Solution **Henry weighed 121 ounces.**

Capacity measures the amount of dry or liquid volume a container can hold. Units of capacity in the customary system include **fluid ounces, cups, pints, quarts,** and **gallons.**

The table shows the conversions for capacity in the customary system. Fluid ounces are not the same as ounces, although they are often called ounces.

Customary Units of Capacity

1 cup (c) = 8 fluid ounces (fl oz)
1 pint (pt) = 2 cups
1 quart (qt) = 2 pints
1 gallon (gal) = 4 quarts

Example 3

Regina made 10 quarts of fruit punch. How many gallons of fruit punch did she make?

Strategy **Divide to convert a smaller unit to a larger unit.**

Step 1 Write the relationship between gallons and quarts.

1 gallon = 4 quarts

Step 2 Divide the number of quarts by 4.

$10 \div 4 = 2$ R2

The remainder represents $\frac{2}{4}$ of a gallon.

Step 3 Write the remainder in simplest form.

$\frac{2}{4} = \frac{1}{2}$

Solution **Regina made $2\frac{1}{2}$ gallons of fruit punch.**

Example 4

At lunch, a group of students drank 5 quarts of milk in all. Each student in the group drank 1 cup of milk. How many students were in the group?

Strategy **Multiply to convert a larger unit to a smaller unit.**

Step 1 Write the relationship between quarts and pints.

1 quart = 2 pints

Multiply the number of quarts by 2.

$5 \times 2 = 10$ pints

5 quarts = 10 pints

Step 2 Write the relationship between pints and cups.

1 pint = 2 cups

Multiply the number of pints by 2.

$10 \times 2 = 20$ cups

10 pints = 20 cups

Solution **There were 20 students in the group.**

Coached Example

Luanne needs to fill a pot with 1 gallon of water. She only has a 1-pint measuring cup. How many times must Luanne fill the 1-pint measuring cup to have 1 gallon of water?

Use the relationships between the different units to find how many times Luanne must fill the 1-pint measuring cup.

How many pints are in 1 quart? 2 pints

How many quarts are in 1 gallon? 4 quarts

Multiply to find how many pints are equal to 1 gallon.

2 × 4 = 8 pints in 1 gallon

Luanne must fill the 1-pint measuring cup 8 **times to have 1 gallon of water.**

Lesson Practice

You can use a calculator.

Choose the correct answer.

1. Each Thanksgiving in Barry's hometown, there is a 5-mile road race. How many feet are there in 5 miles?

   A. 4,400 feet

   B. 8,800 feet

   C. 17,600 feet

   D. 26,400 feet

2. Which does **not** show the same capacity as the others?

   A. 96 fluid ounces

   B. 18 cups

   C. 6 pints

   D. 3 quarts

3. Leroy's favorite basketball player is 6 feet 8 inches tall. How tall is Leroy's favorite basketball player in inches?

   A. 68 inches

   B. 76 inches

   C. 80 inches

   D. 84 inches

4. Mike's cat weighs 12 pounds 9 ounces. How many ounces is that?

   A. 129 ounces

   B. 153 ounces

   C. 183 ounces

   D. 201 ounces

5. Which of these lengths is the greatest?

   A. 3 yards

   B. 6 feet 10 inches

   C. 8 feet

   D. 100 inches

6. An elevator has a weight limit of 1 ton. There are 3 people inside the elevator. Each person weighs 150 pounds. How many more pounds can the elevator safely hold?

   A. 450 pounds

   B. 850 pounds

   C. 1,550 pounds

   D. 1,850 pounds

7. Mrs. Rios wants to make curtains for her windows. She needs 25 feet of material. Which is another way of stating how much material she needs?

A. 2 yards 1 foot

B. 8 yards 1 foot

C. 75 yards

D. 300 yards

8. The distance from Josie's home to Kathy's home is 900 yards. The distance from Josie's home to Sitha's home is 1 mile. How many more yards away is Sitha's home from Josie's home than is Kathy's?

A. 860 yards

B. 1,680 yards

C. 2,660 yards

D. 4,380 yards

9. For a party, Lori made a fruit punch from 1 gallon of orange juice, 2 quarts of grape juice, 5 pints of pineapple juice, and 12 cups of cranberry juice.

A. Order the juices from least to greatest amount used in the fruit punch.

B. How many quarts of juice did Lori make in all? Show your work.

MINUTE 72

NAME _____

1. Use <, >, or =.
   0.5 _____ 0.50

2. $\frac{3}{4} + \frac{2}{4} =$

3. $\begin{array}{r} 11.6 \\ -\ 0.85 \\ \hline \end{array}$

4. $5 \times \frac{1}{8} =$

5. What is the least common multiple of 3 and 4? _____

6. Write two names for the diameter. _____ and _____

7. $20\% = \frac{\quad}{100}$

8. $5\overline{)2,145}$

9. Negative integers are less than 0. Circle: True or False

10. Write $\frac{7}{14}$ in lowest terms. _____

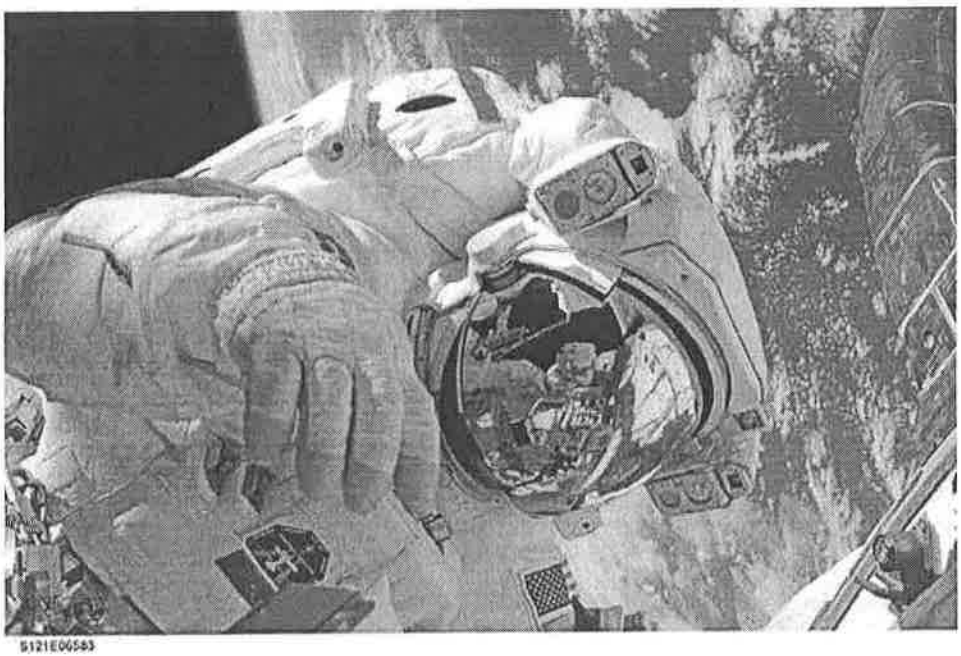
Lewis County Schools

5th Grade

NTI Day 28

Science & Scientists

This text is from the National Institute of Environment Health Sciences site.



S121E00583

Science is a way of organizing what we already know and learning more by experiments.

Scientists use the scientific method to learn about the world.

There are a lot of different branches of science. Here are a few of the more common sciences:

- biology is the study of living things
- zoology is the study of animals botany is the study of plants
- chemistry is the study of the elements (like carbon) and their compounds (like carbon dioxide)
- biochemistry - if you combine biology and chemistry, you get biochemistry - the chemistry of living things
- geology is the study of rocks and the earth
- astronomy is the study of stars, planets, moons, and everything in space
- meteorology is the study of the weather
- physics is the study of energy - light, sound, heat, electricity, and motion

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- anthropology is the study of humans

The different kinds of scientists are named for what they study. Biologists study biology. Zoologists study animals. So there are botanists, chemists, geologists, astronomers, and many more!

Science is all about getting answers to questions -

- Why?
- When?
- Where?
- What?
- Who?

Scientists are curious - they want to know the answers. Then they want to share what they learn.

What kind of scientist do you think you might like to be? Think about what interests you - is it volcanos? Then maybe you'd like to be a vulcanologist, a special kind of geologist. Is it grasshoppers and wasps? Then entomology is for you - that's the study of insects. There's more than a whole world of science, since you might even study things far beyond our earth, and be an astronomer.

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Name: _____ Date: _____

1. Which branch of science studies the chemistry of living things?

A. zoology

B. anthropology

C. biochemistry

D. physics

2. What does the text list?

A. the steps of the scientific method

B. famous scientists

C. different scientific discoveries

D. different branches of science

3. Scientists are curious. What information from the text best supports this statement?

A. Sciencists want to know answers to different questions.

B. Different kinds of scientists are named for what they study.

C. There are a lot of different branches of science.

D. Chemistry is the study of the elements (like carbon) and their compounds (like carbon dioxide).

4. Based on the text, what is very important in every branch of science?

A. studying animals

B. gathering information

C. studying people

D. having fun

5. What is the main idea of the text?

A. Scientists of different branches of science work on getting answers to different questions about the world.

B. The different kinds of scientists are named for what they study.

C. Astronomy is the study of stars, planets, moons, and everything in space.

D. The scientific method helps scientists learn information about the world around us.

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Name _____

Customary Length

Essential Question How can you compare and convert customary units of length?

Common Core **Measurement and Data—5.MD.A.1**

MATHEMATICAL PRACTICES MP1, MP6, MP7

Day #28

Unlock the Problem (Real World)

To build a new swing, Mr. Mattson needs 9 feet of rope for each side of the swing and 6 more feet for the monkey bar. The hardware store sells rope by the yard.

- How many feet of rope does Mr. Mattson need for the swing? 9 ft x 2 sides = 18 ft.
- How many feet does Mr. Mattson need for the swing and the monkey bar combined? 18 ft + 6 ft = 24 ft.

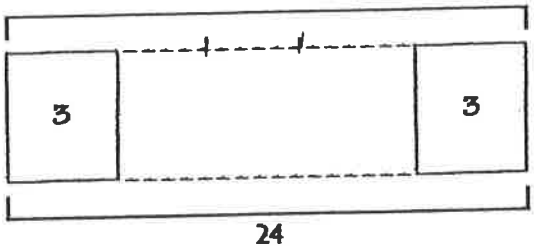
Mr. Mattson needs to find how many yards of rope he needs to buy. He will need to convert 24 feet to yards. How many groups of 3 feet are in 24 feet?

A 12-inch ruler is 1 foot.		
A yardstick is 1 yard.		

3 feet = 1 yard

Use a bar model to write an equation.

MODEL



RECORD

total feet		feet in 1 yard		total yards
↓		↓		↓
24	÷	3	=	8

So, Mr. Mattson needs to buy 8 yards of rope.

Math Talk MATHEMATICAL PRACTICES 6

What operation did you use when you found groups of 3 feet in 24 feet? Do you multiply or divide when you convert a smaller unit to a larger unit? Explain.

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Example 1 Use the table to find the relationship between miles and feet.

Customary Units of Length
1 foot (ft) = 12 inches (in.)
1 yard (yd) = 3 ft
1 mile (mi) = 5,280 ft
1 mile = 1,760 yd

The distance between the new high school and the football field is 2 miles. How does this distance compare to 10,000 feet?

When you convert larger units to smaller units, you need to multiply.

STEP 1 Convert 2 miles to feet.

Think: 1 mile is equal to 5,280 feet.

I need to multiply the total number of miles by 5,280.

total miles ↓ | feet in 1 mile ↓ | total feet ↓

$2 \times 5{,}280 = 10{,}560$

2 miles = 10,560 feet

STEP 2 Compare. Write <, >, or =.

10,560 feet (>) 10,000 feet

Since 10,560 is more than 10,000, the distance between the new high school and the football field is greater than 10,000 feet.

Example 2 Convert to mixed measures.

* when you convert a smaller unit to a larger unit, you need to divide.

Mixed measures use more than one unit of measurement. You can convert a single unit of measurement to mixed measures.

Convert 62 inches into feet and inches.

STEP 1 Use the table.

Think: 12 inches is equal to 1 foot

I am changing from a smaller unit to a larger unit, so I divide.

STEP 2 Convert.

total inches ↓ | inches in 1 foot ↓ | feet ↓ | inches ↓

$62 \div 12$ is 5 r 2

So, 62 inches is equal to 5 feet 2 inches.

- **6** Explain how to convert the mixed measures, 12 yards 2 feet, to a single unit of measurement in feet. How many feet is it?

* convert 12 yds to feet then add the extra 2 feet

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Name Calculator allowed! Use the table on the previous pg (pg. 586)

Share and Show

MATH BOARD

Convert.

1. 2 mi = _____ yd

larger unit to smaller

2 X _____

how many yards are in 1 mile

2. 6 yd = _____ ft

6 X _____

how many ft are in 1 yard

3. 90 in. = _____ ft _____ in.

90 ÷ _____

how many inches are in 1 foot

Math Talk MATHEMATICAL PRACTICES 1

Make Sense of Problems
How do you know when to multiply to convert a measurement?

On Your Own

Practice: Copy and Solve Convert.

4. 125 in. = ■ ft ■ in.

5. 46 ft = ■ yd ■ ft

6. 42 yd 2 ft = ■ ft

Compare. Write <, >, or =.

7. 8 ft ◯ 3 yd

8. 2 mi ◯ 10,500 ft

9. 3 yd 2 ft ◯ 132 in.

10. DEEPER Terry is making 6 hat and scarf sets. Each scarf requires 2 yards of material and each hat requires 18 inches of material. How many feet of material does he need for all 6 hat and scarf sets?

_____

11. THINK SMARTER Choose the correct word and number to complete the sentence.

Katy's driveway is 120 feet long.

To convert feet to yards, I need to [add / subtract / multiply / divide] 120 by [3 / 12 / 1,760 / 5,280].

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Name Calculator allowed!

Customary Length

Common Core **COMMON CORE STANDARD—5.MD.A.1** *Convert like measurement units within a given measurement system.*

Convert.

1. 12 yd = 36 ft

total yards | feet in 1 yard | total feet

12 × 3 = 36

12 yards = 36 feet

2. 5 ft = _____ in.

3. 5 mi = _____ ft

4. 240 in. = _____ ft

5. 100 yd = _____ ft

6. 10 ft = _____ in.

7. 150 in. = _____ ft _____ in.

8. 7 yd 2 ft = _____ ft

9. 10 mi = _____ ft

Compare. Write <, >, or =.

10. 23 in. ◯ 2 ft

11. 25 yd ◯ 75 ft

12. 6,200 ft ◯ 1 mi 900 ft

13. 100 in. ◯ 3 yd 1 ft

14. 1,000 ft ◯ 300 yd

15. 500 in. ◯ 40 ft

Problem Solving Real World

16. Marita orders 12 yards of material to make banners. If she needs 1 foot of fabric for each banner, how many banners can she make?

17. Christy bought an 8-foot piece of lumber to trim a bookshelf. Altogether, she needs 100 inches of lumber for the trim. Did Christy buy enough lumber? Explain.

18. Write Math Explain how to compare two lengths that are measured in different-sized units.

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Lesson Check (5.MD.A.1)

1. Jenna's garden is 5 yards long. How long is her garden in feet?

2. Ellen needs to buy 180 inches of ribbon to wrap a large present. The store sells ribbon only in whole yards. How many yards does Ellen need to buy to have enough ribbon?

Spiral Review (5.OA.B.3, 5.NF.B.6, 5.NF.B.4a)

3. McKenzie works for a catering company. She is making iced tea for an upcoming event. For each container of tea, she uses 16 tea bags and 3 cups of sugar. If McKenzie uses 64 tea bags, how many cups of sugar will she use?

4. Javier bought 48 sports cards at a yard sale. Of the cards, $\frac{3}{8}$ were baseball cards. How many cards were baseball cards?

5. What is the quotient of 396 divided by 12?

6. What is the unknown number in Sequence 2 in the chart? What rule can you write that relates Sequence 2 to Sequence 1?

	1	2	3	8	10
	4	8	12	32	40
	8	16	24	64	?

FOR MORE PRACTICE GO TO THE Personal Math Trainer

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Lewis County Schools

5th Grade

NTI Day 29

Adventure on a Hot Air Balloon

by ReadWorks

The wind is starting to blow stronger, and when you're riding in a basket under a hot air balloon, just 400 feet above ground, that's not necessarily a good thing. Keith Rodriguez looks to the horizon and squints. He had planned to take off from Scioto Downs, a horse racetrack south of Columbus, Ohio, fly a few miles north, and land his balloon in a barren cornfield next to his pickup truck.

Then the wind changed. Instead of a light breeze from the south, now Rodriguez's bright red balloon is getting hit by stronger, colder winds headed west. He has plenty of propane fuel in his tank-he probably could ride the wind halfway to Pennsylvania. But that would be dangerous. Rodriguez's choice of landing sites just became very limited. As the balloon switches direction and floats east, everything below becomes a wide carpet of suburban sprawl-big-box stores, major highways, and strip malls. Beyond the stores lie forests.

The only factor in Rodriguez's favor is that it's early, just after 7 a.m. The highways are filling up with people driving to work, but otherwise the morning is quiet and still.

"Oh boy," Rodriguez thinks. "If I don't land, like now, this could get bad."

The balloon has no propeller or engine, so Rodriguez can't change direction on his own-he's entirely dependent on the wind. The only thing he controls is altitude. He does this by changing the air temperature inside the balloon.

Sitting on the floor of the wicker gondola are three tanks of liquid propane. The tanks are connected via black rubber hoses to two burners overhead. Each burner is nearly as big as Rodriguez's head. Rodriguez turns a knob on one side of the burners. This releases propane from a tank into the heating coil, where the liquid propane is heated to a gas and mixed with the air. Then the mixture is ignited by a pilot light. The mixture catches fire, and flames leap two feet high into the balloon.

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The balloon rises. Rodriguez has a plan in mind. The flame heats the air inside the nylon balloon. This works on a simple principle: hot air is lighter than cold air. One cubic foot of air weighs about an ounce. If you heat that air by 100 degrees Fahrenheit, its weight drops by about 7 grams. This means every cubic foot of heated air inside Rodriguez's balloon can lift about 7 grams. Just by himself, Rodriguez weighs 170 pounds, which equals about 77,110 grams. That means he needs about 11,016 cubic feet of hot air just to raise his own body off the ground. This is why hot air balloons are so big-they must trap tremendous amounts of heated air. Rodriguez's balloon is a common size, trapping about 100,000 cubic feet of air. The balloon is 80 feet tall and 60 feet wide. As Rodriguez gives his short burst of flame, the air inside swirls in complicated, invisible patterns.

To drop in altitude, Rodriguez can pull a cord attached to a parachute valve at the very top of the balloon. Since the hottest air sits at the top, this releases the balloon's most buoyant air, which makes the balloon descend.

Rodriguez gives the cord a short pull, and the gondola drops a little.

"I don't have an altimeter, and I can't really see anything happening inside the balloon," Rodriguez thinks. "I have to pilot by feel."

Pushed by the wind, the balloon is flying quickly now. It's floating over the back wall of a supermarket when Rodriguez grabs hold of the parachute valve cord and gives it a long, hard tug. The balloon drops. Quickly. The hot air balloon is sinking, but still flying forward.

It looks as though it's about to slam into the edge of the supermarket's roof, but it sails over it, with only about 15 feet to spare. Still, Rodriguez does not let go of the cord. He drops and drops, right between the light poles of the nearly empty parking lot. Just a few feet above the ground, Rodriguez releases the parachute cord, turns the knob above his head and fires both burners. The steep descent slows. The gondola touches lightly against the asphalt, and then drags to a stop. There are only two people in the parking lot, standing near the entrance to the store. They look toward the balloon, their eyes and mouths open wide in shock.

"That was a little closer than I expected," Rodriguez says to himself, laughing. "I really needed to land quick."

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Name: _____ Date: _____

1. What makes landing the hot air balloon a challenge for Keith Rodriguez?

A. the gondola
B. the wind
C. the parking lot
D. the time of day

2. What problem does Keith Rodriguez solve?

A. how to fly from Ohio to Pennsylvania in his hot air balloon
B. how to increase the altitude of his hot air balloon
C. how to safely land his hot air balloon
D. how to change direction on his own in his hot air balloon

3. A hot air balloon floats because the air inside the balloon is warmer than the air outside of it.

What information from the story supports this statement?

A. Hot air is lighter than cold air.
B. One cubic foot of air weighs about an ounce.
C. The air inside the balloon swirls in complicated, invisible patterns.
D. The hot air balloon is sinking, but still flying forward.

4. Based on information in the text, what would make a good landing area for a hot air balloon?

A. a large, open space with no buildings
B. a large space with lots of tall buildings
C. a small, narrow space near a highway
D. a small space, such as the roof of a building

5. What is this story mainly about?

A. a hot air balloon that scares lots of people when it lands in a parking lot
B. a hot air balloon that does not work properly
C. a person who gets stuck up in the air and does not know what to do
D. a person trying to land a hot air balloon in difficult conditions

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6. Read these sentences from the text.

> To drop in **altitude** , Rodriguez can pull a cord attached to a parachute valve at the very top of the balloon. Since the hottest air sits at the top, this releases the balloon's most buoyant air, which makes the balloon descend.

What does the word "**altitude**" mean in the sentence above?

A. length
B. width
C. height
D. volume

7. Choose the answer that best completes the sentence below.

Keith Rodriguez was planning to land in a cornfield; _____, he changes his mind because of the wind.

A. previously
B. however
C. as a result
D. for example

8. What effect does pulling the cord attached to the parachute valve have on Rodriguez's balloon?

9. Based on what the story explains about air temperature, why does pulling the cord have this effect?

10. Keith Rodriguez makes a successful but dangerous landing in a parking lot. Based on information in the story about his location, the weather, and how hot air balloons work, explain whether his decision to land in the parking lot was or was not a good idea. Use evidence from the text to support your answer.

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Name _____

Customary Capacity

Essential Question How can you compare and convert customary units of capacity?

Common Core **Measurement and Data—5.MD.A.1**

MATHEMATICAL PRACTICES MP2, MP4, MP6

Day #29

Unlock the Problem Real World

Mara has a can of paint with 3 cups of purple paint in it. She also has a bucket with a capacity of 26 fluid ounces. Will the bucket hold all of the paint Mara has?

The **capacity** of a container is the amount the container can hold.

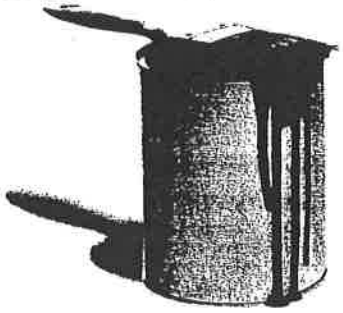
1 cup (c) = 8 fluid ounces (fl oz)

- What capacity does Mara need to convert?

  3 cups to ounces

- After Mara converts the units, what does she need to do next?

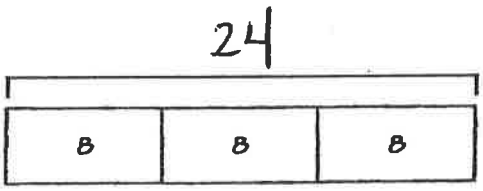
  Compare amount of paint w/ the fluid ounces the bucket will hold



Use a bar model to write an equation.

STEP 1 Convert 3 cups to fluid ounces.

MODEL



RECORD

total cups		fl oz in 1 cup		total fl oz
↓		↓		↓
3	×	8	=	24

STEP 2 Compare. Write <, >, or =.

24 fl oz (=) 26 fl oz

Since 24 fluid ounces is less than 26 fluid ounces,

Mara's bucket will hold all of the paint.

- **What if** Mara has 7 cups of green paint and a container filled with 64 fluid ounces of yellow paint? Which color paint does Mara have more of? **Explain** your reasoning.

  7 × 8 = 56 fluid ounces of green paint 64 > 56

  So, Mara has more yellow paint.

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Example

Coral made 32 pints of fruit punch for a party. She needs to carry the punch in 1-gallon containers. How many containers does Coral need?

To convert a smaller unit to a larger unit, you need to divide. Sometimes you may need to convert more than once.

Customary Units of Capacity
1 cup (c) = 8 fluid ounces (fl oz)
1 pint (pt) = 2 cups
1 quart (qt) = 2 pints
1 gallon (gal) = 4 quarts

Convert 32 pints to gallons.

STEP 1 Write an equation to convert pints to quarts.

total pints ↓ | pints in 1 qt ↓ | = | total quarts ↓

32 (1/2) 2 = 16

STEP 2 Write an equation to convert quarts to gallons.

total quarts ↓ | quarts in 1 gal ↓ | = | total gallons ↓

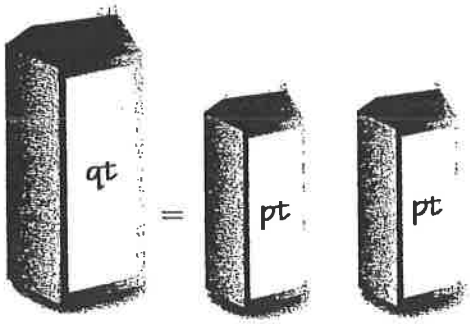
16 (1/4) 4 = 4

So, Coral needs 4 1-gallon containers to carry the punch.

Share and Show

MATH BOARD

1. Use the picture to complete the statements and convert 3 quarts to pints.



a. 1 quart = 2 pints

b. 1 quart is greater than 1 pint.

c. 3 qt (X) 2 pt in 1 qt = 6 pt

Convert.

2. 3 gal = 24 pt

1 gal = 8 pts

3 x 8

3. 5 qt = 10 pt

1 qt = 2 pt

5 x 2

4. 6 qt = 24 c

1 qt = 4 c

6 x 4

Math Talk MATHEMATICAL PRACTICES 2

Reason Abstractly Explain how converting units of capacity is similar to converting units of length. How is it different?

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Name calculator allowed!

On Your Own

Convert.

5. 38 c = _____ pt

6. 36 qt = _____ gal

7. 104 fl oz = _____ c

Practice: Copy and Solve Convert.

8. 200 c = ■ qt

9. 22 pt = ■ fl oz

10. 8 gal = ■ qt

11. 72 fl oz = ■ c

12. 2 gal = ■ pt

13. 48 pt = ■ gal

Compare. Write <, >, or =.

14. 28 c ◯ 14 pt

15. 25 pt ◯ 13 qt

16. 20 qt ◯ 80 c

17. 12 gal ◯ 50 qt

18. 320 fl oz ◯ 18 pt

19. 15 qt ◯ 63 c

20. ■ WRITE ▸ *Math* Which of exercises 14–19 could you solve mentally? Explain your answer for one exercise.

21. ■ DEEPER Larry made 4 batches of punch. Each batch uses 16 fluid ounces of lemon juice and 3 pints of orange juice. If each serving is 1 cup, how many servings did he make all together?

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Problem Solving • Applications (Real World)

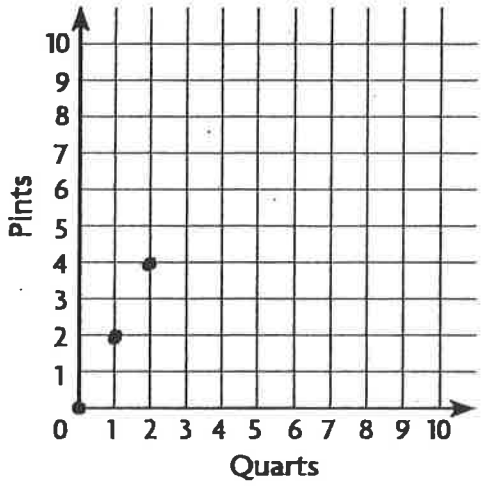
Show your work. For 22–24, use the table.

22. MATHEMATICAL PRACTICE 4 **Use Graphs** Complete the table, and make a graph showing the relationship between quarts and pints.

Complete

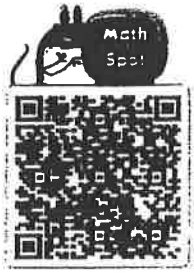
Quarts	0	1	2	3	4
Pints	0	2	4		

Quarts-Pints Relationship



23. DEEPER Describe any pattern you notice in the pairs of numbers you graphed. Write a rule to describe the pattern.

24. THINK SMARTER What other pair of customary units of capacity have the same relationship as pints and quarts? Explain.



25. THINK SMARTER Shelby made 5 quarts of juice for a picnic. She said that she made $1\frac{1}{4}$ cups of juice. Explain Shelby's mistake.

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Name Calculator allowed!

Customary Capacity

COMMON CORE STANDARD—5.MD.A.1
Convert like measurement units within a given measurement system.

Convert.

1. 5 gal = 40 pt

   Think: 1 gallon = 4 quarts
   1 quart = 2 pints

2. 192 fl oz = _____ pt

3. 15 pt = _____ c

4. 240 fl oz = _____ c

5. 32 qt = _____ gal

6. 10 qt = _____ c

7. 48 c = _____ qt

8. 72 pt = _____ gal

9. 128 fl oz = _____ pt

Compare. Write <, >, or =.

10. 17 qt ◯ 4 gal

11. 96 fl oz ◯ 8 pt

12. 400 pt ◯ 100 gal

13. 100 fl oz ◯ 16 pt

14. 74 fl oz ◯ 8 c

15. 12 c ◯ 3 qt

Problem Solving Real World

16. Vickie made a recipe for 144 fluid ounces of scented candle wax. How many 1-cup candle molds can she fill with the recipe?

17. A recipe calls for 32 fluid ounces of heavy cream. How many 1-pint containers of heavy cream are needed to make the recipe?

18. Math Give some examples of when you would measure capacity in each of the units of capacity shown in the table on page 592.

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Lesson Check (5.MD.A.1)

1. Rosa made 12 gallons of lemonade to sell at a lemonade stand. How many pints of lemonade did she make?

2. Ebonae's fish tank holds 40 gallons. How many quarts does the fish tank hold?

Spiral Review (5.NBT.B.5, 5.NF.A.1, 5.NF.B.3, 5.MD.A.1)

3. A mountain climber climbed 15,840 feet on her way to the summit of a mountain. How many miles did she climb?

4. Jamal is making blueberry muffins. He has $6\frac{3}{4}$ cups of batter, but he needs a total of 12 cups. How much more batter does Jamal need?

5. At a building site, there are 16 pallets with sacks of cement. The total weight of all the pallets and cement is 4,856 pounds. Each pallet with cement weighs the same amount. How much does each pallet with cement weigh?

6. A publisher shipped 15 boxes of books to a bookstore. Each box contained 32 books. How many books did the publisher ship to the bookstore?

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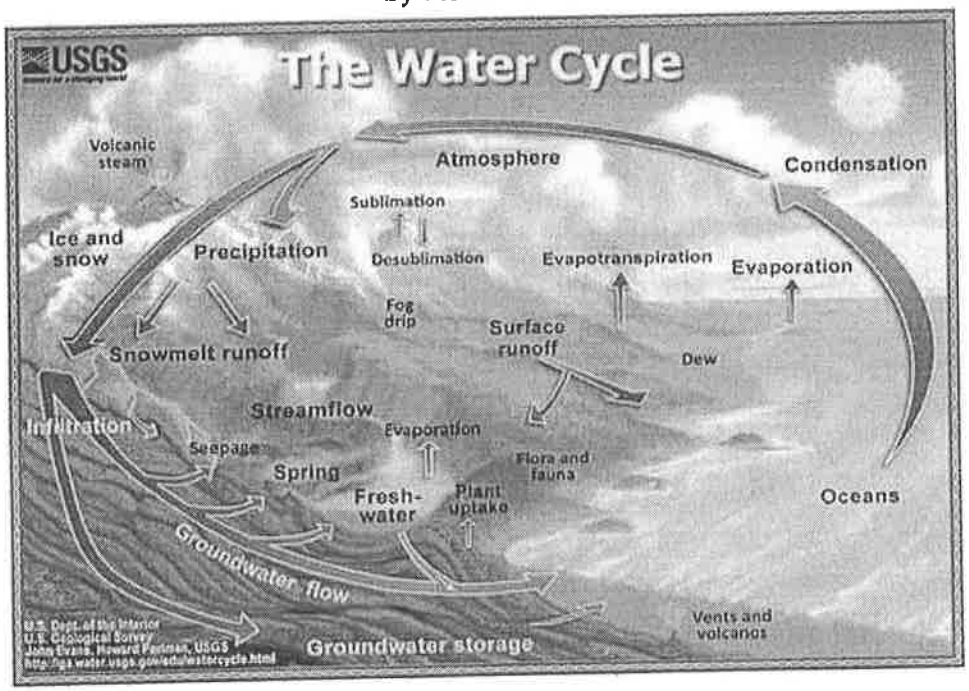
Lewis County Schools

5th Grade

NTI Day 30

Water, Water, Everywhere!

by ReadWorks



Water can be found throughout the earth, both in living things and in the physical environment. It is in our bodies, in the bodies of animals and insects, and within all plants. Most of the water on earth is contained in our oceans. The rest of the water on earth is under ground, in rivers, and in the atmosphere, among other places.

The Water Cycle

Water is constantly moving on, above, and below the surface of the earth as it changes states between liquid, vapor, and ice. This movement of water on, above, and below the surface of the earth is known as the water cycle. The study of the movement and distribution of water on earth is called "hydrology."

Water in the Oceans

Over 70 percent of the total surface of our planet is covered with water. About 96.5 percent of it is found in the oceans. Although there are no physical boundaries separating one ocean from the other, five oceans have been demarcated and named. The Pacific Ocean is the largest in terms of surface area, followed by the Atlantic, Indian, Antarctic and Arctic Oceans. These oceans, although connected, separate the seven major continents. The Pacific Ocean

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separates Asia, Australia, and their surrounding islands from North and South America. The Atlantic Ocean separates the two American continents from Europe and Africa.

The title of this text, "Water, Water Everywhere," comes from Samuel Taylor Coleridge's poem:

Water, water, everywhere,
And all the boards did shrink.
Water, water everywhere,
Nor any drop to drink.

It tells the story of a ship stuck near Antarctica. Despite being surrounded by water on all sides, the sailors were dying of thirst. Although the ocean's seawater supports other life forms such as whales, sea turtles and many types of fish, it is saline and unfit for drinking by humans. On average, this water contains 3.5 percent salt. Drinking this would result in more water getting excreted from the body to drain out all the salt.

Fresh Water

Where do humans get their drinking water from if over 96 percent of Earth's water is not potable? We get it from one of the many freshwater sources that have a lower concentration of salt and other dissolved solids than seawater. This water is also called "sweet water." It exists in many forms on and under the earth's surface. Sixty-nine percent is frozen in glaciers and ice caps, 20 percent forms the earth's lakes, and the rest can be found in other freshwater sources such as the atmosphere, rivers, swamps, and marshes.

The amount of fresh water in a given area depends on a number of factors related to the water cycle. For example, the amount of water in rivers and lakes is always changing due to inflows and outflows. According to the United States Geological Survey, inflows to these water bodies come from precipitation, overland runoff, groundwater seepage, and tributary inflows. Outflows from lakes and rivers include evaporation, movement of water into groundwater, and withdrawals by people. People use up a lot of surface freshwater for various purposes, including agriculture, industry, and recreation.

Any Drop to Drink

Water is crucial in supporting life. When we study other planets or their moons, we look for traces of water to see if the place could have supported life. It is so important that many people fear if it continues to become scarcer, wars may be fought over water in the future!

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Name: _____ **Date:** _____

1. What is hydrology?

A. the study of weather patterns throughout the earth

B. the study of oceans and freshwater sources

C. the study of the movement and distribution of water on earth

D. the study of the movement of air throughout the earth

2. What does the author describe in the passage?

A. the evolution of aquatic species

B. the movement and distribution of water on Earth

C. the history of sea-based exploration

D. life on Earth during the Ice Age

3. Read the following sentences.

When we study other planets or their moons, we look for traces of water to see if the place could have supported life. It is so important that many people fear if it continues to become scarcer, wars may be fought over water in the future!

Based on the above evidence, what conclusion can be made?

A. Water constantly cycles on, below and above the earth's surface.

B. Water is crucial in supporting life.

C. Over 70% of the total surface of our planet is covered with water.

D. About 96.5% of the world's water is found in the oceans.

4. The amount of water in rivers and lakes is always changing due to inflows and outflows. Based on the information in this passage and the diagram, what are these inflows and outflows part of?

A. the evaporation process

B. the water cycle

C. the precipitation process

D. human-controlled systems

5. What is this passage mainly about?

A. factors impacting the amount of fresh water

B. human use of fresh water

C. the processes of the water cycle

D. the different sources of water on Earth

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6. Read the following lines from Samuel Coleridge's poem:

Water, water, everywhere,

And all the boards did shrink.

Water, water everywhere,

Nor any drop to drink.

The author uses this poem in the passage to illustrate what concept?

A. The salt water in our oceans has the power to shrink boats.

B. The United States has more drinkable water than other countries.

C. The ocean's water is unfit for drinking by humans.

D. The glaciers of our planet are melting and flooding our rivers.

7. Choose the answer that best completes the sentence below.

Over ninety-six percent of earth's water is too salty for humans to consume. _____, we must get it from one of the many freshwater sources that have a lower concentration of salt and other dissolved solids than seawater.

A. Finally

B. Consequently

C. However

D. On the other hand

8. Where can we find "sweet water"?

9. The oceans contain what percentage of the water on earth?

10. The author writes that water is "so important that many people fear if it continues to become scarcer, wars may be fought over water in the future!"

Describe at least one contributing factor that might lead to a shortage of water in the future. Use evidence from the passage to support your answer.

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Name _____

Weight

Essential Question How can you compare and convert customary units of weight?

Common Core **Measurement and Data—5.MD.A.1**

MATHEMATICAL PRACTICES MP1, MP2

Day #30

Unlock the Problem (Real World)

Hector's school is having a model rocket contest. To be in the contest, each rocket must weigh 4 pounds or less. Without any paint, Hector's rocket weighs 62 ounces. If Hector wants to paint his rocket, what is the weight of the most paint he can use?

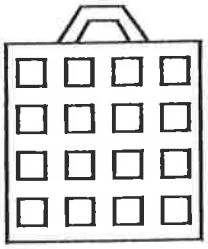
The **weight** of an object is how heavy the object is.

- What weight does Hector need to convert?

ounces to pounds

- After Hector converts the weight, what does he need to do next?

subtract the weight from 4 pounds



1 pound = 16 ounces

Use a bar model to write an equation.

STEP 1 Convert 4 pounds to ounces.

MODEL

64 oz

16	16	16	16

RECORD

total lb		oz in 1 lb		total oz
4	×	16	=	64 oz

STEP 2 Subtract the rocket's weight from the total ounces a rocket can weigh to be in the contest.

64 − 62 = 2

So, the weight of the paint can be at most 2 ounces for Hector's model rocket to be in the contest.

Math Talk MATHEMATICAL PRACTICES 1

Make Sense of Problems How did you choose which operation to use to change from pounds to ounces? Explain.

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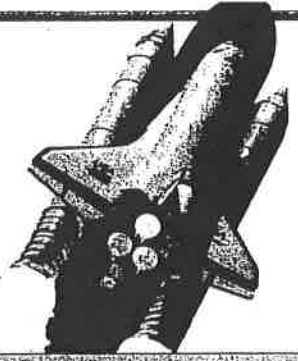
Example

The rocket boosters for a U.S. space shuttle weigh 1,292,000 pounds each when the shuttle is launched. How many tons does each rocket booster weigh?



Use mental math to convert pounds to tons.

Units of Weight
1 pound (lb) = 16 ounces (oz)
1 ton (T) = 2,000 lb

STEP 1 Decide which operation to use.

Since pounds are smaller than tons, I need to $\frac{1}{1}$ the number of pounds by 2,000

STEP 2 Break 2,000 into two factors that are easy to divide by mentally.

2,000 = _____ × 2

STEP 3 Divide 1,292,000 by the first factor. Then divide the quotient by the second factor.

1,292,000 ÷ _____ = _____

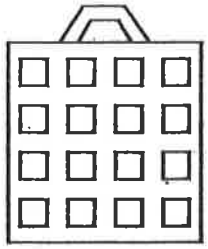
_____ ÷ 2 = _____

So, each rocket booster weighs _____ tons when launched.

Share and Show

MATH BOARD

1. Use the picture to complete each equation.



a. 1 pound = 16 ounces

b. 2 pounds = 32 ounces
2 × 16

c. 3 pounds = _____ ounces
3 × 16

d. 4 pounds = _____ ounces
4 × 16

e. 5 pounds = _____ ounces
5 × 16

Convert.

2. 15 lb = _____ oz
15 × 16

3. 3 T = _____ lb
3 × 2,000

4. 320 oz = _____ lb
320 ÷ 16

Larger unit to small unit → ×
Smaller unit to larger unit → $\frac{1}{1}$

Math Talk MATHEMATICAL PRACTICES 2

Reason Quantitatively
How can you compare 11 pounds to 175 ounces mentally?

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Name _____

On Your Own

Practice: Copy and Solve Convert.

5. 23 lb = ■ oz

6. 6 T = ■ lb

7. 144 oz = ■ lb

8. 15 T = ■ lb

9. 352 oz = ■ lb

10. 18 lb = ■ oz

Compare. Write <, >, or =.

11. 130 oz ◯ 8 lb

12. 34 lb ◯ 544 oz

13. 14 lb ◯ 229 oz

14. 16 T ◯ 32,000 lb

15. 5 lb ◯ 79 oz

16. 85,000 lb ◯ 40 T

17. DEEPER Bill has a bike that weighs 56 pounds. Magda has a bike that weighs 52 pounds. She adds a bell and basket to her bike. The bell weighs 12 ounces and the basket weighs 2 pounds 8 ounces. Does Magda's bike with its new bell and basket weigh more than Bill's bike? Explain your reasoning. Show work.

Problem Solving • Applications

18. DEEPER Rhada has a 5-pound bag of clay. Her craft project requires 5 ounces of clay for each batch of 6 ornaments. If she uses all of the clay, how many ornaments can Rhada make?

19. MATHEMATICAL PRACTICE 2 **Represent a Problem** Ellis used 48 ounces of rye flour in a bread recipe. Write an expression you could use to find how many pounds of rye flour Ellis used. ~~Explain how the expression represents the problem.~~

20. THINKSMARTER Kevin uses 36 ounces of dried apples and 18 ounces of dried cranberries to make a fruit snack. He plans to sell the snack in $\frac{1}{2}$-pound containers. How may containers will he fill? Will any fruit snack be left over?

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Name _____

Weight Calculator allowed

Common Core **COMMON CORE STANDARD—5.MD.A.1** *Convert like measurement units within a given measurement system.*

Convert.

1. 96 oz = 6 lb
   total oz ↓ 96 ÷ oz in 1 lb ↓ 16 = total lb ↓ 6

2. 6 T = _____ lb
   6 × 2000 = ___
   ↑ pounds in 1 ton

3. 18 lb = _____ oz
   18 × _____
   ounces in 1 pound

4. 3,200 oz = _____ lb
   3200 ÷ 16
   ounces in each pound

5. 12 T = _____ lb

6. 9 lb = _____ oz

7. 7 lb = _____ oz

8. 100 lb = _____ oz

9. 60,000 lb = _____ T

Compare. Write <, >, or =.

10. 40 oz (<) 4 lb
    4 × 16 = 64 oz

11. 80 oz ( ) 5 lb
    5 × 16 = ___

12. 5,000 lb (<) 5 T
    5 × 2000 = 10,000

13. 18,000 lb ( ) 9 T
    9 × 2,000 = ___

14. 25 lb ( ) 350 oz
    25 × 16 = ___

15. 27 oz ( ) 2 lb
    2 × 16 = ___

Problem Solving Real World

16. Mr. Fields ordered 3 tons of gravel for a driveway at a factory. How many pounds of gravel did he order?

17. Sara can take no more than 22 pounds of luggage on a trip. Her suitcase weighs 112 ounces. How many more pounds can she pack without going over the limit?

18. Math Give two examples of items that weigh less than 1 ounce and two examples of items that weigh more than 1 ton.

Lesson Check (5.MD.A.1)

1. Paolo's puppy weighed 11 pounds at the vet's office. What is this weight in ounces?

2. The weight limit on a bridge is 5 tons. What is this weight in pounds?

Spiral Review (5.NF.A.2, 5.NF.B.7c, 5.MD.A.1)

3. There are 20 guests at a party. The host has 8 gallons of punch. He estimates that each guest will drink 2 cups of punch. If his estimate is correct, how much punch will be left over at the end of the party?

4. A typical lap around a track in the United States has a length of 440 yards. How many laps would need to be completed to run a mile?

5. A recipe for sweet potato casserole calls for $\frac{3}{4}$ cup of milk. Martina has 6 cups of milk. How many sweet potato casseroles can she make with that amount of milk?

6. What is the best estimate for the total weight of these cold meats: $1\frac{7}{8}$ pounds of bologna, $1\frac{1}{2}$ pounds of ham, and $\frac{7}{8}$ pound of roast beef?

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Name Calculator allowed!

Multistep Measurement Problems

Use the tables from the previous lessons

COMMON CORE STANDARD—5.MD.A.1 *Convert like measurement units within a given measurement system.*

Solve.

1. A cable company has 5 miles of cable to install. How many 100-yard lengths of cable can be cut?

   Think: 1,760 yards = 1 mile.
   So the cable company has 5 × 1,760, or 8,800 yards of cable.

   Divide. 8,800 ÷ 100 = 88

   88 lengths

2. Afton made a chicken dish for dinner. She added a 10-ounce package of vegetables and a 14-ounce package of rice to 40 ounces of chicken. What was the total weight of the chicken dish in pounds?

   10+14+40= ____ total ounces

   ____ total ounces ÷ 16 ounces in a pound = ____ lbs pounds total

3. A jar contains 26 fluid ounces of spaghetti sauce. How many cups of spaghetti sauce do 4 jars contain?

4. Coach Kent brings 3 quarts of sports drink to soccer practice. He gives the same amount of the drink to each of his 16 players. How many ounces of the drink does each player get?

5. Leslie needs 324 inches of fringe to put around the edge of a tablecloth. The fringe comes in lengths of 10 yards. If Leslie buys 1 package of fringe, how many feet of fringe will she have left over?

6. An office supply company is shipping a case of wooden pencils to a store. There are 64 boxes of pencils in the case. If each box of pencils weighs 2.5 ounces, what is the weight, in pounds, of the case of wooden pencils?

Problem Solving Real World

7. A pitcher contains 40 fluid ounces of iced tea. Shelby pours 3 cups of iced tea. How many pints of iced tea are left in the pitcher?

8. Olivia ties 2.5 feet of ribbon onto one balloon. How many yards of ribbon does Olivia need for 18 balloons?

9. WRITE Math An object moves on a conveyor belt at a speed of 60 inches per second. Explain how you could convert the speed to feet per minute.

Lesson Check (5.MD.A.1)

1. Leah is buying curtains for her bedroom window. She wants the curtains to hang from the top of the window to the floor. The window is 4 feet high. The bottom of the window is $2\frac{1}{2}$ feet above the floor. How many inches long should Leah's curtains be?

2. Brady buys 3 gallons of fertilizer for his lawn. After he finishes spraying the lawn, he has 1 quart of fertilizer left over. How many quarts of fertilizer did Brady spray on the lawn?

Spiral Review (5.OA.B.3, 5.MD.A.1, 5.NF.B.7b)

3. A jump rope is 9 feet long. How long is the jump rope in yards?

4. Fill in the blanks to make the following statement true.

   8 cups = _____ quarts = _____ pints.

5. What is the unknown number in Sequence 2 in the chart?

Sequence Number	1	2	3	5	7
Sequence 1	3	6	9	15	21
Sequence 2	6	12	18	30	?

6. A farmer divides 20 acres of land into $\frac{1}{4}$-acre sections. Into how many sections does the farmer divide her land?

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