

Week #4 Fourth Grade Weekly Planner: May 11th - May 15th

<p><u>INDEPENDENT</u></p> <p><u>READING</u></p> <p>20 min/day</p>	<p>Monday's Book Title:</p> <p>Tuesday's Book Title:</p>	<p>Wednesday's Book Title:</p> <p>Thursday's Book Title:</p>	<p>Friday's Book Title:</p> <p><i>Parent initial to verify daily reading:</i> _____</p>
<p><u>READING</u></p> <p>Read Works readworks.org</p> <p>Class Codes Fry: 75CQDL</p> <p>Greer: 2AZZR4</p> <p>LaCourse: 3CXAYF</p> <p>Password: 1234</p>	<p>Read Works Article of the Day: "All About Rocks"</p> <p>Each day, read one article and write at least two sentences of a response in the online Book of Knowledge or in your notebook.</p>	<p>Read Works Articles: "All About Rocks"</p> <ul style="list-style-type: none"> <input type="checkbox"/> Monday's Book of Knowledge <input type="checkbox"/> Tuesday Book of Knowledge <input type="checkbox"/> Wednesday's Book of Knowledge <input type="checkbox"/> Thursday's Book of Knowledge <input type="checkbox"/> Friday's Book of Knowledge 	<p>Read Works Paired Text: "Key Time Periods in California's History"</p> <ul style="list-style-type: none"> <input type="checkbox"/> Read both texts in "Key Time Periods in California's History" <input type="checkbox"/> Answered Questions
<p><u>MATH</u></p> <p>*Math Facts: 10 minutes</p> <p>*My Math: They don't have to finish everything each day, but do what they can in about 40 minutes.</p>	<p>Monday:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Math Facts 10 min: Xtra Math or flash cards <input type="checkbox"/> My Math Book: Ch. 11 Lesson 8 pg. 743-748 <p>Tuesday:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Math Facts 10 min: Xtra Math or flash cards <input type="checkbox"/> My Math Book: Am I Ready? pg. 767 Ch. 12 L1 pg. 775-780 	<p>Wednesday:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Math Facts 10 min: Xtra Math or flash cards <input type="checkbox"/> My Math Book: Ch. 12 Lesson 2 pg. 781-786 <p>Thursday:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Math Facts 10 min: Xtra Math or flash cards <input type="checkbox"/> My Math Book: Ch. 12 Lesson 3 pg. 787-792 	<p>Friday:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Math Facts 10 min: Xtra Math or flash cards <input type="checkbox"/> My Math Book: Ch. 12 Lesson 5 pg. 801-806 <p><i>Parent initial to verify Math Facts practiced each day:</i> _____</p>
<p><u>WRITING</u></p> <p>-Thoughtful writing -Best spelling -Proper capitalization and punctuation -Title and Date -At least ½ page each day in their notebook</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Monday's Prompt: <i>What are some things you can do to help your family while at home?</i> <input type="checkbox"/> Tuesday's Prompt: <i>As a 49er in CA, you've struck it rich. How did you make your merchant?</i> 	<ul style="list-style-type: none"> <input type="checkbox"/> Wednesday's Prompt: <i>Write an opinion paragraph about your favorite recess activity at school.</i> <input type="checkbox"/> Thursday's Prompt: <i>Write an informative paragraph about plants in or around your house.</i> 	<ul style="list-style-type: none"> <input type="checkbox"/> Friday's Prompt: <i>Write a conversation you would like to have with Ms. Nasello.</i> <p style="text-align: right;">Parent initial _____ to verify daily writing</p>

<p><u>SCIENCE</u></p> <p>Science Studies Weekly</p>	<p><i>Read all articles for:</i></p> <p><i>Fry/Tito Week #5: Natural Disasters</i></p> <p><i>Greer Week #9: Keeping Fit and Healthy</i></p> <p><i>LaCourse Week #4: Weather and Climate</i></p> <p>Parent initial _____ to verify reading</p>	<p><input type="checkbox"/> Crossword completed on the back of my studies weekly</p> <p><input type="checkbox"/> Checked my answers online at: studiesweekly.com or underlined my evidence in text</p>	<p>Name of my favorite article:</p>
<p><u>SOCIAL STUDIES</u></p> <p>California Studies Weekly</p>	<p><i>Read all articles for:</i></p> <p><i>Fry/Tito Week #32: Dust Bowl, Depression and WWII</i></p> <p><i>Greer Week #27: Statehood for California</i></p> <p><i>LaCourse Week #29: Transcontinental Railroad</i></p> <p>Parent initial _____ to verify reading</p>	<p><input type="checkbox"/> Crossword completed on the back of my studies weekly</p> <p><input type="checkbox"/> Checked my answers online at: studiesweekly.com or underlined my evidence in text</p>	<p>Name of my favorite article:</p>

Submission of Work: Assignments can be turned in digitally to your teacher sooner, but the paper drop off is scheduled at our site for Friday, 5/8/20 and Friday, 5/15/20.

Submit Logs & Products: Scan / photo /upload/or deliver to site

Office Hours 11:00-1:00 Monday-Friday: Teachers have two hours scheduled every day for emails, phone calls, conference calls, and virtual experiences. If your student needs additional help, please reach out and we will find a way to help anytime.

Fry/Tito Contacts: sfry@tusd.net or atito@tusd.net or call/text (209) 426-0989

Greer Contact: cgreer@tusd.net or call/text (209) 624-0010

LaCourse Contact: jlacourse@tusd.net or call/text (209) 597-8683

Zoom Weekly Class Meetings: Teachers will email invitations for Zoom meetings. Please have students join these important meetings for guidance, collaboration, motivation, reflection, and sharing assignments virtually.

Time	Monday	Tuesday	Wednesday	Thursday	Friday
11:00-11:30	Zoom: Weekly Kick Off				Zoom: Reflection Day

Born from Magma: Igneous Rock

This text is excerpted from an original work of the Core Knowledge Foundation.



Igneous rocks

Igneous rocks are the most abundant class of rocks on the earth. Igneous rocks form when magma cools and solidifies. When you think of igneous rocks, think of volcanoes.

There are two basic types of igneous rock. One type forms from magma that erupts onto Earth's surface as lava. The lava cools and hardens into rock. The faster it cools, the smaller the mineral grains will be in the resulting rock. Obsidian is an igneous rock formed from lava that cooled very quickly, so quickly, there wasn't time for the minerals to form grains. As a result, obsidian is as smooth and shiny as glass. In fact, it is often called volcanic glass. Basalt is an igneous rock formed from lava that took longer to cool. Basalt is typically a dark-colored rock. It has fairly small mineral grains that give it a fine-grained texture.

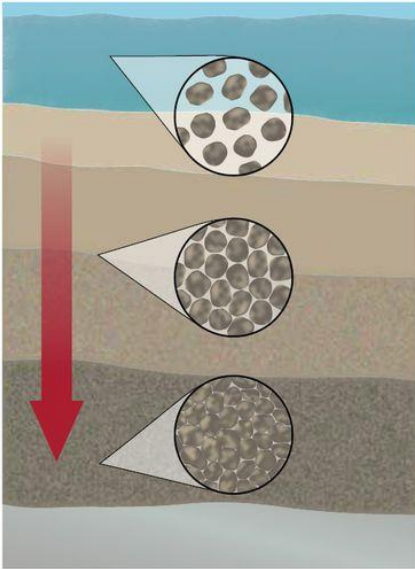
The second type of igneous rock forms from magma that solidifies below Earth's surface. Magma cools very slowly when it's deep beneath the surface. Slow cooling leads to igneous rocks with relatively large mineral grains. The slower the cooling is, the larger the grains are. Granite is a common igneous rock that forms from magma that cooled within Earth's crust. Granite usually contains mineral grains that are large enough to see with the naked eye.

Book of Knowledge: Write 2 or 3 things you learned from the article. Use complete sentences!

Layer After Layer: Sedimentary Rock

This text is excerpted from an original work of the Core Knowledge Foundation.

Sedimentary rock is a major class of rocks. Sedimentary rocks are made of sediments. Sediments are tiny bits of rock and sand combined with fragments of once-living things. Sediments collect in low-lying areas both on land and in bodies of water. They form layers, one on top of another. Over long periods of time, the weight of overlying layers compacts the sediments in deeper layers, squeezing them closer together. Sediments also become cemented, or glued, together as dissolved minerals fill the spaces between the sediments. As the sediments dry, the dissolved minerals turn into solids, binding the sediments together. Over time, compacting and cementing processes transform sediments into sedimentary rock.



The weight of overlying layers compacts the sediments, squeezing them closer together.

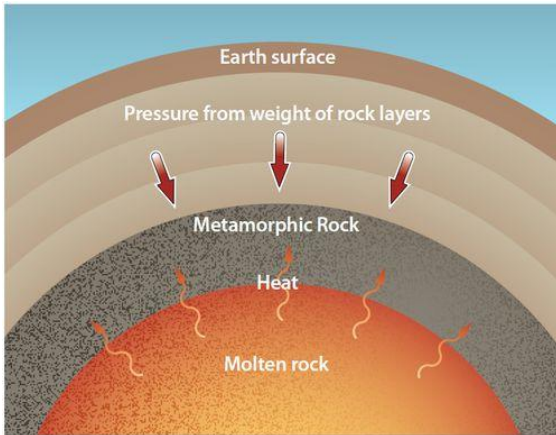
Most sedimentary rocks are more easily broken than most igneous rocks. Hit a sedimentary rock with a hammer, and it will crumble or break apart. Some sedimentary rocks contain fossils. Limestone is a sedimentary rock often packed with the fossilized skeletons and shells of tiny ocean creatures.

Some sedimentary rocks get their name from their sediments. Sandstone started as grains of sand, whereas mudstone formed from ancient mud.

Book of Knowledge: Write 2 or 3 things you learned from the article. Use complete sentences!

Changing Form: Metamorphic Rock

This text is excerpted from an original work of the Core Knowledge Foundation.



One of the three major classes of rocks is metamorphic rock. Metamorphic rocks form when igneous or sedimentary rocks are exposed to extreme heat and pressure. They can even form from older metamorphic rocks. High temperatures and crushing pressure alter the minerals in the rocks. Mineral grains may be flattened or rearranged into layers, swirls, or stripes. They may also be changed into completely different minerals!

For example, take granite, an igneous rock. When granite is subjected to intense heat and pressure, it becomes a metamorphic rock called gneiss. When the sedimentary rock limestone is squeezed and heated deep below ground, it becomes a metamorphic rock called marble.

Metamorphic rocks tend to form deep within Earth's crust. The pressure from countless tons of overlying rock is tremendous. Equally powerful is the heat rising from hot magma in the mantle beneath the crust. Metamorphic rocks often form where tectonic plates are slowly colliding. They can also form as magma travels up through cracks in Earth's crust and heats the rocks around the cracks. If the heat of the magma completely melts the rock again, then it becomes igneous rock. If the rock is heated just enough to be changed, however, it instead becomes metamorphic rock.

Book of Knowledge: Write 2 or 3 things you learned from the article. Use complete sentences!

What Exactly Are Rocks?

This text is excerpted from an original work of the Core Knowledge Foundation.



You don't have to look hard to find rocks. They are all around you—and under you, too! Earth's crust is made almost entirely of rocks. Mountains, hills, and cliffs are huge masses of rock that form landscape features. Pebbles in a streambed are smooth, rounded rocks. Chunky bits of broken rock form the gravel on a country road. Rocks go into making sidewalks and streets. Slabs of rock cover the outside of many buildings. Indoors, pieces of rock often make up floors, walls, stairs, and countertops. Museums are good places to see rocks that artists have carved into sculptures. The polished stones in some types of jewelry are rocks that people wear.



Rocks are all around. Some are carved into sculptures, others are used for jewelry.



All the varieties of rocks can be organized into three classes.

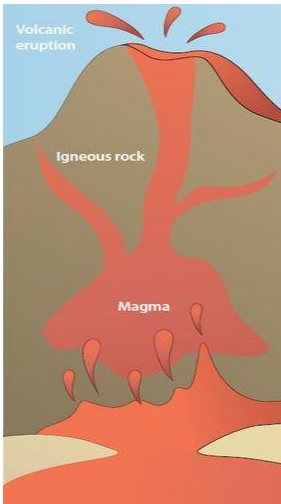
Just what are rocks, exactly? Rocks are naturally occurring materials made of solid, nonliving substances called minerals. Think of minerals as the building blocks of rocks. Some rocks are formed from just one mineral. Most rocks, however, are combinations of two or more minerals. Minerals appear as different-sized pieces, or grains, in rocks. Some rocks have very tiny mineral grains, giving the rocks a smooth, even texture. Other rocks have larger mineral grains and a rougher texture.

Imagine hiking up a mountain and picking up rocks along the way. When you reach the top, you'll probably have quite a collection. Your rocks may have different colors and textures. Some may have stripes or layers. Some might be hard and others crumbly. Some have tiny grains whereas others have large grains that glitter when they catch the light. All this variety might seem confusing. Yet geologists organize all rocks into just three classes, or basic types: igneous, sedimentary, and metamorphic.

Book of Knowledge: Write 2 or 3 things you learned from the article. Use complete sentences!

The Rock Cycle

This text is excerpted from an original work of the Core Knowledge Foundation.



Rocks you see in the world around you might seem like permanent fixtures. Given enough time, however, all rocks change. They are created, destroyed, and recreated in a continuous cycle. Geologists call this ongoing process the rock cycle.

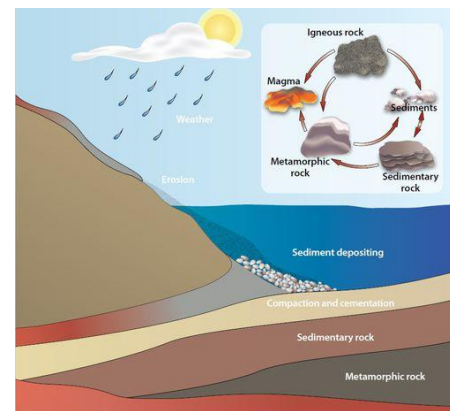
The rock cycle has no starting or ending point. You can jump in anywhere to see how it works. Let's begin with magma erupting from a towering volcano. The magma (now lava) cools and hardens into igneous rock. Over the course of thousands of years, sun, wind, rain, and freezing temperatures cause the rock to weather, or break down into smaller pieces. The pieces continue to weather, slowly breaking down into sediments. Howling winds, flowing water, and gravity gradually move the sediments down the sides of the volcano and beyond. Movement of sediments from place to place is called erosion.

Imagine that the sediments end up in a lake, where they settle to the bottom. Over long periods of time, more layers of sediments are deposited on top of them. Compacting and cementing processes eventually turn the deeply buried sediments into sedimentary rock.

Now imagine that the sedimentary rock is near the edge of a tectonic plate. The plate collides with another plate—very slowly, of course. Tremendous heat and pressure generated by the collision gradually turn the sedimentary rock into metamorphic rock. As the plates continue colliding, their rocky edges crumple. The metamorphic rock is slowly pushed up higher onto Earth's surface. Think mountains! Exposed to air, rain, and snow, the rock begins to weather and erode.

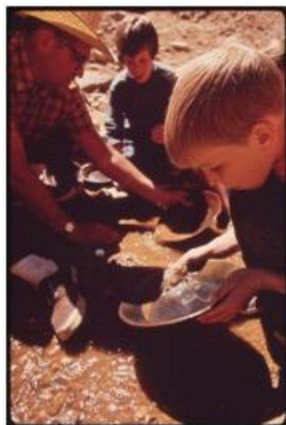
Alternatively, one tectonic plate might be sliding beneath another. The metamorphic rock along the edge of the descending plate gets hotter and hotter as it nears the mantle. At some point it melts into magma—magma that someday might erupt from a volcano again.

Understanding how rocks change helps geologists understand how Earth has changed over time.



Book of Knowledge: Write 2 or 3 things you learned from the article. Use complete sentences!

Panning For History



The Young Scout troop went on a camping trip one weekend. The 12 boys and their patrol leader went into the woods close to their home city of Sacramento, located in the state of California, U.S.A. They had many activities planned. The boys were going to learn about pitching tents, cooking on a fire, wood carving, and, because there was a river close by, panning.

Panning is simple and has a long history. It has been used for centuries to find rocks, minerals, and riches in riverbeds. All a person has to do is dip a large pan into a river, allow water, dirt, and stones to collect in it, and then shake. The pan can either have tiny holes or lengthy slits that will allow the water to escape, while leaving the rocks behind. There is always a chance that one of these rocks might actually be very valuable. One might even be a golden nugget!

The patrol leader had brought along six pans for the fun learning experience, so the boys worked in pairs. For a time, the boys went through the panning process and looked closely at the rocks they found. As they dipped and shook, then dipped and shook their pans some more, their patrol leader explained to them that panning for gold was in part responsible for one of the most important times in American history. And though a lot of people found riches in California, the gold rush of the mid-1800s also destroyed one man's fortune. That man's name was John Sutter.

Sutter had traveled to America from his home country of Switzerland after having a lot of trouble making money there. He left his wife and children in Switzerland, while he moved around the western part of the U.S. hoping to find a way to earn money. After years of effort, his work finally paid off. He was granted land in 1839 to form the colony of Nueva Helvetia, which means New Switzerland. This region is now known as the city of Sacramento. In the center of the colony in 1841, he was able to build "Sutter's Fort" as a trading center. Native Americans helped him build it, and he was able to give jobs to many people who were coming into the area from the eastern parts of the U.S. as well as some local Native Americans.

In 1847, Sutter was hoping to increase his wealth, and he began construction on a sawmill. A sawmill is a place where large tree trunks are cut down to make useful lumber. In January of 1848, the mill was almost complete when one of his workers came to him with a discovery that changed the United States forever. The worker, James W. Marshall, had found gold in a nearby river. He told Sutter, his boss, about it. Sutter felt that this discovery was actually a bad thing for him, and he was right.

Sutter and Marshall tried to keep the gold a secret, but people eventually found out. This affected Sutter because many of his workers just stopped working for him and began searching for gold. Then, thousands upon thousands of people from the eastern U.S., Mexico, and even Asia invaded the area, hoping to strike it rich. Many of these people were poor and desperate, so they were willing to make the long, dangerous trip to California from wherever they lived. A lot of them used the panning process in rivers to find gold because it was inexpensive and did not require large machines or explosives.

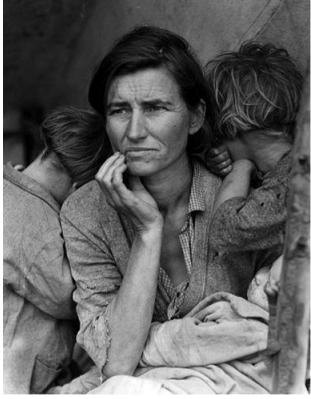
Many moved there in the year of 1849 and were then called '49ers. The nearby city of San Francisco grew tremendously, eventually becoming one of the biggest cities in the country. Roads were built so that people could get into the area. New laws were written, and, by September 1850, California was named the 31st state in the United States of America—one main reason being that so many people had moved there for gold.

Though some people struck it rich, Sutter was ruined. Nobody would work for him, and many people who came into the area stole from his farm and orchard. Soon, he would leave California and try his luck living in Pennsylvania.

None of the Young Scouts found any gold in the river during their camping trip. However, they heard quite a history lesson from their patrol leader about a really exciting time in history.

How Dorothea Lange and John Steinbeck Captured California in the 1930s

By the time California became an American state in 1850, it was already an important place for farming. Miners, ranchers, and farmers had been settling there for decades due to the state's many types of geography. California had a population of about 90,000 in 1850, and this grew to over 5 million by 1930. By the 20th century, California produced a lot of the nation's fruits, vegetables, and other crops.



When severe drought hit the Great Plains in the 1930s, many sought refuge in California. Migrant laborers arrived in the United States with no work, and their families often went hungry. This disastrous time was captured by newspaper reporters, but it also lives on in history through novels and photographs. Two Californians in particular were exceptional at recording this hard period.

John Steinbeck was born in Salinas, California, in 1902. He attended Stanford University, also in California, though he did not graduate. Eventually he moved to New York to become a writer, but he did not manage to get a career off the ground. He returned to his home state, where he started to write fiction about California and its people. Many of Steinbeck's most famous novels and short stories were written in the 1930s during America's Great Depression. Even though they are fictional, his subjects often show what was happening in history at the time. His book *Tortilla Flat* focused on people living in the countryside in Monterey, California.

Tortilla Flat is a funny story about a group of friends mostly enjoying themselves, but Steinbeck's later books dealt with more serious issues. *In Dubious Battle*, which the writer published in 1936, looks at migrant laborers who picked fruit in California's orchards. The workers were striking for better working conditions. Steinbeck also used his work to show the life and hardships faced by California's migrant ranch workers. *Of Mice and Men* is his story of two such workers, Lennie and George, who make their way from one town to another in California looking for work. Their dream is to own their own land one day, but many obstacles make this difficult to achieve.

Finally, Steinbeck's most famous novel about Californians is *The Grapes of Wrath*, published in 1939. Like some of Steinbeck's other stories, the book shows people facing poverty and hardship during the Great Depression. In the novel, a family of tenant farmers, the Joads, moves from Oklahoma to California after a drought leaves them too poor to farm. They are forced to become migrant laborers in order to survive.

Steinbeck's novels showed fictional versions of the very real problems people in California faced during the 1930s. In contrast, the photographs of Dorothea Lange offer real-life examples of hardship. Lange was born in New Jersey in 1895. As a young adult, she settled in San Francisco, California. She had decided in high school to become a photographer, and at first, she ran her own studio, where she took people's portraits.

During the 1920s, Lange traveled with her first husband, Maynard Dixon, around the southwestern United States. She began to take pictures of people and places in what is called "documentary style photography," because of the way it documents people's lives. In the 1930s, during the Great Depression, she began to take many more photos of the poor in order to illustrate the many problems they faced. She started with what she saw right in San Francisco and took pictures of striking laborers and people waiting on bread lines.

In 1934, Lange started working for the California State Emergency Relief Administration. The next year, she began to work as a photographer for the Resettlement Administration. Lange worked with her second husband, Paul Taylor, who wrote reports on migrant farm workers while Lange took the photos.

In 1936, Lange took what became her most famous picture. "Migrant Mother" shows a woman staring away from the camera. She is surrounded by some of her children. Two of them are hiding their faces. Everyone is hungry. The family is stuck in a pea-pickers' camp in California. They sold the tires on their car in order to buy food. Conditions at the migrant workers' camps were terrible. After Lange put the photo in a newspaper in San Francisco, the government stepped in to make sure no one at the camp starved. Without Lange and her work, conditions there could have been very different.

While we have history books to remind us of what took place in California and across the country during the Great Depression, photos and fiction can serve this purpose, too. Steinbeck's novels and Lange's photographs, showing specific people and events from that time period, have made a lasting impression on how we view the events of 1930s California.

Use the article "Panning for History" to answer questions 1 to 2.

1. Who were the '49ers?
2. Why did thousands of people from the Eastern U.S., Mexico, and Asia move to California? Support your answer with information from the article.

Use the article "How Dorothea Lange and John Steinbeck Captured California in the 1930s" to answer questions 3 to 4.

3. What happened to the Great Plains in the 1930s?
4. Why might many people have moved to California in the 1930s? Support your answer with information from the article.

Use the articles "How Dorothea Lange and John Steinbeck Captured California in the 1930s" and "Panning for History" to answer questions 5 to 7.

5. Compare the people who moved to California in 1849 with the people who moved there in the 1930s.
6. Contrast the people who moved to California in 1849 with the people who moved there in the 1930s.
7. Do the reasons that many people moved to California in 1849 have anything in common with the reasons that many people moved to California in the 1930s? Support your answer with information from both articles.

Display Measurement Data in a Line Plot

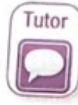
Lesson 8

ESSENTIAL QUESTION 
Why do we convert measurements?

You can represent measurement data for fractions of a unit in a **line plot**. The line plot's number line will look like a ruler.



Math in My World

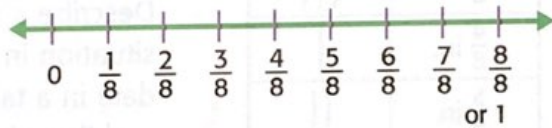


Example 1

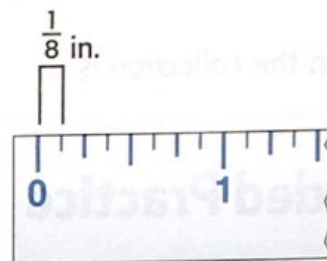
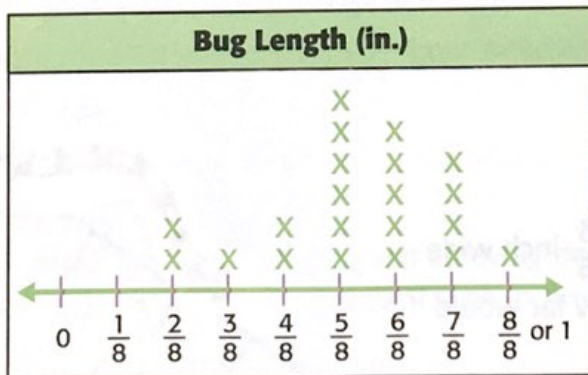
The Science room has a collection of bugs. Each bug's length is measured to the nearest eighth of an inch. Make a line plot to represent the data.

The measurement data are shown in the tally chart.

- First, make a number line to represent the value of each bug's length.



- Next, place an X above each measurement every time that value occurred.



Bug Length	
$\frac{1}{8}$ in.	
$\frac{2}{8}$ in.	
$\frac{3}{8}$ in.	
$\frac{4}{8}$ in.	
$\frac{5}{8}$ in.	
$\frac{6}{8}$ in.	
$\frac{7}{8}$ in.	
$\frac{8}{8}$ in.	

Example 2

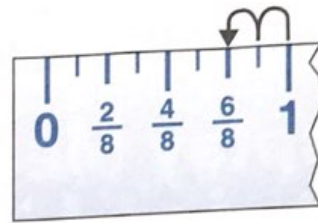
Refer to Example 1. Find the difference in length between the longest and shortest bug.

To find the difference between the longest and shortest bugs, subtract the shortest length from the longest length.

Subtract like fractions.

$$\frac{8}{8} - \frac{2}{8} = \frac{8-2}{8} = \frac{6}{8} = \frac{3}{4}$$

So, the difference between the longest and the shortest bugs in the collection is $\frac{3}{4}$ of an inch.



Guided Practice



For Exercises 1–2, use the tally chart shown.

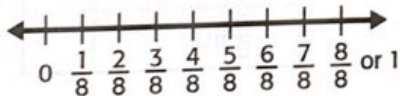
- The tally chart represents the widths of buttons collected by Bella's mother. Represent this data in a line plot.

Button Sizes (in.)

Button Sizes	
$\frac{1}{8}$ in.	
$\frac{3}{8}$ in.	
$\frac{4}{8}$ in.	
$\frac{5}{8}$ in.	
$\frac{7}{8}$ in.	

Talk MATH

Describe a real-world situation in which the data in a tally chart and line plot could be helpful.



- Suppose the buttons that were $\frac{3}{8}$ -inch wide were laid in a row touching. How far would that row extend?



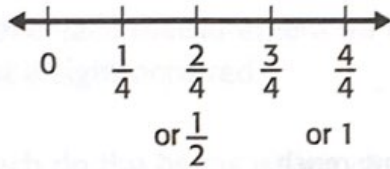
Independent Practice

For Exercises 3–6, use the table shown.

3. **Mathematical PRACTICE 4 Model Math** The frequency table represents fractions of an hour Sonja studied each evening over the last 2 weeks. Represent this data in a line plot.

Study Time			
$\frac{1}{4}$ h	$\frac{3}{4}$ h	$\frac{1}{2}$ h	$\frac{1}{4}$ h
$\frac{1}{2}$ h	$\frac{3}{4}$ h	$\frac{1}{4}$ h	1 h
$\frac{1}{2}$ h	$\frac{1}{4}$ h	$\frac{3}{4}$ h	$\frac{1}{2}$ h

Study Time (hr)



4. Which time interval was least frequent as a study time for Sonja? Explain.

5. What is the difference in the total time spent studying during the $\frac{3}{4}$ -hour time intervals and the $\frac{1}{2}$ -hour intervals?

6. What is the total time Sonja spent studying over the last two weeks in minutes? What is the equivalent time in hours and minutes?



Problem Solving

For Exercises 7–10, use the table shown.



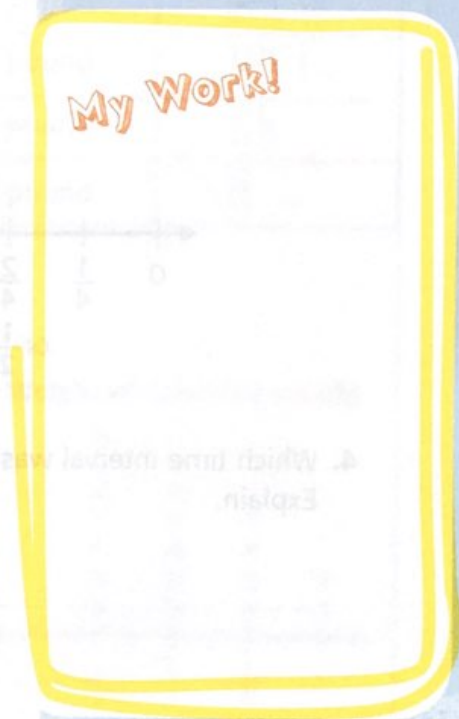
hamster $\frac{1}{8}$ c	dog 1c	hamster $\frac{2}{8}$ c	rabbit $\frac{1}{8}$ c
rabbit $\frac{2}{8}$ c	hamster $\frac{1}{8}$ c	cat $\frac{4}{8}$ c	dog 1c
cat $\frac{5}{8}$ c	dog 1c	rabbit $\frac{1}{8}$ c	dog $\frac{6}{8}$ c

7. Every time one of Quinn's pets needed its water refilled over the past week, he marked the amount of water given in a table. Represent the data in a line plot.



8. What is the difference between the smallest amount of water and the greatest amount of water Quinn gave to his pets over the week? Explain.

9. **Mathematical PRACTICE 3** **Draw a Conclusion** How much more water did the cat get than the hamster over the course of the week? Explain.



HOT Problems

10. **Mathematical PRACTICE 6** **Explain to a Friend** Explain to a friend the similarity between the number lines on a line plot and the markings on a ruler.

11. **? Building on the Essential Question** Line plots can be used to display measurement data. Name another way to display measurement data.

MY Homework

Lesson 8

Display Measurement Data in a Line Plot

Homework Helper



Need help? connectED.mcgraw-hill.com

At the farmers' market, Jeannie sells beans. Her scale weighs them in fractions of pounds. Jeannie made a tally chart showing how much each handful of beans weighed. How much do the beans weigh altogether?

Weight of Green Beans	
$\frac{1}{4}$ pound	
$\frac{1}{2}$ pound	
$\frac{3}{4}$ pound	
1 pound	

1 Make a line plot to represent the data. First, draw a number line. Then place an X above each measurement for each time that weight occurred.

2 How much do the beans weigh altogether? Multiply to find the total weight for each value.

$$7 \times \frac{1}{4} \text{ lb} = \frac{7}{4} \text{ lb} = 1 \frac{3}{4} \text{ lb}$$

$$6 \times \frac{1}{2} \text{ lb} = \frac{6}{2} \text{ lb} = 3 \text{ lb}$$

$$4 \times \frac{3}{4} \text{ lb} = \frac{12}{4} \text{ lb} = 3 \text{ lb}$$

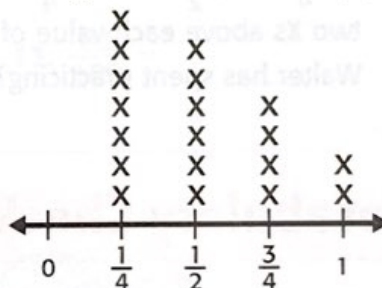
$$2 \times 1 \text{ lb} = 2 \text{ lb}$$

Then add the weights to find the total.

$$1 \frac{3}{4} \text{ lb} + 3 \text{ lb} + 3 \text{ lb} + 2 \text{ lb} = 9 \frac{3}{4} \text{ lb}$$

So, altogether the beans weigh $9 \frac{3}{4}$ pounds.

Weight of Green Beans (lb)



Practice

- Refer to the Homework Helper. What is the difference between the greatest green bean weight and the least green bean weight?

For Exercises 2 and 3, use the tally chart shown. The tally chart represents the distance some children were able to ride on a unicycle.


Distance	
$\frac{1}{5}$ mi	
$\frac{2}{5}$ mi	
$\frac{3}{5}$ mi	
$\frac{4}{5}$ mi	
1 mi	

2. Represent this data in a line plot.

3. What is the difference between the greatest distance ridden and the least distance ridden?



Problem Solving

4. **Mathematical PRACTICE**  **Draw a Conclusion** Walter practices piano for $\frac{1}{4}$ hour, $\frac{1}{2}$ hour, or $\frac{3}{4}$ hour every other day. If a line plot shows two Xs above each value of time, what is the total amount of time Walter has spent practicing?

Vocabulary Check



5. Describe one way to use a line plot.

Test Practice

6. Look at the tally chart or line plot from Exercise 2 above. What was the total distance ridden by all of the children?

- (A) $5\frac{3}{5}$ hours (C) $6\frac{2}{5}$ miles
(B) $5\frac{4}{5}$ miles (D) $6\frac{3}{5}$ miles

Name _____

Am I Ready?



Go online to take the Readiness Quiz

Multiply.

1. $8 \times 10 =$ _____ 2. $7 \times 1,000 =$ _____ 3. $10 \times 3 =$ _____
4. $4 \times 1,000 =$ _____ 5. $10 \times 9 =$ _____ 6. $1,000 \times 6 =$ _____

7. Ted is comparing his shoe to his mom's shoe. Circle the longer shoe.

Ted's shoe

Mom's shoe



Write each fraction as a decimal.

8. $\frac{2}{10} =$ _____ 9. $\frac{6}{10} =$ _____ 10. $\frac{9}{10} =$ _____
11. $\frac{24}{100} =$ _____ 12. $\frac{16}{100} =$ _____ 13. $\frac{83}{100} =$ _____

Write a decimal for each part of a dollar shown.

14.



15.



Shade the boxes to show the problems you answered correctly.

How Did I Do?

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Name _____

Metric Units of Length

Lesson 1

ESSENTIAL QUESTION ?

How can conversion of measurements help me solve real-world problems?

Length is the measurement of a line between two points. Millimeter, centimeter, meter, and kilometer are units that are part of the **metric system** of measure for length.

A **millimeter (mm)** is about as thick as 6 sheets of notebook paper.



A **centimeter (cm)** is about the length of a ladybug.



A **meter (m)** is about the height of a chair.



A **kilometer (km)** is about six city blocks.



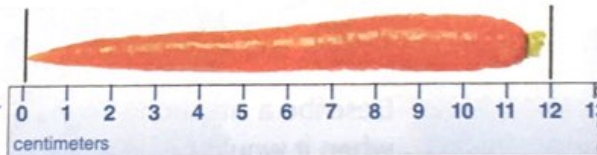
Math in My World



Example 1

Doug is growing carrots in his garden. He pulled out a carrot for lunch. Measure the carrot to the nearest centimeter.

Align the 0 on the ruler with the left side of the carrot.



The carrot is closer to the 12-centimeter mark than the 11-centimeter mark.

So, the carrot is almost _____ centimeters long.

Name _____

Before measuring the length of an object, always estimate the length to decide which unit of measurement is best to use.

Example 2



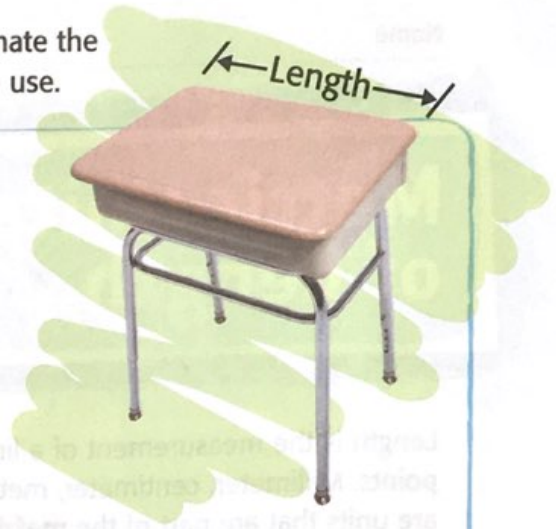
Choose the best estimate for the length of a student's desk.

10 millimeters = 1 centimeter

- (A) 5 centimeters
- (B) 5 millimeters
- (C) 50 centimeters
- (D) 50 millimeters

A desk has to be long enough to work on. So, centimeters are a better estimate than millimeters.

Since 5 centimeters, 5 millimeters, and 50 millimeters are all too small, the answer is _____, or choice _____.



Guided Practice



1. Estimate the length of the grasshopper. Then measure to the nearest centimeter.



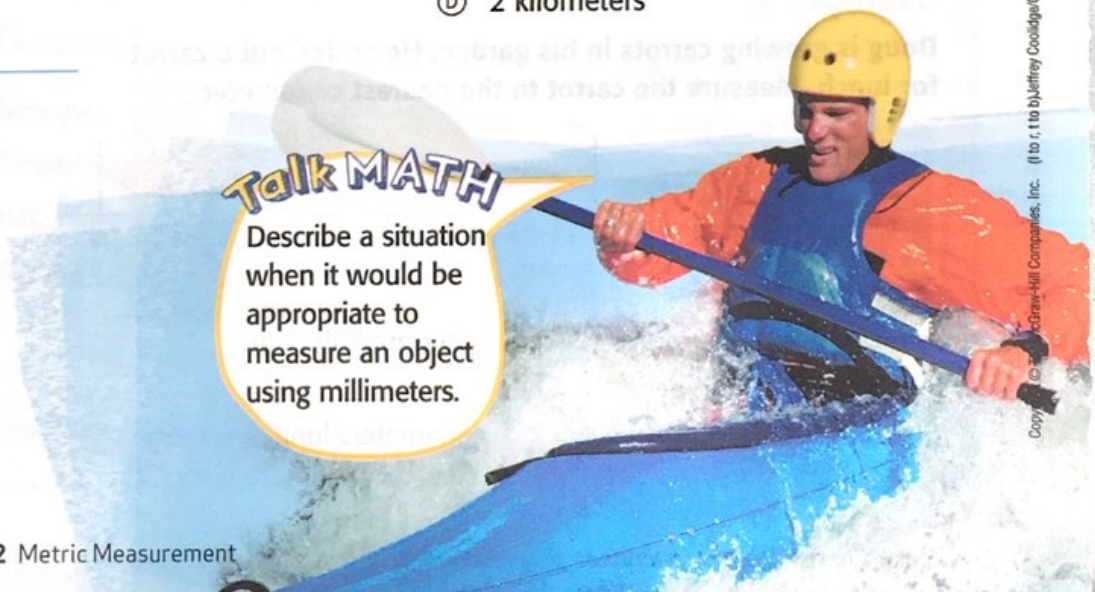
2. Choose the best estimate for the length of the kayak.

- (A) 6 centimeters
- (B) 2 meters
- (C) 6 meters
- (D) 2 kilometers



Talk MATH

Describe a situation when it would be appropriate to measure an object using millimeters.



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Name _____

Independent Practice

Estimate each length. Then measure each object to the nearest centimeter.

3.



Length: _____

4.



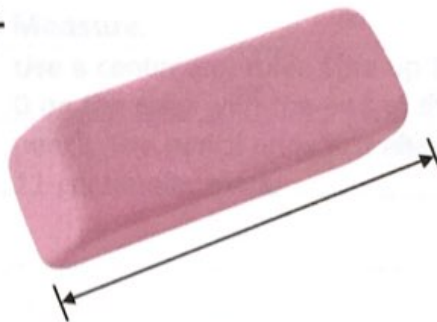
Length: _____

5.



Length: _____

6.



Length: _____

Choose the best estimate for each length.

7. height of a cornstalk

- (A) 2 millimeters
- (B) 2 centimeters
- (C) 2 meters
- (D) 2 kilometers



8. length of an airport runway

- (F) 5 millimeters
- (G) 50 centimeters
- (H) 5 meters
- (I) 5 kilometers





Problem Solving



9. A giraffe at the zoo is 5 meters tall. Name something else that is about 5 meters tall.

10. Is the distance from Boston, Massachusetts, to Phoenix, Arizona, about 4,000 centimeters or 4,000 kilometers? Explain.

11. **Mathematical PRACTICE 3** **Justify Conclusions** Why would it be better to measure the length of your classroom with a meterstick instead of a centimeter ruler?

My Work!

HOT Problems

12. **Mathematical PRACTICE 5** **Use Math Tools** Find three things in the classroom that are longer than 10 centimeters and smaller than 100 centimeters.

13. **?** **Building on the Essential Question** Is it reasonable to use centimeters to measure the length of any object? Explain.

Name _____

MY Homework

Lesson 1

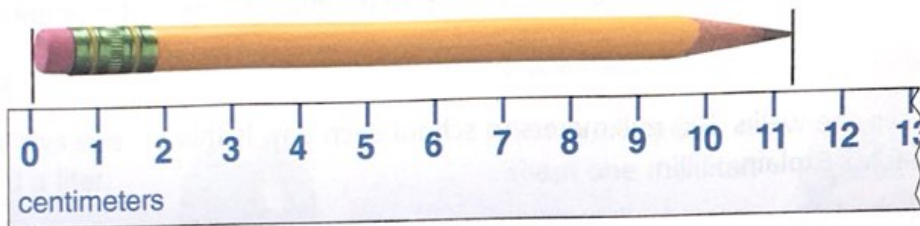
Metric Units of Length

Homework Helper



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Estimate the length. Then measure to the nearest centimeter.



1

Estimate.

You know that the length of a ladybug is about 1 centimeter. You can estimate that the pencil is about 10 ladybugs, or 10 centimeters, long.

2

Measure.

Use a centimeter ruler. Line up the 0 on the ruler with the end of the pencil. The pencil ends just after the 11-centimeter mark.

So, the pencil is about 11 centimeters long.

Practice

Estimate each length. Then measure each object to the nearest centimeter.

1.



Length: _____



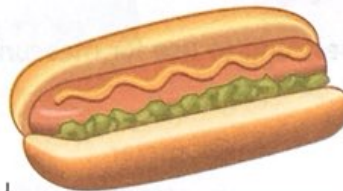
2.



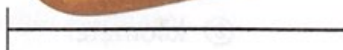
Length: _____



3.



Length: _____



Choose the best estimate for each length.

4. length of a river


- (A) 27 km (C) 170 cm
(B) 7 m (D) 270 mm

5. length of a sunflower seed

- (F) 90 cm (H) 90 mm
(G) 9 cm (I) 9 mm



Problem Solving

6. **Mathematical PRACTICE**  **Draw a Conclusion** Sonia is standing 20 centimeters from the door. Brice is standing 20 meters from the door. Who is standing farther from the door?

7. Carly says she walks 300 millimeters to school each day. Is this reasonable? Explain.

8. At his aunt's farm, Benjamin sees a horse that is 2 meters long. Name two other things that are about 2 meters long.

Vocabulary Check



9. List the metric system units for measuring length in order from *greatest* to *least*.

centimeter kilometer meter millimeter

Test Practice

10. Which is the best unit to use for measuring the length of an eyelash?

- (A) millimeter (C) meter
(B) centimeter (D) kilometer

Name _____

Metric Units of Capacity

Lesson 2

ESSENTIAL QUESTION ?

How can conversion of measurements help me solve real-world problems?

The amount of liquid a container can hold is its capacity. The liter (L) and milliliter (mL) are units of measurement for capacity in the metric system.

liter (L)

A bottle this size can hold a liter.



milliliter (mL)

An eyedropper holds about one milliliter.



Math in My World



Example 1

Decide whether 300 milliliters or 300 liters is the more reasonable estimate for the capacity of the mug.

Use logic to estimate the capacity.

300 mL

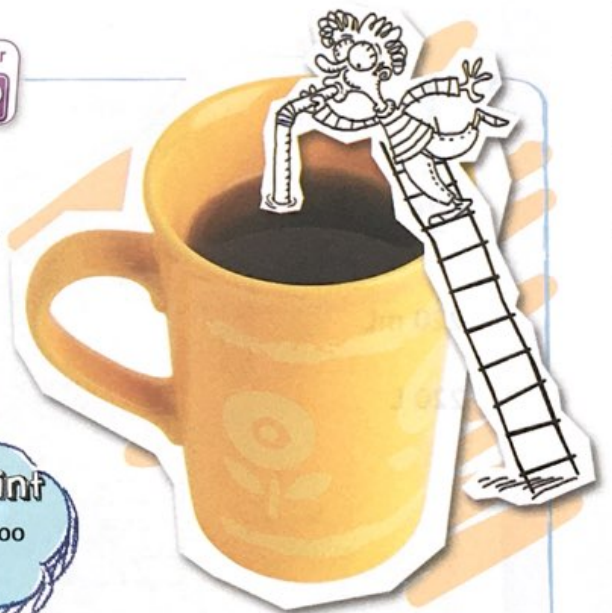
Helpful Hint

300 eyedroppers are reasonable.

300 L

Helpful Hint

300 bottles are too much.



So, _____ is the more reasonable estimate.



Example 2

Decide whether 600 milliliters or 600 liters is the more reasonable estimate for the capacity of the swimming pool.

The pool is a large object. So, 600 milliliters is too small.

So, _____ is the more reasonable estimate.



Guided Practice



Circle the more reasonable estimate for each capacity.

1.



1 mL

1 L

2.



38 mL

38 L

3.



220 mL

220 L

Talk MATH

Describe the unit of capacity you would use to measure the capacity of a bottle of medicine.



Name _____

Independent Practice

Circle the more reasonable estimate for each capacity.

4.



150 mL

150 L

5.



120 mL

120 L

6.



500 mL

500 L

7.



700 mL

700 L

8.



1 mL

1 L

9.



30 mL

30 L

10. Select three containers. Decide whether each container has a capacity that is greater than, less than, or equal to 1 liter. Complete the table.

Object	Estimate



Problem Solving

11. **Mathematical PRACTICE 2 Reason** Jenna said that she took 4 milliliters of medicine when she was sick. Is this a reasonable statement? Explain.

12. Jonah said he drank 3 liters of water after his soccer game. Is this a reasonable statement? Explain.

HOT Problems

13. **Mathematical PRACTICE 4 Model Math** Think of three objects in your house that can hold more than 1 liter. List them.

14. **Mathematical PRACTICE 1 Plan Your Solution** Suppose you have a 4-liter bucket and a 7-liter bucket. You need 3 liters of water for an aquarium. Explain how to get 3 liters of water if neither bucket is marked.

15. **? Building on the Essential Question** How is measuring capacity with the metric system similar to measuring capacity with the customary system?

My Work!



Am I half empty or half full?

Name _____

MY Homework

Lesson 2

Metric Units of Capacity

Homework Helper

eHelp



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Thom is making stew for his family. Is it more reasonable to say the capacity of the stew pot is 5 liters or 5 milliliters?

You know that a milliliter is a tiny amount—about the capacity of an eyedropper.

You know that a liter is a greater amount—about the capacity of a large water bottle.

It would not be reasonable to estimate the capacity of a stew pot in milliliters.

So, it would be more reasonable to say the capacity of the stew pot is 5 liters.

Practice

Choose the most reasonable estimate for each capacity.

1. (A) 40 liters
(B) 4 liters
(C) 40 milliliters
(D) 4 milliliters



2. (F) 10 mL
(G) 100 mL
(H) 10 L
(I) 100 L



3. (A) 1 liter
(B) 3 liters
(C) 7 liters
(D) 10 liters



4. (F) 17 mL
(G) 170 mL
(H) 170 L
(I) 17 L




Match each object to its reasonable capacity.

- | | |
|--------------------------|------------------|
| 5. bottle of nail polish | • 300 liters |
| 6. bathtub | • 2 liters |
| 7. large pitcher | • 15 milliliters |



Problem Solving

8. **Mathematical PRACTICE**  **Check for Reasonableness** Emerson needs to use eye drops. Is it reasonable for her to put 1 milliliter of drops in each eye? Explain.

9. Ryan fills his cat's water bowl. Is it reasonable to say he uses 1 milliliter of water? Explain.

10. Identify 2 objects you could find in a grocery store that hold less than 100 milliliters.

Vocabulary Check



Write a vocabulary term to complete each sentence.

liters milliliters

11. The capacity of a baby's bottle would be measured in _____.
12. The capacity of a fish tank would be measured in _____.

Test Practice

13. Which is a reasonable estimate for the capacity of a bottle of mouthwash?
- (A) 1 milliliter (C) 1 liter
- (B) 20 milliliters (D) 20 liters

Name _____

Metric Units of Mass

Lesson 3

ESSENTIAL QUESTION ?

How can conversion of measurements help me solve real-world problems?

Mass is the amount of matter an object has. The mass of an object is not affected by gravity. However, an object's weight differs depending on gravity.

gram (g)

The mass of a penny is about 1 gram.



kilogram (kg)

The mass of six medium apples is about 1 kilogram.



$$1,000 \text{ grams (g)} = 1 \text{ kilogram (kg)}$$



Math in My World



Example 1

Which is the more reasonable estimate for the mass of the laptop, 2 grams or 2 kilograms?

Use logic to estimate the mass.

2 grams

2 kilograms

Helpful Hint

2 grams would have the same mass as about 2 pennies.

Helpful Hint

2 kilograms would have the same mass as about 12 medium apples.

So, _____ is the more reasonable estimate.





Example 2

Is it more reasonable to say that a rabbit's mass is 3 grams or 3 kilograms?

3 grams

3 kilograms



Helpful Hint

3 grams is too small.

Helpful Hint

3 kilograms is a reasonable estimate.

So, _____ is the more reasonable estimate.

Guided Practice



Circle the more reasonable estimate for each mass.

1.



25 grams

25 kilograms

2.



450 grams

450 kilograms

Talk MATH

Explain the difference between weight and mass.



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Independent Practice

Circle the more reasonable estimate for each mass.

3.



8 grams

8 kilograms

4.



100 grams

100 kilograms

5.



25 grams

25 kilograms

6.



20 grams

20 kilograms

7.



30 grams

30 kilograms

8.



50 grams

50 kilograms

9. The table lists items that can be found in the classroom. Estimate the mass of each object. Record your estimates in the table.

Object	Estimate
glue bottle	
paper clip	
pencil	
stapler	



Problem Solving

10. Tyler bought a large bag of peanuts at a baseball game. Is it more reasonable to say that the mass of the peanuts is 1 gram or 1 kilogram?

Mathematical
PRACTICE 6

11. **Explain to a Friend** Alicia is buying 6 oranges that cost \$1 per kilogram. Is it reasonable to say that the cost of the oranges will be greater than \$6? Explain to a friend.

HOT Problems

Mathematical
PRACTICE 4

12. **Model Math** List five classroom objects that have a mass greater than 1 kilogram.

Mathematical
PRACTICE 2

13. **Reason** Which weighs more, an astronaut on Earth or the same astronaut on the Moon? Explain.

14. **Building on the Essential Question** Name a real-world example of something that has a mass that can be measured with a metric unit.

My Work!



Name

MY Homework

Lesson 3

Metric Units of Mass

Homework Helper



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Geneva subscribes to a nature magazine. Is it reasonable to estimate that the mass of one issue of the magazine is 25 grams or 25 kilograms?

Twenty-five kilograms is too much.

You know that the mass of 1 penny is about 1 gram. Imagine holding 25 pennies in one hand and a magazine in the other. They would probably feel about the same.

So, it is reasonable to say the mass of one magazine is about 25 grams.

Practice

Circle the more reasonable estimate for each mass.

1.



1,500 grams 1,500 kilograms

2.



5 grams 5 kilograms

3.



3 grams 3 kilograms

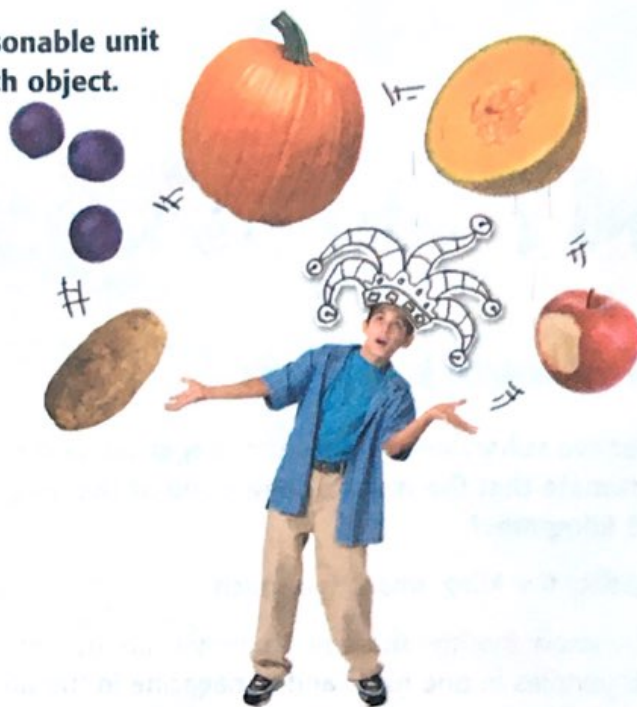
4.



14 grams 14 kilograms


Complete the table by writing a reasonable unit of mass, grams or kilograms, for each object.

Mass of Fruits and Vegetables	
Object	Mass (g or kg)
5. grape	1 <input type="text"/>
6. pumpkin	2 <input type="text"/>
7. apple	150 <input type="text"/>
8. cantaloupe	1 <input type="text"/>
9. potato	1 <input type="text"/>



Problem Solving

10. The mass of a pen cap is 1 unit. What metric unit, gram or kilogram, was used to measure the mass of the pen cap?

11. **Mathematical PRACTICE**  **Explain to a Friend** Julio is buying a carton of blueberries that has a mass of 100 grams. Is it reasonable to say that there are 250 blueberries in the carton? Explain.

Vocabulary Check



Match each vocabulary term to its definition or example.

- | | |
|--------------|--|
| 12. kilogram | • the amount of matter an object has |
| 13. mass | • a metric unit of mass equal to about 1 penny |
| 14. gram | • 1,000 grams |

Test Practice

15. Which is a reasonable estimate for the mass of a toothbrush?
- (A) 2 grams (B) 20 grams (C) 200 grams (D) 2,000 grams

Name _____

Convert Metric Units

Lesson 5

ESSENTIAL QUESTION ?

How can conversion of measurements help me solve real-world problems?

You can multiply to convert, or change between, units.



Math in My World



Example 1

The tree in Camryn's front yard is 4 meters tall. How many centimeters tall is the tree?

Since meters are larger than centimeters, multiply.

$$4 \times 100 = 400$$

Multiply by 100 because there are 100 centimeters in each meter.

4 meters = _____ centimeters

So, the tree is _____ centimeters tall.

Metric Units of Length

- 1 centimeter (cm) = 10 millimeters (mm)
- 1 meter (m) = 100 centimeters (cm)
- 1 kilometer (km) = 1,000 meters (m)

Example 2



Complete. 5 liters = ■ milliliters

Since liters are larger than milliliters, multiply.

$$5 \times 1,000 = 5,000$$

Multiply by 1,000 because there are 1,000 milliliters in each liter.

So, 5 liters = _____ milliliters.

Metric Units of Capacity

- 1 liter (L) = 1,000 milliliters (mL)

Example 3



Convert 7 kilograms to grams.

7 kilograms = ? grams

Kilograms are larger than grams. So, use multiplication.

Multiply by 1,000 because 1 kilogram = 1,000 grams.

$$1,000 \times 7 = \underline{\hspace{2cm}}$$

So, 7 kilograms = grams.

Metric Units of Mass

1 kilogram (kg) = 1,000 grams (g)

Guided Practice



Complete each conversion table.

List the number pairs in the last column of the conversion table.

1.

kilometers (km)	meters (m)	(km, m)
1	1,000	(1, 1,000)
2		
3		
4		

2.

centimeters (cm)	millimeters (mm)	(cm, mm)
1		
2		
3		
4		

3.

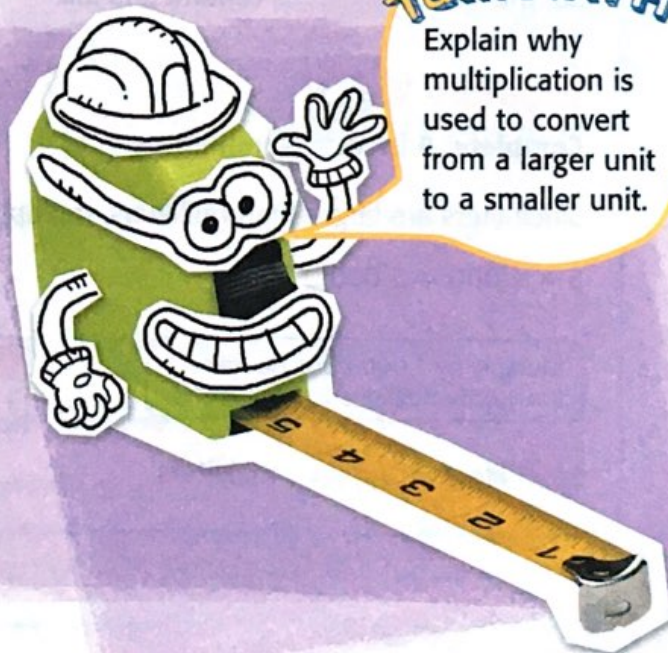
meters (m)	centimeters (cm)	(m, cm)
5		
6		
7		
8		

4.

liters (L)	milliliters (mL)	(L, mL)
1	1,000	(1, 1,000)
2		
3		
4		

Talk MATH

Explain why multiplication is used to convert from a larger unit to a smaller unit.



Name _____

Independent Practice

Complete each conversion table.

5.

meters (m)	centimeters (cm)	(m, cm)
4		
5		
8		
9		

6.

kilograms (kg)	grams (g)	(kg, g)
7		
9		
11		
13		

Algebra Find each unknown number.

7. $6 \text{ L} = \blacksquare \text{ mL}$

$\blacksquare = \underline{\hspace{2cm}}$

8. $5 \text{ m} = \blacksquare \text{ cm}$

$\blacksquare = \underline{\hspace{2cm}}$

9. $2 \text{ kg} = \blacksquare \text{ g}$

$\blacksquare = \underline{\hspace{2cm}}$

10. $5 \text{ cm} = \blacksquare \text{ mm}$

$\blacksquare = \underline{\hspace{2cm}}$

11. $12 \text{ kg} = \blacksquare \text{ g}$

$\blacksquare = \underline{\hspace{2cm}}$

12. $4 \text{ m} = \blacksquare \text{ mm}$

$\blacksquare = \underline{\hspace{2cm}}$

13. $5 \text{ L} = \blacksquare \text{ mL}$

$\blacksquare = \underline{\hspace{2cm}}$

14. $7 \text{ km} = \blacksquare \text{ m}$

$\blacksquare = \underline{\hspace{2cm}}$

15. $19 \text{ m} = \blacksquare \text{ cm}$

$\blacksquare = \underline{\hspace{2cm}}$

16. $9 \text{ kg} = \blacksquare \text{ g}$

$\blacksquare = \underline{\hspace{2cm}}$


17. $18 \text{ L} = \blacksquare \text{ mL}$

$\blacksquare = \underline{\hspace{2cm}}$

18. $22 \text{ cm} = \blacksquare \text{ mm}$

$\blacksquare = \underline{\hspace{2cm}}$

19. How many times larger is one kilogram than one gram? _____

20. **Mathematical PRACTICE**  **Use Number Sense** How many times longer is one kilometer than one meter? _____

21. How many times longer is one meter than one centimeter? _____



Problem Solving

22. The mass of Kendall's bicycle is 12 kilograms. What is the mass of the bicycle in grams?

23. Mrs. Liu's house is 7 meters tall. How tall is the house in centimeters?

24. **Mathematical PRACTICE 2** **Use Number Sense**
Javier needs 2 liters of iced tea for a picnic. How many milliliters of iced tea does he need?

25. Avery's dad is running a race that is 6 kilometers long. How many meters is that race?

My Work!

HOT Problems

26. **Mathematical PRACTICE 3** **Which One Doesn't Belong?** Circle the measurement that does not belong. Explain.

300 grams

10 Kilograms

10 pounds

600 grams

27. **?** **Building on the Essential Question** When converting from a larger unit to a smaller unit, why does the value of the measurement increase?

Name _____

MY Homework

Lesson 5

Convert Metric Units

Homework Helper



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Liam is delivering trophies for the soccer team. The mass of one trophy is 2 kilograms. What is the mass in grams of the trophy?

Kilograms are larger than grams, so you will multiply.

$$2 \text{ kilograms} \times 1,000 = 2,000 \text{ grams}$$

So, the mass of the trophy in grams is 2,000 grams.

Helpful Hint

1 centimeter (cm) = 10 millimeters (mm)

1 meter (m) = 100 centimeters (cm)

1 kilometer (km) = 1,000 meters (m)

1 liter (L) = 1,000 milliliters (mL)

1 kilogram (kg) = 1,000 grams (g)

Kymie said her driveway is 14 meters long. How long is her driveway in centimeters?

Meters are larger than centimeters, so you will multiply.

$$14 \text{ meters} \times 100 = 1,400 \text{ centimeters}$$

So, Kymie's driveway is 1,400 centimeters long.

Practice

Algebra Find each unknown number.

1. $7 \text{ kg} = \blacksquare \text{ g}$

$\blacksquare = \underline{\hspace{2cm}}$

2. $\blacksquare \text{ mm} = 9 \text{ cm}$

$\blacksquare = \underline{\hspace{2cm}}$

3. $5 \text{ L} = \blacksquare \text{ mL}$

$\blacksquare = \underline{\hspace{2cm}}$

4. $23 \text{ m} = \blacksquare \text{ cm}$

$\blacksquare = \underline{\hspace{2cm}}$

5. $17 \text{ kg} = \blacksquare \text{ g}$

$\blacksquare = \underline{\hspace{2cm}}$

6. $450 \text{ cm} = \blacksquare \text{ mm}$

$\blacksquare = \underline{\hspace{2cm}}$




Problem Solving

7. Molly measured the distance her paper airplane flew. The paper airplane traveled 5 meters. How many centimeters did the paper airplane travel?

8. Thad is riding his bike to the library, which is 3 kilometers away. How many meters away is the library?

9. Patrick has 5 liters of water. How many milliliters of water does he have?

10. Maria's suitcase has a mass of 14 kilograms. How many grams is the mass of her suitcase?

11. **Mathematical PRACTICE**  **Use Number Sense** Minh is packing books into boxes. The mass of one of the boxes is 20 kilograms. What is the mass of the box in grams?

Test Practice

12. Which is equivalent to 300 meters?
- (A) 30 kilometers (C) 30,000 centimeters
(B) 3 kilometers (D) 3,000 centimeters

My Work!