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## Lesson 6:

Solve multi-step word problems by using metric measurement conversion.

CCSS Standard – 5.MD.A.1

**FLUENCY** (10-min)

**Whiteboard Exchange: Estimate Products**



$$174 \times 3 \approx \begin{array}{|c|} \hline \square \\ \hline \end{array} \times 3$$
$$174 \times 3 \approx \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 3$$

*What is 174 rounded to the nearest hundred?*

*This statement reads "174 x 3 is **about** 200 x 3". Repeat this statement.*

*Now solve for 200 x 3.*

**FLUENCY** (10-min)

## Whiteboard Exchange: Estimate Products



$$219 \times 4 \approx \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 4$$
$$219 \times 4 \approx \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times 4$$

*What is 219 rounded to the nearest hundred?*

*This statement reads “219 x 4 is **about** 200 x 4”. Repeat this statement.*

*Now solve for 200 x 4.*

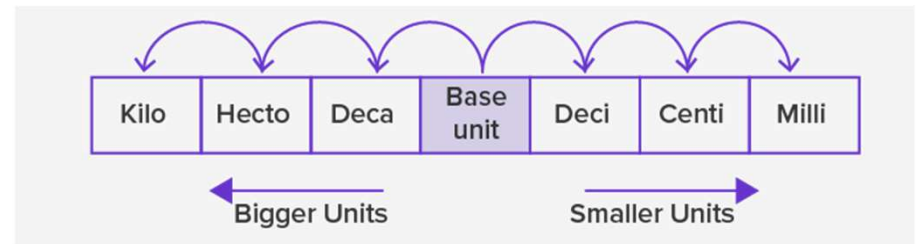
**Let's try some more! Get your whiteboards ready.**

<https://digital.greatminds.org/planning/teacher/guidance/1852>

**FLUENCY (10-min)****Choral Response: Convert Metric Units**

*How many centimeters are equal to 1 meter?*

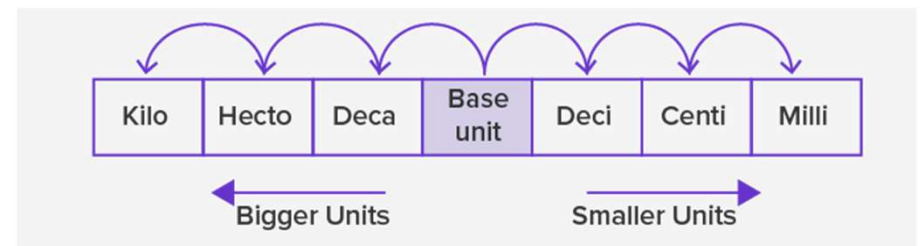
Meters (m)	Centimeters (cm)
1	<input type="text"/>
2	<input type="text"/>
4	<input type="text"/>
8	<input type="text"/>
9	<input type="text"/>



**FLUENCY (10-min)****Choral Response: Convert Metric Units**

*How many centiliters are equal to 1 liter?*

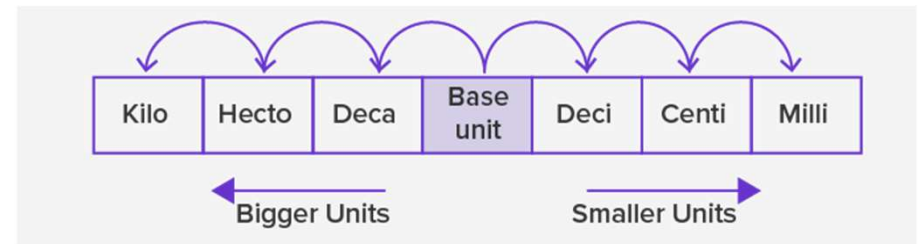
Liters (L)	Centiliters (cL)
1	<input type="text"/>
2	<input type="text"/>
5	<input type="text"/>
7	<input type="text"/>
9	<input type="text"/>



**FLUENCY (10-min)****Choral Response: Convert Metric Units**

*How many centigrams are equal to 1 gram?*

Grams (g)	Centigrams (cg)
1	<input type="text"/>
2	<input type="text"/>
6	<input type="text"/>
9	<input type="text"/>
10	<input type="text"/>



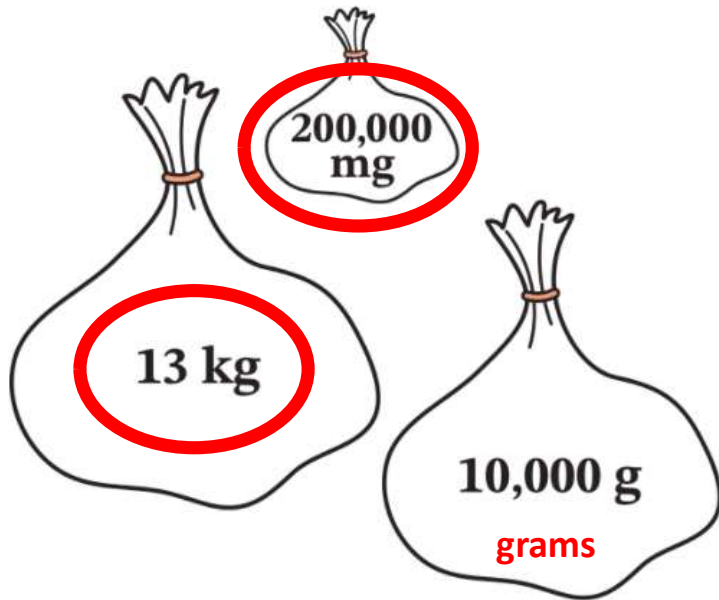
**LAUNCH** (5-min)

Convert metric units to compare weights of two collections of gold coins.

Collection A

Total grams:  
13,000  
10,000  
+ 200  
-----  
23,200

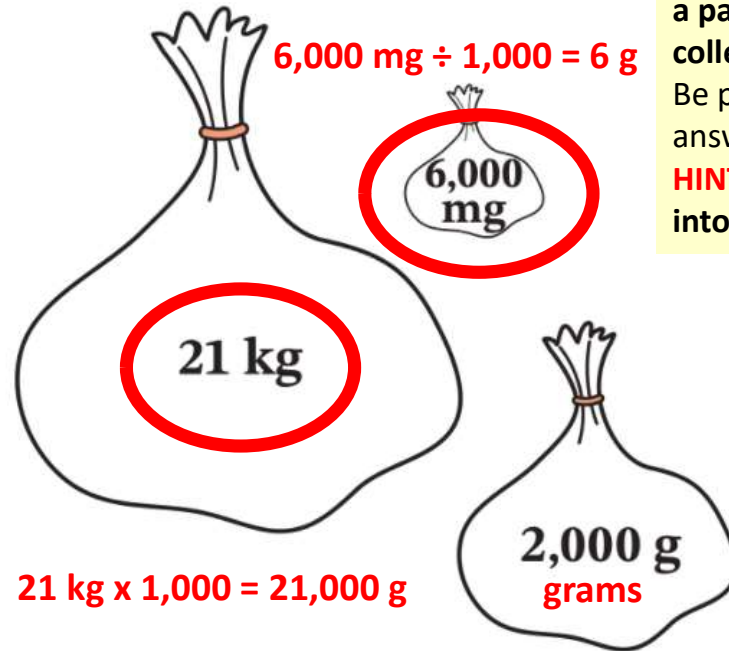
$200,000 \text{ mg} \div 1,000 = 200 \text{ g}$



$13 \text{ kg} \times 1,000 = 13,000 \text{ g}$

Total grams:  
21,000  
2,000  
+ 6  
-----  
23,006

Collection B



$6,000 \text{ mg} \div 1,000 = 6 \text{ g}$

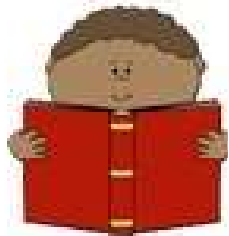
$21 \text{ kg} \times 1,000 = 21,000 \text{ g}$

While Toby plays a video game, he sees two collections of gold coins. If he determines which collection of coins weighs more, he gets to keep both collections. **Work with a partner to determine which collection weighs more.** Be prepared to defend your answer.  
**HINT:** Convert both collections into grams.

Why was it a good strategy to convert all measurement in the same unit?

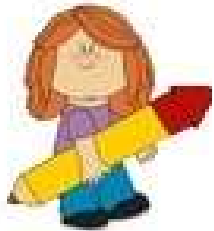
**LEARN** (35-min)

**Read-Draw-Write Problem Solving Process (R-D-W)**



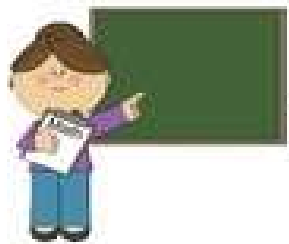
**Read**

Read the problems **all the way through**. Then reread parts at a time. As you read, ask yourself “Can I draw something?” then “What can I draw?”



**Draw**

Draw to represent the problem as you reread. Add to or revise your drawing as you uncover new information. As you draw, label what is known and what is unknown.



**Write**

Write number sentences or equations to represent your thinking.

Sasha has 6 meters 40 centimeters of ribbon. She plans to divide the ribbon equally to wrap 8 gifts that are the same size. How many centimeters of ribbon should Sasha cut for each gift?



First, let's convert everything into the same unit... centimeters.

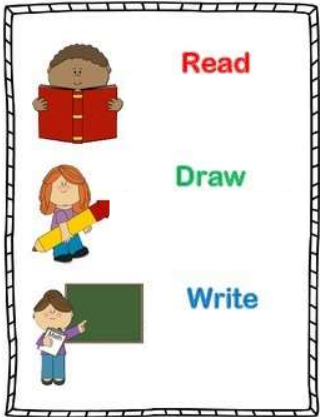
$6 \text{ meters} = 600 \text{ centimeters}$   
 $600 \text{ cm} + 40 \text{ cm} = 640 \text{ cm}$

Now that we know Sasha has 640 cm, we can divide that by 8 gifts

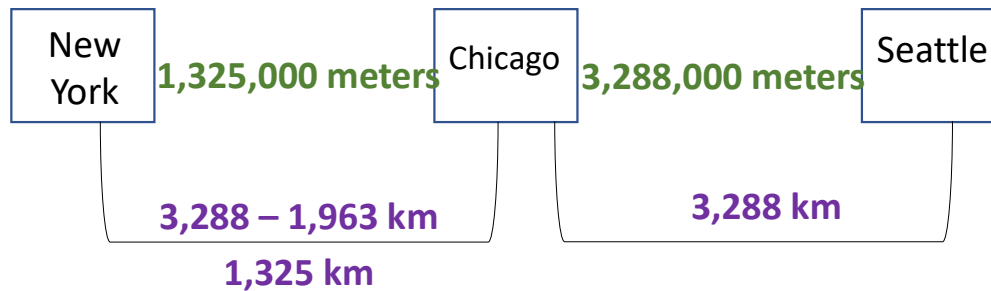
$640 \div 8 = 80 \text{ cm}$

Each gift needs 80 cm of ribbon!



**LEARN (35-min)****Read-Draw-Write Problem Solving Process (R-D-W)**

A family takes a road trip from New York City to Seattle, and they stop in Chicago on the way. The distance from New York City to Chicago is 1,963 kilometers less than the distance from Chicago to Seattle. The distance from Chicago to Seattle is 3,288 kilometers. If the family travels the same route to Seattle and back, how many total meters do they travel?



First, let's subtract and find the distance from New York to Chicago.

$$3,288 - 1,963 = 1,325 \text{ km}$$

Next, let's CONVERT all kilometers into meters.

$$1,325 \text{ km} = 1,325,000 \text{ meters (x 1000)}$$

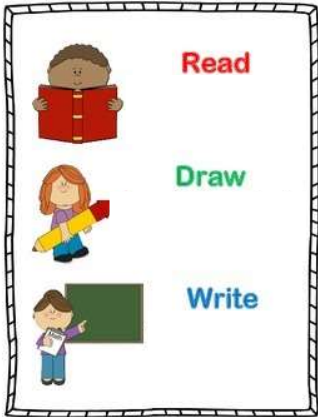
$$3,288 \text{ km} = 3,288,000 \text{ meters (x 1000)}$$

Now that everything is in meters, we just need to ADD each way twice for a round trip!

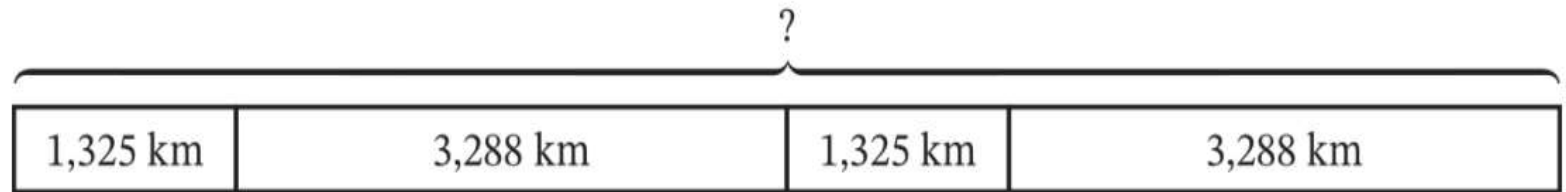
$$\begin{array}{r}
 1,325,000 \text{ meters} \\
 3,288,000 \text{ meters} \\
 1,325,000 \text{ meters} \\
 + 3,288,000 \text{ meters} \\
 \hline
 9,226,000 \text{ meters}
 \end{array}$$

**LEARN** (35-min)

**Read-Draw-Write Problem Solving Process (R-D-W)**



A family takes a road trip from New York City to Seattle, and they stop in Chicago on the way. The distance from New York City to Chicago is 1,963 kilometers less than the distance from Chicago to Seattle. The distance from Chicago to Seattle is 3,288 kilometers. If the family travels the same route to Seattle and back, how many total meters do they travel?



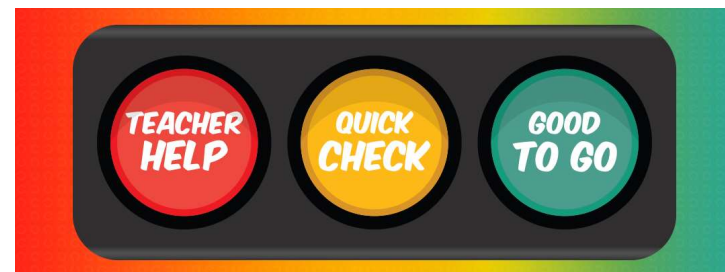
**This is called a tape diagram. Why do you think the pieces are different size?**

**Why would this be the best tape diagram for the word problem we just solved?**

**Would it have been easier if we waited until the very end to convert all parts into meters?**

**LAND** (10-min)

**Exit Ticket**



Use the Read–Draw–Write process to solve the problem.

Lacy needs 650 centimeters of ribbon for a project. She already has 2 m 596 mm of ribbon. How many more millimeters of ribbon does Lacy need?

After Exit Ticket:

Work on pages xxxx in workbook.

**Small Group Time:**

Finish pages xxxxx