

NAME \_\_\_\_\_

Module 12 Attributes and Tools  
Lesson 2 Same System Conversions

### Lesson Objectives

- Make conversions within the same measurement system, either customary or metric, in real-world problems (e.g. hours to minutes to seconds, meters to centimeters, feet to inches, liters to milliliters, quarts to gallons, etc).
- Make conversions using time in real-world problems.

### Subtopic 1 Converting Customary Units

#### Length

12 in. = 1 ft  
3 ft = 1 yd  
1,760 yd = 1 mi  
5,280 ft = 1 mi

#### Weight

16 oz = 1 lb  
2,000 lb = 1 T

#### Capacity

8 fl oz = 1 c  
2 c = 1 pt  
2 pt = 1 qt  
4 qt = 1 gal

**1**

Ruby must be at least 48 inches tall in order to ride the Flying Super Saturator. She is four feet, eight inches tall. Is Ruby tall enough to ride? Explain.

$$12 \frac{\text{in.}}{\text{ft}} \times 4 \text{ ft} = 48 \text{ in.}$$

$$48 \text{ in.} + 8 \text{ in.} = 56 \text{ in.}$$

**Yes: 56 in. > 48 in.**

**2**

Eddie's moon dog weighs 234 ounces. What is the dog's weight in pounds and ounces?

$$\frac{1 \text{ lb}}{16 \text{ oz}} \times 234 \text{ oz} = \frac{234}{16} \text{ lb}$$

$$= 14 \frac{10}{16} \text{ lb}$$

$$= 14 \text{ lbs, } 10 \text{ oz}$$

**Eddie's moon dog weighs 14 pounds, 10 ounces.**

3

Luria drank five cups of water after her walk. How many pints did she drink?

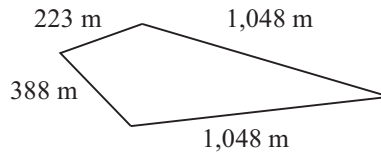
$$\frac{1 \text{ pt}}{2 \cancel{\text{ c}}} \times 5 \cancel{\text{ c}} = \frac{5}{2} \text{ pt} = 2\frac{1}{2} \text{ pt} = 2 \text{ pt}, 1 \text{ c}$$

**Luria drank 2 pints and 1 cup of water.**

### Subtopic 2 Converting Metric Units

4

The diagram shows the course for a walk-a-thon. Julio's goal is to walk five kilometers. He walks the perimeter of the course twice. Does Julio reach his goal? Explain.



$$223 + 388 + 1,048 + 1,048 = 2,707$$

$$2,707 \text{ m} \times 2 = 5,414 \text{ m}$$



$$5,414 \text{ m} = 5.414 \text{ km}$$

$$5.414 \text{ km} > 5 \text{ km}$$

**Julio reached his goal.**

5

An Earth math book has a mass of five kilograms. What is the mass in grams?

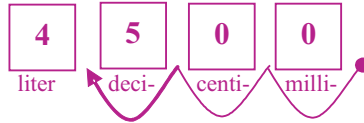


**The book has a mass of 5,000 grams.**

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**Module 12**   **Attributes and Tools**  
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**6** A bathroom sink holds 4,500 milliliters of water. How many liters does it hold?



**The sink holds 4.5 L of water.**

**Subtopic 3**   **Converting Time Units**

Time Unit Equivalents

60 seconds (sec) = 1 minute (min)

**60** minutes (min) = 1 hour (h)

24 hours (h) = 1 day (d)

7 days (d) = 1 week (wk)

12 months (mo)

1 year (yr) = 52 weeks (wk)

**365** days (d)

10 yr = 1 decade

100 yr = 1 **century**

**1,000** yr = 1 millennium

**7** Jermaine finished a race in three minutes, 45 seconds. What was his time in seconds?

$$60 \frac{\text{sec}}{\text{min}} \times 3 \text{ min} = 180 \text{ seconds}$$
$$180 \text{ sec} + 45 \text{ sec} = 225 \text{ seconds}$$

**Jermaine finished the race in 225 seconds.**

