

## Vocabulary

**decimeter (dm)** A metric unit for measuring length or distance

**fluid ounce (fl oz)** A customary unit for measuring liquid volume

**line plot** A graph that shows the frequency of data along a number line

**second** A small unit of time

Dear Family,

During the next few weeks, our math class will be learning about customary and metric units of length, weight/mass, and liquid volume. We will also find elapsed time and learn to compute with mixed measures.

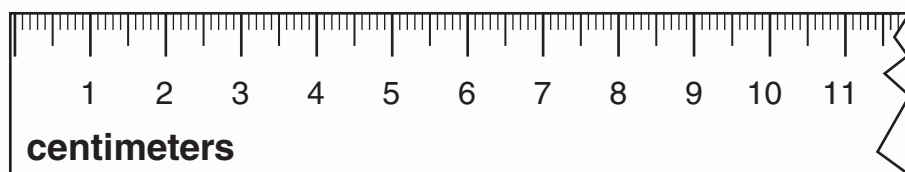
You can expect to see homework on how to use measurement benchmarks and how to compare units.

Here is a sample of how your child will be taught to compare sizes of metric units of length.



### MODEL Compare the Relative Size of Centimeters and Millimeters

Look at a centimeter ruler.



Each labeled mark on the ruler is 1 centimeter.

The small marks between centimeters are millimeters.

1 centimeter = 10 millimeters

1 centimeter is 10 times as long as 1 millimeter.

1 millimeter is  $\frac{1}{10}$  or 0.1 of a centimeter.

### Tips

#### Estimating Measures

Use benchmarks to help you estimate measures. For example, the width of your finger is about 1 centimeter.

### Activity

Have your child commit basic customary and metric units of measure to memory. Work together to make flash cards with measurement units, and have your child practice relating and comparing units. Use daily activities, such as meals and cooking, as opportunities for practice. For example, "If you start with 1 quart of juice and drink 3 cups, how many cups of juice are left?"

# Carta para la casa

Querida familia,

Durante las próximas semanas, en la clase de matemáticas aprenderemos las unidades usuales y métricas de longitud, peso/masa y volumen líquido. También aprenderemos a hallar el tiempo transcurrido y a calcular con medidas mixtas.

Llevaré a la casa tareas con actividades para aprender a usar puntos de referencia para medir y a comparar unidades.

Este es un ejemplo de la manera como aprenderemos a comparar los tamaños de las unidades métricas de longitud.

## Vocabulario

**decimetro (dm)** Una unidad métrica que se usa para medir longitud o distancia

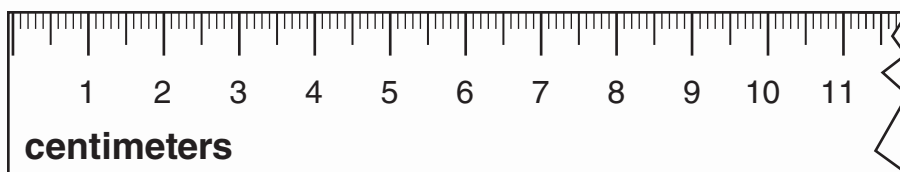
**onza fluida (fl oz)** Una unidad usual para medir el volumen líquido

**diagrama de puntos** Una gráfica que muestra la frecuencia de los datos a lo largo de una recta numérica

**segundo** Una unidad pequeña de tiempo

### **MODELO** Comparar el tamaño relativo de centímetros y milímetros

Observa la regla dividida en centímetros.



Cada marca señalada en la regla es de 1 centímetro. Las marcas pequeñas entre los centímetros son milímetros. 1 centímetro = 10 milímetros

1 centímetro mide 10 veces más que 1 milímetro.

1 milímetro mide  $\frac{1}{10}$  o 0.1 de un centímetro.

### Pistas

#### Estimar medidas

Usa puntos de referencia para estimar medidas. Por ejemplo, tu dedo mide alrededor de 1 centímetro de ancho.

## Actividad

Pida a su hijo o hija que memorice las unidades básicas usuales y métricas de medida. Trabajen juntos para hacer tarjetas nemotécnicas con las unidades de medida, y pídale que relacione y compare unidades. Aproveche las actividades cotidianas, como las comidas o la cocina, para practicar. Por ejemplo, "Si comienzas con 1 cuarto de jugo y te bebes 3 tazas, ¿cuántas tazas de jugo quedan?"

Name \_\_\_\_\_

## Measurement Benchmarks



COMMON CORE STANDARD **MACC.4.MD.1.1**

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Use benchmarks to choose the customary unit you would use to measure each.

1. height of a computer

**foot**

\_\_\_\_\_

2. weight of a table

\_\_\_\_\_

3. length of a semi-truck

\_\_\_\_\_

4. the amount of liquid a bathtub holds

\_\_\_\_\_

Customary Units	
ounce	yard
pound	mile
inch	gallon
foot	cup

Use benchmarks to choose the metric unit you would use to measure each.

5. mass of a grasshopper

\_\_\_\_\_

6. the amount of liquid a water bottle holds

\_\_\_\_\_

7. length of a soccer field

\_\_\_\_\_

8. length of a pencil

\_\_\_\_\_

Metric Units	
milliliter	centimeter
liter	meter
gram	kilometer
kilogram	

Circle the better estimate.

9. mass of a chicken egg

50 grams    50 kilograms

10. length of a car

12 miles    12 feet

11. amount of liquid a drinking glass holds

8 ounces    8 quarts

Complete the sentence. Write *more* or *less*.

12. A camera has a length of \_\_\_\_\_ than one centimeter.

13. A bowling ball weighs \_\_\_\_\_ than one pound.

## Problem Solving REAL WORLD

14. What is the better estimate for the mass of a textbook, 1 gram or 1 kilogram?

\_\_\_\_\_

15. What is the better estimate for the height of a desk, 1 meter or 1 kilometer?

\_\_\_\_\_

### Lesson Check (MACC.4.MD.1.1)

- Which is the best estimate for the weight of a stapler?
  - 4 ounces
  - 4 pounds
  - 4 inches
  - 4 feet
- Which is the best estimate for the length of a car?
  - 4 kilometers
  - 4 tons
  - 4 kilograms
  - 4 meters

### Spiral Review (MACC.4.NF.2.4c, MACC.4.NF.3.6, MACC.4.MD.3.5a, MACC.4.MD.3.5b, MACC.4.G.1.2)

- Bart practices his trumpet  $1\frac{1}{4}$  hours each day. How many hours will he practice in 6 days? (Lesson 8.4)
  - $8\frac{2}{4}$  hours
  - $7\frac{2}{4}$  hours
  - 7 hours
  - $6\frac{2}{4}$  hours
- Millie collected 100 stamps from different countries. Thirty-two of the stamps are from countries in Africa. What is  $\frac{32}{100}$  written as a decimal? (Lesson 9.2)
  - 32
  - 3.2
  - 0.32
  - 0.032
- Diedre drew a quadrilateral with 4 right angles and 4 sides of the same length. What kind of polygon did Diedre draw? (Lesson 10.4)
  - square
  - trapezoid
  - hexagon
  - pentagon
- How many degrees are in an angle that turns through  $\frac{1}{2}$  of a circle? (Lesson 11.2)
  - $60^\circ$
  - $90^\circ$
  - $120^\circ$
  - $180^\circ$

Name \_\_\_\_\_

**Customary Units of Length**

COMMON CORE STANDARD MACC.4.MD.1.1

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Complete.

1. 3 feet = 36 inches    Think: 1 foot = 12 inches,  
so 3 feet =  $3 \times 12$  inches, or 36 inches

2. 2 yards = \_\_\_\_\_ feet

3. 8 feet = \_\_\_\_\_ inches

4. 7 yards = \_\_\_\_\_ feet

5. 4 feet = \_\_\_\_\_ inches

6. 15 yards = \_\_\_\_\_ feet

7. 10 feet = \_\_\_\_\_ inches

Compare using  $<$ ,  $>$ , or  $=$ .

8. 3 yards  10 feet

9. 5 feet  60 inches

10. 8 yards  20 feet

11. 3 feet  10 inches

12. 3 yards  21 feet

13. 6 feet  72 inches

**Problem Solving**  **REAL WORLD**

14. Carla has two lengths of ribbon. One ribbon is 2 feet long. The other ribbon is 30 inches long. Which length of ribbon is longer? **Explain.**

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15. A football player gained 2 yards on one play. On the next play, he gained 5 feet. Was his gain greater on the first play or the second play? **Explain.**

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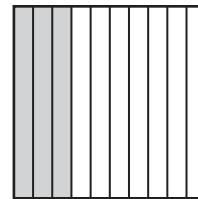
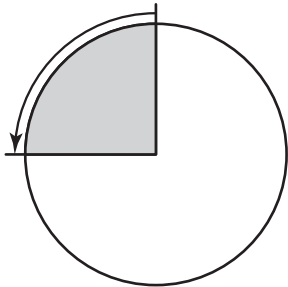
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**Lesson Check** (MACC.4.MD.1.1)

- Marta has 14 feet of wire to use to make necklaces. She needs to know the length in inches so she can determine how many necklaces to make. How many inches of wire does Marta have?
  - (A) 42 inches
  - (B) 84 inches
  - (C) 168 inches
  - (D) 504 inches
- Jarod bought 8 yards of ribbon. He needs 200 inches to use to make curtains. How many inches of ribbon does he have?
  - (A) 8 inches
  - (B) 80 inches
  - (C) 96 inches
  - (D) 288 inches

**Spiral Review** (MACC.4.NF.3.6, MACC.4.MD.1.1, MACC.4.MD.1.2, MACC.4.MD.3.5a)

- Which describes the turn shown below? (Lesson 11.1)
- Which decimal represents the shaded part of the model below? (Lesson 9.1)



- (A)  $\frac{1}{4}$  turn counterclockwise
  - (B)  $\frac{1}{4}$  turn clockwise
  - (C)  $\frac{1}{2}$  turn clockwise
  - (D)  $\frac{3}{4}$  turn counterclockwise
- Three sisters shared \$3.60 equally. How much did each sister get? (Lesson 9.5)
    - (A) \$1.00
    - (B) \$1.20
    - (C) \$1.80
    - (D) \$10.80
  - Which is the best estimate for the width of your index finger? (Lesson 12.1)
    - (A) 1 millimeter
    - (B) 1 gram
    - (C) 1 centimeter
    - (D) 1 liter

Name \_\_\_\_\_

**Customary Units of Weight**

COMMON CORE STANDARD MACC.4.MD.1.1

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

**Complete.**

1. 5 pounds = 80 ounces

Think: 1 pound = 16 ounces, so  
5 pounds =  $5 \times 16$  ounces, or 80 ounces

2. 7 tons = \_\_\_\_\_ pounds

3. 2 pounds = \_\_\_\_\_ ounces

4. 3 tons = \_\_\_\_\_ pounds

5. 10 pounds = \_\_\_\_\_ ounces

6. 5 tons = \_\_\_\_\_ pounds

7. 7 pounds = \_\_\_\_\_ ounces

**Compare using  $<$ ,  $>$ , or  $=$ .**

8. 8 pounds  80 ounces

9. 1 ton  100 pounds

10. 3 pounds  50 ounces

11. 5 tons  1,000 pounds

12. 16 pounds  256 ounces

13. 8 tons  16,000 pounds

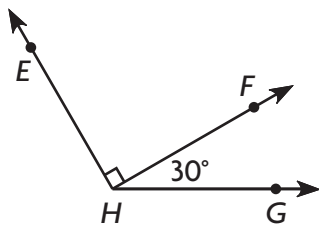
**Problem Solving**  **REAL WORLD**14. A company that makes steel girders can produce 6 tons of girders in one day. How many pounds is this?  
  
\_\_\_\_\_15. Larry's baby sister weighed 6 pounds at birth. How many ounces did the baby weigh?  
  
\_\_\_\_\_

**Lesson Check** (MACC.4.MD.1.1)

- Ann bought 2 pounds of cheese to make lasagna. The recipe gives the amount of cheese needed in ounces. How many ounces of cheese did she buy?
  - (A) 20 ounces
  - (B) 32 ounces
  - (C) 40 ounces
  - (D) 64 ounces
- A school bus weighs 7 tons. The weight limit for a bridge is given in pounds. What is this weight of the bus in pounds?
  - (A) 700 pounds
  - (B) 1,400 pounds
  - (C) 7,000 pounds
  - (D) 14,000 pounds

**Spiral Review** (MACC.4.NF.2.4c, MACC.4.MD.1.1, MACC.4.MD.3.6, MACC.4.G.1.3)

- What is the measure of  $\angle EHG$ ? (Lesson 11.3)
- How many lines of symmetry does the square below have? (Lesson 10.6)



- |                 |                 |       |       |
|-----------------|-----------------|-------|-------|
| (A) $60^\circ$  | (C) $120^\circ$ | (A) 0 | (C) 4 |
| (B) $100^\circ$ | (D) $130^\circ$ | (B) 2 | (D) 6 |
- 
- To make dough, Reba needs  $2\frac{1}{2}$  cups of flour. How much flour does she need to make 5 batches of dough? (Lesson 8.4)
    - (A)  $14\frac{1}{2}$  cups
    - (B)  $12\frac{1}{2}$  cups
    - (C)  $11\frac{1}{2}$  cups
    - (D)  $10\frac{1}{2}$  cups
  - Judi's father is 6 feet tall. The minimum height to ride a rollercoaster is given in inches. How many inches tall is Judi's father? (Lesson 12.2)
    - (A) 60 inches
    - (B) 66 inches
    - (C) 72 inches
    - (D) 216 inches



Name \_\_\_\_\_

**Customary Units of Liquid Volume**

COMMON CORE STANDARD MACC.4.MD.1.1

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

**Complete.**

1. 6 gallons = 24 quarts

Think: 1 gallon = 4 quarts,  
so 6 gallons =  $6 \times 4$  quarts, or 24 quarts

2. 12 quarts = \_\_\_\_\_ pints

3. 6 cups = \_\_\_\_\_ fluid ounces

4. 9 pints = \_\_\_\_\_ cups

5. 10 quarts = \_\_\_\_\_ cups

6. 5 gallons = \_\_\_\_\_ pints

7. 3 gallons = \_\_\_\_\_ cups

**Compare using  $<$ ,  $>$ , or  $=$ .**

8. 6 pints  60 fluid ounces

9. 3 gallons  30 quarts

10. 5 quarts  20 cups

11. 6 cups  12 pints

12. 8 quarts  16 pints

13. 6 gallons  96 pints

**Problem Solving**  **REAL WORLD**14. A chef makes  $1\frac{1}{2}$  gallons of soup in a large pot. How many 1-cup servings can the chef get from this large pot of soup?

\_\_\_\_\_

15. Kendra's water bottle contains 2 quarts of water. She wants to add drink mix to it, but the directions for the drink mix give the amount of water in fluid ounces. How many fluid ounces are in her bottle?


\_\_\_\_\_

**Lesson Check** (MACC.4.MD.1.1)

- Joshua drinks 8 cups of water a day. The recommended daily amount is given in fluid ounces. How many fluid ounces of water does he drink each day?
  - (A) 16 fluid ounces
  - (B) 32 fluid ounces
  - (C) 64 fluid ounces
  - (D) 128 fluid ounces
- A cafeteria used 5 gallons of milk in preparing lunch. How many 1-quart containers of milk did the cafeteria use?
  - (A) 10
  - (B) 20
  - (C) 40
  - (D) 80

**Spiral Review** (MACC.4.NF.2.4a, MACC.4.NF.3.6, MACC.4.MD.1.1, MACC.4.G.1.1)

- Roy uses  $\frac{1}{4}$  cup of batter for each muffin. Which list shows the amounts of batter he will use depending on the number of muffins he makes? (Lesson 8.1)
  - (A)  $\frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \frac{1}{8}$
  - (B)  $\frac{1}{4}, \frac{2}{4}, \frac{3}{4}, \frac{4}{4}, \frac{5}{4}$
  - (C)  $\frac{1}{4}, \frac{2}{8}, \frac{3}{12}, \frac{4}{16}, \frac{5}{20}$
  - (D)  $\frac{1}{4}, \frac{2}{8}, \frac{4}{16}, \frac{6}{24}, \frac{8}{32}$
- Beth has  $\frac{7}{100}$  of a dollar. Which shows the amount of money Beth has? (Lesson 9.4)
  - (A) \$7.00
  - (B) \$0.70
  - (C) \$0.07
  - (D) \$0.007
- Name the figure that Enrico drew below. (Lesson 10.1)
 



  - (A) a ray
  - (B) a line
  - (C) a line segment
  - (D) an octagon
- A hippopotamus weighs 4 tons. Feeding instructions are given for weights in pounds. How many pounds does the hippopotamus weigh? (Lesson 12.3)
  - (A) 4,000 pounds
  - (B) 6,000 pounds
  - (C) 8,000 pounds
  - (D) 12,000 pounds

Name \_\_\_\_\_

## Line Plots



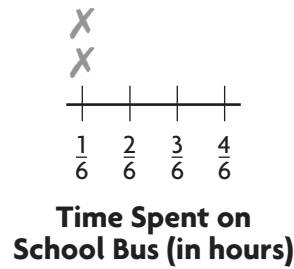
COMMON CORE STANDARD MACC.4.MD.2.4

Represent and interpret data.

- Some students compared the time they spend riding the school bus. Complete the tally table and line plot to show the data.

Time Spent on School Bus	
Time (in hours)	Tally
$\frac{1}{6}$	
$\frac{2}{6}$	
$\frac{3}{6}$	
$\frac{4}{6}$	

Time Spent on School Bus (in hours)	
$\frac{1}{6}$	$\frac{3}{6}$ $\frac{4}{6}$ $\frac{2}{6}$ $\frac{3}{6}$ $\frac{1}{6}$ $\frac{3}{6}$ $\frac{3}{6}$



Use your line plot for 2 and 3.

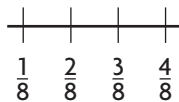
- How many students compared times? \_\_\_\_\_
- What is the difference between the longest time and shortest time students spent riding the bus? \_\_\_\_\_

## Problem Solving REAL WORLD

For 4–5, make a tally table on a separate sheet of paper. Make a line plot in the space below the problem.

4.

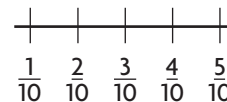
Milk Drunk at Lunch (in quarts)	
$\frac{1}{8}$	$\frac{2}{8}$ $\frac{2}{8}$ $\frac{4}{8}$ $\frac{1}{8}$ $\frac{3}{8}$ $\frac{4}{8}$ $\frac{2}{8}$ $\frac{3}{8}$ $\frac{2}{8}$



**Milk Drunk at Lunch  
(in quarts)**

5.

Distance Between Stops for a Rural Mail Carrier (in miles)	
$\frac{3}{10}$	$\frac{4}{10}$ $\frac{5}{10}$ $\frac{1}{10}$ $\frac{5}{10}$ $\frac{4}{10}$ $\frac{4}{10}$ $\frac{3}{10}$



**Distance Between Stops for  
a Rural Mail Carrier (in miles)**

**Lesson Check** (MACC.4.MD.2.4)

Use the line plot for 1 and 2.

1. How many students were reading during study time?

- (A) 5                      (C) 7  
(B) 6                      (D) 8



**Time Spent Reading During Study Time (in hours)**

2. What is the difference between the longest time and shortest time spent reading?

- (A)  $\frac{4}{8}$  hour              (C)  $\frac{2}{8}$  hour  
(B)  $\frac{3}{8}$  hour              (D)  $\frac{1}{8}$  hour

**Spiral Review** (MACC.4.NF.3.5, MACC.4.MD.1.1)

3. Bridget is allowed to play on-line games for  $\frac{75}{100}$  of an hour each day. Which shows that fraction as a decimal? (Lesson 9.3)

- (A) 75.0  
(B) 7.50  
(C) 0.75  
(D) 0.075

4. Bobby's collection of sports cards has  $\frac{3}{10}$  baseball cards and  $\frac{39}{100}$  football cards. The rest are soccer cards. What fraction of Bobby's sports cards are baseball or football cards? (Lesson 9.6)

- (A)  $\frac{9}{100}$                       (C)  $\frac{52}{100}$   
(B)  $\frac{42}{100}$                       (D)  $\frac{69}{100}$

5. Jeremy gives his horse 12 gallons of water each day. How many 1-quart pails of water is that? (Lesson 12.4)

- (A) 24                      (C) 72  
(B) 48                      (D) 96

6. An iguana at a pet store is 5 feet long. Measurements for iguana cages are given in inches. How many inches long is the iguana? (Lesson 12.2)

- (A) 45 inches              (C) 60 inches  
(B) 50 inches              (D) 72 inches

Name \_\_\_\_\_

**Metric Units of Length**

COMMON CORE STANDARD MACC.4.MD.1.1

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

**Complete.**

1. 4 meters = 400 centimeters

Think: 1 meter = 100 centimeters,  
so 4 meters =  $4 \times 100$  centimeters,  
or 400 centimeters

2. 8 centimeters = \_\_\_\_\_ millimeters

3. 5 meters = \_\_\_\_\_ decimeters

4. 9 meters = \_\_\_\_\_ millimeters

5. 7 meters = \_\_\_\_\_ centimeters

**Compare using  $<$ ,  $>$ , or  $=$ .**

6. 8 meters  80 centimeters

7. 3 decimeters  30 centimeters

8. 4 meters  450 centimeters

9. 90 centimeters  9 millimeters

**Describe the length in meters. Write your answer as a fraction and as a decimal.**

10. 43 centimeters = \_\_\_\_\_ or  
\_\_\_\_\_ meter

11. 6 decimeters = \_\_\_\_\_ or  
\_\_\_\_\_ meter

12. 8 centimeters = \_\_\_\_\_ or  
\_\_\_\_\_ meter

13. 3 decimeters = \_\_\_\_\_ or  
\_\_\_\_\_ meter

**Problem Solving**  **REAL WORLD**14. A flagpole is 4 meters tall. How many centimeters tall is the flagpole?  
\_\_\_\_\_15. A new building is 25 meters tall. How many decimeters tall is the building?  
\_\_\_\_\_

**Lesson Check** (MACC.4.MD.1.1)

- A pencil is 15 centimeters long. How many millimeters long is that pencil?
  - (A) 1.5 millimeters
  - (B) 15 millimeters
  - (C) 150 millimeters
  - (D) 1,500 millimeters
- John's father is 2 meters tall. How many centimeters tall is John's father?
  - (A) 2,000 centimeters
  - (B) 200 centimeters
  - (C) 20 centimeters
  - (D) 2 centimeters

**Spiral Review** (MACC.4.NF.2.4b, MACC.4.NF.3.7, MACC.4.MD.2.4)

- Bruce reads for  $\frac{3}{4}$  hour each night. How long will he read in 4 nights? (Lesson 8.3)
  - (A)  $\frac{3}{16}$  hour
  - (B)  $\frac{7}{4}$  hours
  - (C)  $\frac{9}{4}$  hours
  - (D)  $\frac{12}{4}$  hours
- Mark jogged 0.6 mile. Caroline jogged 0.49 mile. Which inequality correctly compares the distances they jogged? (Lesson 9.7)
  - (A)  $0.6 = 0.49$
  - (B)  $0.6 > 0.49$
  - (C)  $0.6 < 0.49$
  - (D)  $0.6 + 0.49 = 1.09$

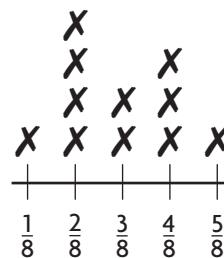
Use the line plot for 5 and 6.

- How many lawns were mowed? (Lesson 12.5)

- (A) 8
- (B) 9
- (C) 10
- (D) 11

- What is the difference between the greatest amount and least amount of gasoline used to mow lawns? (Lesson 12.5)

- (A)  $\frac{6}{8}$  gallon
- (B)  $\frac{5}{8}$  gallon
- (C)  $\frac{4}{8}$  gallon
- (D)  $\frac{3}{8}$  gallon



**Gasoline Used to Mow Lawns in May (in Gallons)**

Name \_\_\_\_\_

## Metric Units of Mass and Liquid Volume



COMMON CORE STANDARDS MACC.4.MD.1.1,  
MACC.4.MD.1.2

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Complete.

1. 5 liters = 5,000 milliliters

Think: 1 liter = 1,000 milliliters,  
so 5 liters =  $5 \times 1,000$  milliliters, or 5,000 milliliters

2. 3 kilograms = \_\_\_\_\_ grams

3. 8 liters = \_\_\_\_\_ milliliters

4. 7 kilograms = \_\_\_\_\_ grams

5. 9 liters = \_\_\_\_\_ milliliters

6. 2 liters = \_\_\_\_\_ milliliters

7. 6 kilograms = \_\_\_\_\_ grams

Compare using  $<$ ,  $>$ , or  $=$ .

8. 8 kilograms  850 grams

9. 3 liters  3,500 milliliters

10. 1 kilogram  1,000 grams

11. 5 liters  520 milliliters

### Problem Solving

12. Kenny buys four 1-liter bottles of water. How many milliliters of water does Kenny buy?

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13. Mrs. Jones bought three 2-kilogram packages of flour. How many grams of flour did she buy?

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14. Colleen bought 8 kilograms of apples and 2.5 kilograms of pears. How many more grams of apples than pears did she buy?

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15. Dave uses 500 milliliters of juice for a punch recipe. He mixes it with 2 liters of ginger ale. How many milliliters of punch does he make?

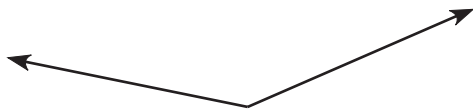
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**Lesson Check** (MACC.4.MD.1.1, MACC.4.MD.1.2)

- During his hike, Milt drank 1 liter of water and 1 liter of sports drink. How many milliliters of liquid did he drink in all?
  - (A) 20 milliliters
  - (B) 200 milliliters
  - (C) 2,000 milliliters
  - (D) 20,000 milliliters
- Larinda cooked a 4-kilogram roast. The roast left over after the meal weighed 3 kilograms. How many grams of roast were eaten during that meal?
  - (A) 7,000 grams
  - (B) 1,000 grams
  - (C) 700 grams
  - (D) 100 grams

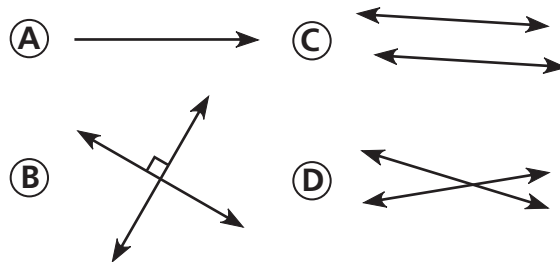
**Spiral Review** (MACC.4.MD.1.1, MACC.4.MD.3.6, MACC.4.G.1.1)

- Use a protractor to find the angle measure. (Lesson 11.3)



- (A)  $15^\circ$
- (B)  $35^\circ$
- (C)  $135^\circ$
- (D)  $145^\circ$

- Which of the following shows parallel lines? (Lesson 10.3)



- Carly bought 3 pounds of birdseed. How many ounces of birdseed did she buy? (Lesson 12.3)
  - (A) 30 ounces
  - (B) 36 ounces
  - (C) 42 ounces
  - (D) 48 ounces
- A door is 8 decimeters wide. How wide is the door in centimeters? (Lesson 12.6)
  - (A) 8 centimeters
  - (B) 80 centimeters
  - (C) 800 centimeters
  - (D) 8,000 centimeters



Name \_\_\_\_\_

## Units of Time



COMMON CORE STANDARD MACC.4.MD.1.1

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Complete.

1. 6 minutes = 360 seconds

Think: 1 minute = 60 seconds,  
so 6 minutes =  $6 \times 60$  seconds, or 360 seconds

2. 5 weeks = \_\_\_\_\_ days

3. 3 years = \_\_\_\_\_ weeks

4. 9 hours = \_\_\_\_\_ minutes

5. 9 minutes = \_\_\_\_\_ seconds

6. 5 years = \_\_\_\_\_ months

7. 7 days = \_\_\_\_\_ hours

Compare using  $<$ ,  $>$ , or  $=$ .

8. 2 years  14 months

9. 3 hours  300 minutes

10. 2 days  48 hours

11. 6 years  300 weeks

12. 4 hours  400 minutes

13. 5 minutes  300 seconds

## Problem Solving REAL WORLD

14. Jody practiced a piano piece for 500 seconds. Bill practiced a piano piece for 8 minutes. Who practiced longer? **Explain.**

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15. Yvette's younger brother just turned 3 years old. Fred's brother is now 30 months old. Whose brother is older? **Explain.**

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### Lesson Check (MACC.4.MD.1.1)

- Glen rode his bike for 2 hours. For how many minutes did Glen ride his bike?
  - (A) 60 minutes
  - (B) 100 minutes
  - (C) 120 minutes
  - (D) 150 minutes
- Tina says that vacation starts in exactly 4 weeks. In how many days does vacation start?
  - (A) 28 days
  - (B) 35 days
  - (C) 42 days
  - (D) 48 days

### Spiral Review (MACC.4.NF.2.3b, MACC.4.NF.3.5, MACC.4.MD.1.1, MACC.4.MD.1.2)

- Kayla bought  $\frac{9}{4}$  pounds of apples. What is that weight as a mixed number? (Lesson 7.6)
  - (A)  $1\frac{1}{4}$  pounds
  - (B)  $1\frac{4}{9}$  pounds
  - (C)  $2\frac{1}{4}$  pounds
  - (D)  $2\frac{3}{4}$  pounds
- Judy, Jeff, and Jim each earned \$5.40 raking leaves. How much did they earn in all? (Lesson 9.5)
  - (A) \$1.60
  - (B) \$10.80
  - (C) \$15.20
  - (D) \$16.20
- Melinda rode her bike  $\frac{54}{100}$  mile to the library. Then she rode  $\frac{4}{10}$  mile to the store. How far did Melinda ride her bike in all? (Lesson 9.6)
  - (A) 0.14 mile
  - (B) 0.58 mile
  - (C) 0.94 mile
  - (D) 1.04 miles
- One day, the students drank 60 quarts of milk at lunch. How many pints of milk did the students drink? (Lesson 12.4)
  - (A) 30 pints
  - (B) 120 pints
  - (C) 240 pints
  - (D) 480 pints

Name \_\_\_\_\_

**Problem Solving • Elapsed Time**

**COMMON CORE STANDARD** MACC.4.MD.1.2

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

**Read each problem and solve.**

- Molly started her piano lesson at 3:45 P.M. The lesson lasted 20 minutes. What time did the piano lesson end?

**Think:** What do I need to find?  
How can I draw a diagram to help?

**4:05 P.M.**

---

- Brendan spent 24 minutes playing a computer game. He stopped playing at 3:55 P.M and went outside to ride his bike. What time did he start playing the computer game?
- 

- Aimee’s karate class lasts 1 hour and 15 minutes and is over at 5:00 P.M. What time does Aimee’s karate class start?
- 

- Mr. Giarmo left for work at 7:15 A.M. Twenty-five minutes later, he arrived at his work. What time did Mr. Giarmo arrive at his work?
- 

- Ms. Brown’s flight left at 9:20 A.M. Her plane landed 1 hour and 23 minutes later. What time did her plane land?
-

### Lesson Check (MACC.4.MD.1.2)

- Bobbie went snowboarding with friends at 10:10 A.M. They snowboarded for 1 hour and 43 minutes, and then stopped to eat lunch. What time did they stop for lunch?
  - (A) 8:27 A.M.
  - (B) 10:53 A.M.
  - (C) 11:53 A.M.
  - (D) 12:53 A.M.
- The Cain family drove for 1 hour and 15 minutes and arrived at their camping spot at 3:44 P.M. What time did the Cain family start driving?
  - (A) 4:59 P.M.
  - (B) 2:44 P.M.
  - (C) 2:39 P.M.
  - (D) 2:29 P.M.

### Spiral Review (MACC.4.NF.2.4b, MACC.4.NF.3.5, MACC.4.MD.1.1, MACC.4.MD.1.2)

- A praying mantis can grow up to 15 centimeters long. How long is this in millimeters? (Lesson 12.6)
  - (A) 15 millimeters
  - (B) 150 millimeters
  - (C) 1,500 millimeters
  - (D) 15,000 millimeters
- Thom's minestrone soup recipe makes 3 liters of soup. How many milliliters of soup is this? (Lesson 12.7)
  - (A) 30 milliliters
  - (B) 300 milliliters
  - (C) 3,000 milliliters
  - (D) 30,000 milliliters
- Stewart walks  $\frac{2}{3}$  mile each day. Which is a multiple of  $\frac{2}{3}$ ? (Lesson 8.2)
  - (A)  $\frac{4}{3}$
  - (B)  $\frac{4}{6}$
  - (C)  $\frac{8}{10}$
  - (D)  $\frac{2}{12}$
- Angelica colored in 0.60 of the squares on her grid. Which of the following expresses 0.60 as tenths in fraction form? (Lesson 9.3)
  - (A)  $\frac{60}{100}$
  - (B)  $\frac{60}{10}$
  - (C)  $\frac{6}{100}$
  - (D)  $\frac{6}{10}$

Name \_\_\_\_\_

**Mixed Measures**

COMMON CORE STANDARD MACC.4.MD.1.2

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Complete.

1. 8 pounds 4 ounces = 132 ounces

Think: 8 pounds =  $8 \times 16$  ounces, or 128 ounces.

128 ounces + 4 ounces = 132 ounces

2. 5 weeks 3 days = \_\_\_\_\_ days

3. 4 minutes 45 seconds = \_\_\_\_\_ seconds

4. 4 hours 30 minutes = \_\_\_\_\_ minutes

5. 3 tons 600 pounds = \_\_\_\_\_ pounds

6. 6 pints 1 cup = \_\_\_\_\_ cups

7. 7 pounds 12 ounces = \_\_\_\_\_ ounces

Add or subtract.

$$\begin{array}{r} 8. \text{ 9 gal 1 qt} \\ + \text{ 6 gal 1 qt} \\ \hline \end{array}$$

$$\begin{array}{r} 9. \text{ 12 lb 5 oz} \\ - \text{ 7 lb 10 oz} \\ \hline \end{array}$$

$$\begin{array}{r} 10. \text{ 8 hr 3 min} \\ + \text{ 4 hr 12 min} \\ \hline \end{array}$$

**Problem Solving**  **REAL WORLD**

11. Michael's basketball team practiced for 2 hours 40 minutes yesterday and 3 hours 15 minutes today. How much longer did the team practice today than yesterday?

\_\_\_\_\_

12. Rhonda had a piece of ribbon that was 5 feet 3 inches long. She removed a 5-inch piece to use in her art project. What is the length of the piece of ribbon now?

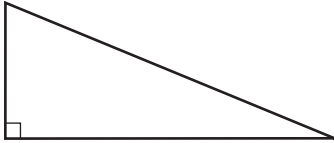
\_\_\_\_\_

**Lesson Check** (MACC.4.MD.1.2)

- Marsha bought 1 pound 11 ounces of roast beef and 2 pounds 5 ounces of corned beef. How much more corned beef did she buy than roast beef?
  - 16 ounces
  - 10 ounces
  - 7 ounces
  - 6 ounces
- Theodore says there are 2 weeks 5 days left in the year. How many days are left in the year?
  - 14 days
  - 15 days
  - 19 days
  - 25 days

**Spiral Review** (MACC.4.NF.3.7, MACC.4.MD.1.1, MACC.4.MD.1.2, MACC.4.G.1.2)

- On one grid, 0.5 of the squares are shaded. On another grid, 0.05 of the squares are shaded. Which statement is true? (Lesson 9.7)
  - $0.05 > 0.5$
  - $0.05 = 0.5$
  - $0.05 < 0.5$
  - $0.05 + 0.5 = 1.0$
- Classify the triangle shown below. (Lesson 10.2)
 



  - right
  - acute
  - equilateral
  - obtuse
- Sahil's brother is 3 years old. How many weeks old is his brother? (Lesson 12.8)
  - 30 weeks
  - 36 weeks
  - 90 weeks
  - 156 weeks
- Sierra's swimming lessons last 1 hour 20 minutes. She finished her lesson at 10:50 A.M. At what time did her lesson start? (Lesson 12.9)
  - 9:30 A.M.
  - 9:50 A.M.
  - 10:30 A.M.
  - 12:10 A.M.

Name \_\_\_\_\_

**Patterns in Measurement Units**



**COMMON CORE STANDARD** MACC.4.MD.1.1

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Each table shows a pattern for two customary units of time or volume. Label the columns of the table.

1.

<u>                    </u>	<u>                    </u>
1	4
2	8
3	12
4	16
5	20

2.

<u>                    </u>	<u>                    </u>
1	12
2	24
3	36
4	48
5	60

3.

<u>                    </u>	<u>                    </u>
1	2
2	4
3	6
4	8
5	10

4.

<u>                    </u>	<u>                    </u>
1	7
2	14
3	21
4	28
5	35

**Problem Solving**  **REAL WORLD**

Use the table for 5 and 6.

5. Marguerite made the table to compare two metric measures of length. Name a pair of units Marguerite could be comparing.

\_\_\_\_\_

6. Name another pair of metric units of length that have the same relationship.

\_\_\_\_\_

?	?
1	10
2	20
3	30
4	40
5	50

## Lesson Check (MACC.4.MD.1.1)

- Joanne made a table to relate two units of measure. The number pairs in her table are 1 and 16, 2 and 32, 3 and 48, 4 and 64. Which are the best labels for Joanne's table?
  - Cups, Fluid Ounces
  - Gallons, Quarts
  - Pounds, Ounces
  - Yards, Inches
- Cade made a table to relate two units of time. The number pairs in his table are 1 and 24, 2 and 48, 3 and 72, 4 and 96. Which are the best labels for Cade's table?
  - Days, Hours
  - Days, Weeks
  - Years, Months
  - Years, Weeks

## Spiral Review (MACC.4.NF.3.6, MACC.4.MD.1.1, MACC.4.MD.1.2, MACC.4.MD.3.5a)

- Anita has 2 quarters, 1 nickel, and 4 pennies. Write Anita's total amount as a fraction of a dollar. (Lesson 9.4)
  - $\frac{39}{100}$
  - $\frac{54}{100}$
  - $\frac{59}{100}$
  - $\frac{84}{100}$
- Roderick has a dog that has a mass of 9 kilograms. What is the mass of the dog in grams? (Lesson 12.7)
  - 9 grams
  - 900 grams
  - 9,000 grams
  - 90,000 grams
- The minute hand of a clock moves from 12 to 6. Which describes the turn the minute hand makes? (Lesson 11.1)
  - $\frac{1}{4}$  turn
  - $\frac{1}{2}$  turn
  - $\frac{3}{4}$  turn
  - 1 full turn
- Kari mixed 3 gallons 2 quarts of lemon-lime drink with 2 gallons 3 quarts of pink lemonade to make punch. How much more lemon-lime drink did Kari use than pink lemonade? (Lesson 12.10)
  - 3 quarts
  - 4 quarts
  - 1 gallon 1 quart
  - 1 gallon 2 quarts



## Chapter 12 Extra Practice

### Lesson 12.1

Use benchmarks to choose the unit you would use to measure each.

1. length of a car

customary unit: \_\_\_\_\_

metric unit: \_\_\_\_\_

2. liquid volume of a sink

customary unit: \_\_\_\_\_

metric unit: \_\_\_\_\_

3. weight or mass of a parakeet

customary unit: \_\_\_\_\_

metric unit: \_\_\_\_\_

4. length of your thumb

customary unit: \_\_\_\_\_

metric unit: \_\_\_\_\_

### Lessons 12.2 – 12.4

Complete.

1. 6 yards = \_\_\_\_\_ feet

2. 2 feet = \_\_\_\_\_ inches

3. 3 pounds = \_\_\_\_\_ ounces

4. 2 tons = \_\_\_\_\_ pounds

5. 5 gallons = \_\_\_\_\_ quarts

6. 4 quarts = \_\_\_\_\_ cups

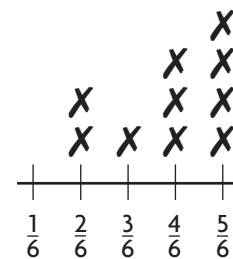
### Lesson 12.5

Use the line plot for 1–2.

1. What is the difference in height between the tallest plant and the shortest plant?

\_\_\_\_\_

2. How many plants are in Box A? \_\_\_\_\_



**Plant Heights  
in Box A (in feet)**

## Lessons 12.6 – 12.8

Complete.

- 9 centimeters = \_\_\_\_\_ millimeters
- 7 meters = \_\_\_\_\_ decimeters
- 5 decimeters = \_\_\_\_\_ centimeters
- 4 liters = \_\_\_\_\_ milliliters
- 3 kilograms = \_\_\_\_\_ grams
- 3 weeks = \_\_\_\_\_ days
- 6 hours = \_\_\_\_\_ minutes
- 2 days = \_\_\_\_\_ hours

## Lesson 12.10

Add or subtract.

- $$\begin{array}{r} 3 \text{ ft } 8 \text{ in.} \\ + 1 \text{ ft } 2 \text{ in.} \\ \hline \end{array}$$
- $$\begin{array}{r} 9 \text{ lb } 6 \text{ oz} \\ - 4 \text{ lb } 2 \text{ oz} \\ \hline \end{array}$$
- $$\begin{array}{r} 5 \text{ gal } 2 \text{ qt} \\ - 1 \text{ gal } 3 \text{ qt} \\ \hline \end{array}$$
- $$\begin{array}{r} 7 \text{ hr } 10 \text{ min} \\ - 3 \text{ hr } 40 \text{ min} \\ \hline \end{array}$$

## Lessons 12.9 and 12.11

- Rick needs to be at school at 8:15 A.M. It takes him 20 minutes to walk to school. At what time does he need to leave to get to school on time?  

---
- Sunny's gymnastics class lasts 1 hour 20 minutes. The class starts at 3:50 P.M. At what time does the gymnastics class end?  

---

- David made a table to relate two customary units. Label the columns of the table.

1	16
2	32
3	48
4	64
5	80