

Dear Family,

Throughout the next few weeks, our math class will be learning how to compare and convert measurements. The students will use appropriate customary and metric units and conversion tables.

You can expect to see homework that includes comparing and converting length, weight/mass, capacity, and time.

Here is a sample of how your child will be taught to convert and compare weight.

Vocabulary

capacity The amount a container can hold when filled

elapsed time The amount of time that passes between the start of an activity and the end of that activity

gram A metric unit of mass

mass The amount of matter in an object

pound A customary unit of weight; 1 pound = 16 ounces

weight The measure of how heavy something is



MODEL Customary Weight

Convert 2 pounds to ounces. Compare the converted measure to 30 ounces.

STEP 1

1 pound is equal to 16 ounces.



$$\begin{array}{r}
 \text{total} \\
 \text{pounds} \\
 \downarrow \\
 2
 \end{array}
 \times
 \begin{array}{r}
 \text{ounces in} \\
 \text{1 pound} \\
 \downarrow \\
 16
 \end{array}
 =
 \begin{array}{r}
 \text{total} \\
 \text{ounces} \\
 \downarrow \\
 32
 \end{array}$$

STEP 2

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

$$32 \text{ ounces } \bigcirc 30 \text{ ounces}$$

$$32 > 30$$

Tips

Converting Units of Measure

Draw a picture to understand how units are related. When converting from a larger unit to a smaller unit, multiply. When converting from a smaller unit to a larger unit, divide.

Activity

Encourage your child to commit most of the unit conversions to memory. It will be useful for years to come. You can make a series of flash cards with equivalent measures on either side of the card, and work together to practice with unit conversions each night.

Carta para la casa

Querida familia,

Durante las próximas semanas, en la clase de matemáticas aprenderemos a comparar y convertir medidas. Usaremos las unidades de adecuadas los sistemas usual y métrico, y tablas de conversión.

Llevaré a la casa tareas con actividades para comparar y convertir medidas de longitud, peso/masa, capacidad y tiempo.

Este es un ejemplo de la manera como aprenderemos a convertir y comparar medidas de peso.

Vocabulario

capacidad La cantidad que le cabe a un recipiente cuando se llena

tiempo transcurrido La cantidad de tiempo que pasa entre el comienzo y el final de una actividad

gramo Una unidad métrica de masa

masa La cantidad de materia que tiene un objeto

libra Una unidad usual de peso;
1 libra = 16 onzas

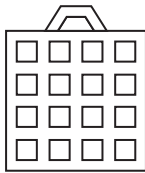
peso La medida de qué tan pesado es algo

MODELO El peso en el sistema usual

Convierte 2 libras a onzas. Compara la medida que convertiste con 30 onzas.

PASO 1

1 libra es igual a 16 onzas.



total de libras	×	onzas en 1 libra	=	total de onzas
↓		↓		↓
2		16		32

PASO 2

Compara. Escribe <, > o =.

32 onzas ○ 30 onzas

$$32 > 30$$

Pistas

Convertir unidades de medida

Haz un dibujo para entender cómo se relacionan las unidades. Cuando conviertas de una unidad mayor a una menor, multiplica. Cuando conviertas de una unidad menor a una mayor, divide.

Actividad

Anime a su hijo o hija a memorizar la mayoría de las conversiones de unidades. Es algo que le será útil en el futuro. Puede crear una serie de tarjetas nemotécnicas con medidas equivalentes en los dos lados de cada tarjeta, trabajen juntos y practiquen las conversiones de unidades en la noche.

Name _____

Customary Length



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

Convert.

1. 12 yd = 36 ft

2. 5 ft = 60 in.

3. 5 mi = 26,400 ft

total yards	feet in 1 yard	total feet
↓	↓	↓
12	× 3	= 36
12 yards = 36 feet		

4. 240 in. = 20 ft

5. 100 yd = 300 ft

6. 10 ft = 120 in.

7. 150 in. = 12 ft 6 in.

8. 7 yd 2 ft = 23 ft

9. 10 mi = 52,800 ft

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

10. 23 in. $<$ 2 ft

11. 25 yd $=$ 75 ft

12. 6,200 ft $>$ 1 mi 900 ft

13. 100 in. $<$ 3 yd 1 ft

14. 1,000 ft $>$ 300 yd

15. 500 in. $>$ 40 ft

Problem Solving



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

36 banners

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

No. She bought only 96 inches of trim.

Lesson Check (5.MD.1)

1. Jenna's garden is 5 yards long. How long is her garden in feet?
2. Ellen needs to buy 180 inches of ribbon to wrap a large present. The store sells ribbon only in whole yards. How many yards does Ellen need to buy to have enough ribbon?

15 feet

5 yards

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

3. McKenzie works for a catering company. She is making iced tea for an upcoming event. For each container of tea, she uses 16 tea bags and 3 cups of sugar. If McKenzie uses 64 tea bags, how many cups of sugar will she use?
4. Javier bought 48 sports cards at a yard sale. Of the cards, $\frac{3}{8}$ were baseball cards. How many cards were baseball cards?

12 cups

18 cards

5. What is the quotient of 396 divided by 12?
6. What is the unknown number in Sequence 2 in the chart? What rule can you write that relates Sequence 2 to Sequence 1?

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

33

80; Multiply by 2.

Name _____

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

1. 5 gal = 40 pt

2. 192 fl oz = 12 pt

3. 15 pt = 30 c

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

4. 240 fl oz = 30 c

5. 32 qt = 8 gal

6. 10 qt = 40 c

7. 48 c = 12 qt

8. 72 pt = 9 gal

9. 128 fl oz = 8 pt

Compare. Write <, >, or =.

10. 17 qt > 4 gal

11. 96 fl oz < 8 pt

12. 400 pt < 100 gal

13. 100 fl oz < 16 pt

14. 74 fl oz > 8 c

15. 12 c = 3 qt

Problem Solving

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

18 candle molds

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

2 pints

Lesson Check (5.MD.1)

1. Rosa made 12 gallons of lemonade to sell at a lemonade stand. How many pints of lemonade did she make?
2. Ebonae's fish tank holds 40 gallons. How many quarts does the fish tank hold?

96 pints

160 quarts

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

3. A mountain climber climbed 15,840 feet on her way to the summit of a mountain. How many miles did she climb?
4. Jamal is making blueberry muffins. He has $6\frac{3}{4}$ cups of batter, but he needs a total of 12 cups. How much more batter does Jamal need?

3 miles

$5\frac{1}{4}$ cups

5. At a building site, there are 16 pallets with sacks of cement. The total weight of all the pallets and cement is 4,856 pounds. Each pallet with cement weighs the same amount. How much does each pallet with cement weigh?
6. A publisher shipped 15 boxes of books to a bookstore. Each box contained 32 books. How many books did the publisher ship to the bookstore?

$303\frac{1}{2}$ pounds

480 books

Name _____

Weight



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

Convert.

1. 96 oz = 6 lb

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

2. 6 T = 12,000 lb

3. 18 lb = 288 oz

4. 3,200 oz = 200 lb

5. 12 T = 24,000 lb

6. 9 lb = 144 oz

7. 7 lb = 112 oz

8. 100 lb = 1,600 oz

9. 60,000 lb = 30 T

Compare. Write <, >, or =.

10. 40 oz < 4 lb

11. 80 oz = 5 lb

12. 5,000 lb < 5 T

13. 18,000 lb = 9 T

14. 25 lb > 350 oz

15. 27 oz < 2 lb

Problem Solving



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

6,000 pounds

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

15 pounds

Lesson Check (5.MD.1)

1. Paolo's puppy weighed 11 pounds at the vet's office. What is this weight in ounces?
2. The weight limit on a bridge is 5 tons. What is this weight in pounds?

176 ounces

10,000 pounds

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

3. There are 20 guests at a party. The host has 8 gallons of punch. He estimates that each guest will drink 2 cups of punch. If his estimate is correct, how much punch will be left over at the end of the party?
4. A typical lap around a track in the United States has a length of 440 yards. How many laps would need to be completed to run a mile?

88 cups

4 laps

5. A recipe for sweet potato casserole calls for $\frac{3}{4}$ cup of milk. Martina has 6 cups of milk. How many sweet potato casseroles can she make with that amount of milk?
6. What is the best estimate for the total weight of these cold meats: $1\frac{7}{8}$ pounds of bologna, $1\frac{1}{2}$ pounds of ham, and $\frac{7}{8}$ pound of roast beef?

8 casseroles

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

Name _____

Multistep Measurement Problems**COMMON CORE STANDARD—5.MD.1**
*Convert like measurement units within a given measurement system.***Solve.**

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

Think: 1,760 yards = 1 mile.

So the cable company has $5 \times 1,760$, or 8,800 yards of cable.

Divide. $8,800 \div 100 = 88$

88 lengths

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

13 cups

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

3 feet

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

4 pounds

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

6 ounces

6. Darnell rented a moving truck. The weight of the empty truck was 7,860 pounds. When Darnell filled the truck with his items, it weighed 6 tons. What was the weight in pounds of the items that Darnell placed in the truck?

4,140 pounds**Problem Solving**

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

1 pint

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

15 yards

Lesson Check (5.MD.1)

1. Leah is buying curtains for her bedroom window. She wants the curtains to hang from the top of the window to the floor. The window is 4 feet high. The bottom of the window is $2\frac{1}{2}$ feet above the floor. How many inches long should Leah's curtains be?
2. Brady buys 3 gallons of fertilizer for his lawn. After he finishes spraying the lawn, he has 1 quart of fertilizer left over. How many quarts of fertilizer did Brady spray on the lawn?

78 inches

11 quarts

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

3. A jump rope is 9 feet long. How long is the jump rope in yards?
4. Fill in the blanks to make the following statement true.

3 yards

8 cups = **2** quarts = **4** pints.

5. What is the unknown number in Sequence 2 in the chart?
6. A farmer divides 20 acres of land into $\frac{1}{4}$ -acre sections. Into how many sections does the farmer divide her land?

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

42

80 sections

Name _____

Metric Measures



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

Convert.

1. $16 \text{ m} = \underline{16,000} \text{ mm}$

number of meters		millimeters in 1 meter		number of millimeters
↓		↓		↓
16	×	1,000	=	16,000

$16 \text{ m} = 16,000 \text{ mm}$

2. $6,500 \text{ cL} = \underline{65} \text{ L}$

3. $15 \text{ cm} = \underline{150} \text{ mm}$

4. $3,200 \text{ g} = \underline{3.2} \text{ kg}$

5. $12 \text{ L} = \underline{12,000} \text{ mL}$

6. $200 \text{ cm} = \underline{2} \text{ m}$

7. $70,000 \text{ g} = \underline{70} \text{ kg}$

8. $100 \text{ dL} = \underline{10} \text{ L}$

9. $60 \text{ m} = \underline{60,000} \text{ mm}$

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

10. $900 \text{ cm} \text{ (} \underline{=} \text{)} 9,000 \text{ mm}$

11. $600 \text{ km} \text{ (} \underline{>} \text{)} 5 \text{ m}$

12. $5,000 \text{ cm} \text{ (} \underline{>} \text{)} 5 \text{ m}$

13. $18,000 \text{ g} \text{ (} \underline{>} \text{)} 10 \text{ kg}$

14. $8,456 \text{ mL} \text{ (} \underline{<} \text{)} 9 \text{ L}$

15. $2 \text{ m} \text{ (} \underline{<} \text{)} 275 \text{ cm}$

Problem Solving



16. Bria ordered 145 centimeters of fabric. Jayleen ordered 1.5 meters of fabric. Who ordered more fabric?

Jayleen

17. Ed fills his sports bottle with 1.2 liters of water. After his bike ride, he drinks 200 milliliters of the water. How much water is left in Ed's sports bottle?

1 L, or 1,000 mL

Lesson Check (5.MD.1)

1. Quan bought 8.6 meters of fabric. How many centimeters of fabric did he buy?
2. Jason takes 2 centiliters of medicine. How many milliliters is this?

860 centimeters

20 milliliters

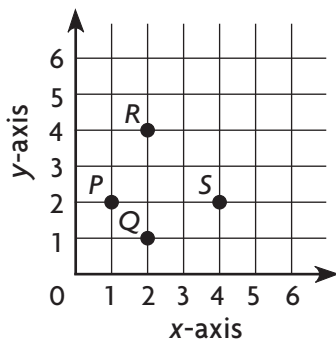
Spiral Review (5.NF.1, 5.MD.1, 5.G.1)

3. Yolanda needs 5 pounds of ground beef to make lasagna for a family reunion. One package of ground beef weighs $2\frac{1}{2}$ pounds. Another package weighs $2\frac{3}{5}$ pounds. How much ground beef will Yolanda have left over after making the lasagna?
4. A soup recipe calls for $2\frac{3}{4}$ quarts of vegetable broth. An open can of broth contains $\frac{1}{2}$ quart of broth. How much more broth do you need to make the soup?

$\frac{1}{10}$ pound

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

5. Which point on the graph is located at (4, 2)?



6. A bakery supplier receives an order for 2 tons of flour from a bakery chain. The flour is shipped in crates. Each crate holds eight 10-pound bags of flour. How many crates does the supplier need to ship to fulfill the order?

S

50 crates

Name _____

Problem Solving • Customary and Metric Conversions



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

Solve each problem by making a table.

Possible tables are given.

1. Thomas is making soup. His soup pot holds 8 quarts of soup. How many 1-cup servings of soup will Thomas make?

32 1-cup servings

Number of Quarts	1	2	3	4	8
Number of Cups	4	8	12	16	32

2. Paulina works out with a 2.5-kilogram mass. What is the mass of the 2.5-kilogram mass in grams?

2,500 grams

Number of Kilograms	1	2	2.5
Number of Grams	1,000	2,000	2,500

3. Alex lives 500 yards from the park. How many inches does Alex live from the park?

18,000 inches

Yards	1	2	3	4	5	500
Inches	36	72	108	144	180	18,000

4. Emma uses a 250-meter roll of crepe paper to make streamers. How many dekameters of crepe paper does Emma use?

25 dekameters

Meters	10	20	30	40	250
Dekameters	1	2	3	4	25

5. A flatbed truck is loaded with 7,000 pounds of bricks. How many tons of brick are on the truck?

3.5 tons

Pounds	2,000	3,000	4,000	7,000
Tons	1	1.5	2	3.5

Lesson Check (5.MD.1)

1. At the hairdresser, Jenny had 27 centimeters cut off her hair. How many decimeters of hair did Jenny have cut off?
2. Marcus needs 108 inches of wood to make a frame. How many feet of wood does Marcus need for the frame?

2.7 dm

9 feet

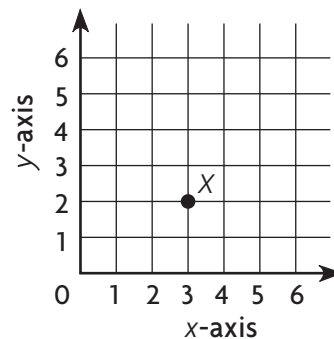
Spiral Review (5.NF.7c, 5.MD.1, 5.G.1)

3. Tara lives 35,000 meters from her grandparents. How many kilometers does Tara live from her grandparents?
4. Dane's puppy weighed 8 ounces when it was born. Now the puppy weighs 18 times as much as it did when it was born. How many pounds does Dane's puppy weigh now?

35 km

9 pounds

5. A carpenter is cutting dowels from a piece of wood that is 10 inches long. How many $\frac{1}{2}$ -inch dowels can the carpenter cut?
6. What ordered pair describes the location of point X?



20 dowels

(3, 2)

Name _____

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

1. 5 days = 120 hr

2. 8 hr = 480 min

3. 30 min = 1,800 s

Think: 1 day = 24 hours

$5 \times 24 = 120$

4. 15 hr = 900 min

5. 5 yr = 1,825 d
or 1,826

6. 7 d = 168 hr

7. 24 hr = 1,440 min

8. 600 s = 10 min

9. 60,000 min = 1,000 hr

Find the start, elapsed, or end time.

10. Start time: 11:00 A.M.

Elapsed time: 4 hours 5 minutes

End time: 3:05 P.M.

11. Start time: 6:30 P.M.

Elapsed time: 2 hours 18 minutes

End time: 8:48 P.M.

12. Start time: 8:15 A.M.

Elapsed time: $9\frac{3}{4}$ hours

End time: 6:00 P.M.

13. Start time: 2:00 P.M.

Elapsed time: 6 hr 30 min,End time: 8:30 P.M. or $6\frac{1}{2}$ hr**Problem Solving**

14. Kiera's dance class starts at 4:30 P.M. and ends at 6:15 P.M. How long is her dance class?

1 hr 45 min

15. Julio watched a movie that started at 11:30 A.M. and ended at 2:12 P.M. How long was the movie?

2 hr 42 min

Lesson Check (5.MD.1)

- Michelle went on a hike. She started on the trail at 6:45 A.M. and returned at 3:28 P.M. How long did she hike?
- Grant started a marathon at 8:00 A.M. He took 4 hours 49 minutes to complete the marathon. When did he cross the finish line?

8 hours 43 minutes

12:49 P.M.

Spiral Review (5.NBT.3b, 5.NF.1, 5.NF.6, 5.MD.1)

- Molly is filling a pitcher that holds 2 gallons of water. She is filling the pitcher with a 1-cup measuring cup. How many times will she have to fill the 1-cup measuring cup to fill the pitcher?
- Choose a symbol to make the following statement true. Write $>$, $<$, or $=$.

$$1.625 \text{ } \textcircled{<} \text{ } 1.7$$

32 times

- Adrian's recipe for raisin muffins calls for $1\frac{3}{4}$ cups raisins for one batch of muffins. Adrian wants to make $2\frac{1}{2}$ batches of the muffins for a bake sale. How many cups of raisins will Adrian use?
- Kevin is riding his bike on a $10\frac{1}{8}$ -mile bike path. He has covered the first $5\frac{3}{4}$ miles already. How many miles does he have left to ride?

$4\frac{3}{8}$ cups

$4\frac{3}{8}$ miles