

Name \_\_\_\_\_

# Conversions Within the Metric System

**Directions:** Circle one of the underlined words in each sentence to make the sentence true.

1. The metric system is a base five/ten system.
2. To convert from larger to smaller units, multiply/divide by a power of ten.
3. To convert from smaller to larger units, multiply/divide by a power of ten.
4. The prefix deci-/deka- represents the tenths place value.
5. The prefix centi- represents one hundredth/thousandth of the base unit.
6. A kilometer is ten times larger than a hectometer/meter.
7. A milligram is ten times smaller than a kilogram/centigram.
8. One meter is longer/shorter than 1 decimeter.
9. One milliliter is more/less than 1 centiliter.
10. One kilogram equals 100/1000 grams.

**Directions:** Place an X over the value that is not equal to the other three values in each row below.

11.	1 km	1,000 cm	10 hm	10,000 dm
12.	100 cm	0.001 km	1 m	10 dm
13.	1 mm	0.001 m	100 km	0.1 cm
14.	10 km	1 hm	100 m	100,000 mm
15.	1 cm	0.1 dm	10 mm	100 m

**Directions:** On the first line, write whether you would multiply or divide to complete each of the following conversions. Then complete the conversions.

16. ~~\_\_\_\_\_~~  $210 \text{ g} = \underline{.210} \text{ kg}$
17. ~~\_\_\_\_\_~~  $0.096 \text{ L} = \underline{96} \text{ mL } \textbf{OR } \underline{96.}$
18. ~~\_\_\_\_\_~~  $53 \text{ cm} = \underline{530} \text{ mm } \textbf{OR } \underline{530.}$
19. ~~\_\_\_\_\_~~  $34 \text{ dam} = \underline{3.4} \text{ hm}$
20. ~~\_\_\_\_\_~~  $85 \text{ mg} = \underline{.085} \text{ g}$

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# Working with Length

1. Write the measurements shown in the box in order from smallest to largest on the lines below.

dekameter  
hectometer  
kilometer  
millimeter  
centimeter  
meter  
decimeter

**MILLIMETER** \_\_\_\_\_ (smallest)  
**CENTIMETER** \_\_\_\_\_  
**DECIMETER** \_\_\_\_\_  
**METER** \_\_\_\_\_  
**DEKAMETER** \_\_\_\_\_  
**HECTOMETER** \_\_\_\_\_  
**KILOMETER** \_\_\_\_\_ (largest)

2. Write the abbreviation for each measurement on the line next to it.

- a. meter m  
b. kilometer km  
c. centimeter cm  
d. dekameter dag  
e. decimeter dm

**Directions:** Write which unit of measurement would be most appropriate for measuring each item listed below. Choose from the measurements listed in the box.

meter	kilometer
centimeter	millimeter

3. the distance from Los Angeles to Chicago kilometer
4. the height of a standard size window meter or centimeter
5. the length of a ballpoint pen centimeter
6. the thickness of a penny millimeter
7. the height of a school locker meter or centimeter
8. the width of a postage stamp millimeter
9. the deepest part of Lake Michigan kilometer
10. the width of a human hair millimeter

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# Working with Mass

Directions: Complete the table below.

	Unit	Symbol	Size (in grams)
1.	milligram	mg	.001 g
2.	centigram	cg	0.01 g
3.	decigram	dg	.01 g
4.	gram	g	1 g
5.	dekagram	dag	10 g
6.	hectogram	hg	100 g
7.	kilogram	kg	1000 g

Directions: Tell which unit of measurement would be most appropriate for measuring each item listed below. Choose from the measurements listed in the box.

	gram	milligram	kilogram
8. an apple	gram		
9. a calculator	gram		
10. a newborn baby	kilogram		
11. an aspirin	milligram		
12. a large textbook	gram or kilogram		
13. a large bag of sugar			kilogram
14. a dollar bill		milligram	
15. a desktop computer			kilogram
16. an eyelash		milligram	
17. a newborn kitten		grams	

The list below shows the amount of some common nutrients that an adult should have in his or her daily diet (based on a 2000 calorie per day diet):

Fat = 65 g

Total carbohydrates = 300 g

Fiber = 25 g

Protein = 50 g = 50,000 mg

Sodium = 2400 mg = 2.4 g

Potassium = 3500 mg = 3.5 g

18. Does an adult need more sodium than protein? no

19. Does an adult need more potassium than fiber? no

20. John took a vitamin this morning with 0.1 g of potassium. How much more potassium does he need today?  $50 \text{ g} - .01 \text{ g} = 49.9 \text{ g}$

21. One serving (36 g) of peanut butter contains 12 g of fat. How many servings of peanut butter could an adult eat before exceeding the recommended daily fat intake?  $65 \text{ g} / 12 \text{ g} = 5.416$  servings

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# Working with Volume

**Directions:** Write the correct metric prefix before the word *liter* to make each measurement correct.

1. ten liters = 1 deka liter
2. one thousand liters = 1 kilo liter
3. one hundredth of a liter = 1 centi liter
4. one thousandth of a liter = 1 milli liter
5. one hundred liters = 1 hecto liter
6. one tenth of a liter = 1 deci liter

**Directions:** Write which unit of measurement would be most appropriate for measuring each item listed below. Choose from the measurements listed in the box.

liter	milliliter	kiloliter
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7. several drops of food coloring milliliter
8. a bathtub liter
9. a can of soup milliliter
10. a pitcher of iced tea liter
11. vanilla extract used when baking cookies milliliter
12. an Olympic-sized swimming pool kiloliter
13. water in an average home aquarium liter
14. a bottle of perfume milliliter
15. a lake kiloliter
16. a small cup of coffee milliliter

17. A can of soda contains 355 mL.  
a. How many milliliters are in a 12-pack of the soda?

$$12 \times 355 \text{ mL} = 4260 \text{ mL}$$

- b. How many liters are in the 12-pack of soda?

$$4260 \text{ mL} = \underline{4.26} \text{ L}$$

- c. The grocery store is having a sale. A two-liter bottle of soda is \$0.99. The 12 pack of soda is \$1.89. Which is a better buy?

$$2\text{L} = \underline{2000} \text{ mL} \quad .99 / 2000 \text{ mL} = .000495$$

$$1.89 / 4260 \text{ mL} = \underline{.000444}$$

< Price per mL