

**DEV085**  
**Lesson 21**

# Measurements

## Metric System of Measurements, Conversions within the Metric System, Conversions Between Systems

### Advantages of the Metric System

- ◆ \_\_\_\_\_ computations (powers of 10)
- ◆ \_\_\_\_\_ units (only three basic units)
- ◆ \_\_\_\_\_ use (international trade)

### Metric System

Basic unit of length - \_\_\_\_\_

Yard = 36 inches

Meter = 39.37 inches

Prefix	Meaning
kilo	– thousand
hecto	– hundred
deka	– ten
deci	– tenth
centi	– hundredth
milli	– thousandth

**Kilometer**  
Kilo – meter  
\_\_\_\_\_ – meters

**Centimeter**  
Centi – meter  
\_\_\_\_\_ of a meter

Metric Abbreviations for Prefixes	
kilo	–
hecto	–
deka	–
deci	–
centi	–
milli	–

Metric Abbreviations for Length	
kilometer	–
hectometer	–
dekameter	–
meter	–
decimeter	–
centimeter	–
millimeter	–

### Turn Tape Off And Work Practice Exercises 1 - 5

- List the basic unit (no prefix) of measure in the metric system for length \_\_\_\_\_
- The prefix kilo means \_\_\_\_\_
- A centimeter is what fractional part of a meter? \_\_\_\_\_
- Which is longer – a meter or a yard? \_\_\_\_\_  
By how much, approximately? \_\_\_\_\_
- List one advantage of the metric system as opposed to the American system.  
\_\_\_\_\_

### Turn Tape Back On For Solutions

## Horizontal Chart for Metric Units of Length

km	hm	dam	m	dm	cm	mm
_____	_____	_____	_____	_____	_____	_____

### Example:

6.  $3.2 \text{ hm} = \underline{\hspace{2cm}} \text{ m}$

km	hm	dam	m	dm	cm	mm
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## Metric to Metric Conversions

### Horizontal Chart Method

1. Locate given unit on the chart.
2. Locate desired unit on the chart.
3. Move the decimal point the \_\_\_\_\_ number of places and same \_\_\_\_\_ (left or right) as you would on the chart – annexing zeros when necessary.

### Examples:

7.  $490 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

km	hm	dam	m	dm	cm	mm
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8.  $12.5 \text{ dam} = \underline{\hspace{2cm}} \text{ cm}$

km	hm	dam	m	dm	cm	mm
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## Turn Tape Off And Work Practice Exercises 9 - 12

km      hm      dam      m      dm      cm      mm

9. 625 cm = \_\_\_\_\_ dm

10. 6.8 km = \_\_\_\_\_ hm

11. 487 m = \_\_\_\_\_ km

12. 0.23 dam = \_\_\_\_\_ mm

## Turn Tape Back On For Solutions

### Metric System

\_\_\_\_\_ – basic unit for weight

km      hm      dam      m      dm      cm      mm

k\_\_\_      h\_\_\_      da\_\_\_      \_\_\_      d\_\_\_      c\_\_\_      m\_\_\_

### Metric System

\_\_\_\_\_ – basic unit for volume

km      hm      dam      m      dm      cm      mm

k\_\_\_      h\_\_\_      da\_\_\_      \_\_\_      d\_\_\_      c\_\_\_      m\_\_\_

**Examples:**

kg      hg      dag      g      dg      cg      mg

13.  $0.6 \text{ g} = \underline{\hspace{2cm}} \text{ cg}$

kL      hL      daL      L      dL      cL      mL

14.  $475 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

**Turn Tape Off And Work Practice Exercises 15 - 20**

15.  $365 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

16.  $147 \text{ g} = \underline{\hspace{2cm}} \text{ mg}$

17.  $0.06 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

18.  $42.5 \text{ kL} = \underline{\hspace{2cm}} \text{ L}$

19.  $8.4 \text{ g} = \underline{\hspace{2cm}} \text{ cg}$

20.  $4,567 \text{ L} = \underline{\hspace{2cm}} \text{ kL}$

**Turn Tape Back On For Solutions**

## Common References for Length



\_\_\_\_\_ – about the width of a paper clip.

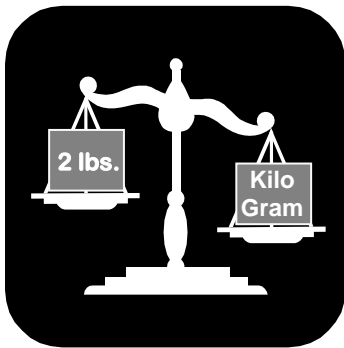
About \_\_\_\_\_ centimeters equals 1 inch.

\_\_\_\_\_ - about the thickness of the wire used in a paper clip.

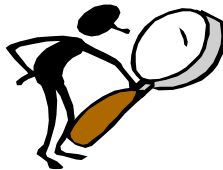
\_\_\_\_\_ – about  $\frac{6}{10}$  of a mile.



## Common References for Weight



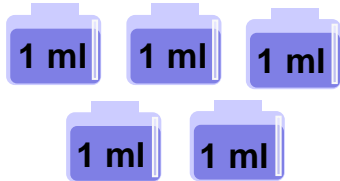
A \_\_\_\_\_ is a little more than two pounds.



A \_\_\_\_\_ is very small and used mostly for scientific measurements.

## Common References for Volume

A \_\_\_\_\_ is a little more than a quart



Milliliter – \_\_\_\_\_ milliliters is about 1 teaspoon.



## Conversions Between Systems:

Length:	Volume:	Weight:
1 mile = 1.61 km 1 yd. = 0.914 m 1 ft. = 0.305 m 1 in. = 2.54 cm	1 gal. = 3.79 L 1 qt. = 0.946 L	1 lb. = 0.454 kg 1 oz. = 28.35 g

### Examples:

21. 8 inches = \_\_\_\_\_ cm

22. 22 lb. = \_\_\_\_\_ kg

23. 900 mL = \_\_\_\_\_ qt.

**Turn Tape Off And Work Practice Exercises 24 - 28**

24. 7 gallons = \_\_\_\_\_ L

25. 3 kg = \_\_\_\_\_ oz

26. 210 cm = \_\_\_\_\_ ft

27. 450 miles = \_\_\_\_\_ km

28. 9 qt = \_\_\_\_\_ L

**Turn Tape Back On For Solutions**

# Lesson 21: Problem Set

Fill in the correct response:

1. The prefix deka means: \_\_\_\_\_
2. A milliliter is \_\_\_\_\_ of a liter
3. The abbreviation for centigram is \_\_\_\_\_.
4. Which is larger a deciliter or a dekaliter: \_\_\_\_\_.

Convert the following:

5. 34.5 dm = \_\_\_\_\_ m
6. 7.23 mL = \_\_\_\_\_ daL
7. 0.567 kg = \_\_\_\_\_ mg
8. 300 meters = \_\_\_\_\_ km

Fill in the blank:

9. A kilogram is a little more than \_\_\_\_\_.
10. A teaspoon is about \_\_\_\_\_.

Using the chart of equivalent measures, complete the following conversions:

Conversions Between Systems:		
Length:	Volume:	Weight:
1 mile = 1.61 km 1 yd. = 0.914 m 1 ft. = 0.305 m 1 in. = 2.54 cm	1 gal. = 3.79 L 1 qt. = 0.946 L	1 lb. = 0.454 kg 1 oz. = 28.35 g

11. 24 m = \_\_\_\_\_ ft.
12. 100 oz. = \_\_\_\_\_ g
13. 320 lbs. = \_\_\_\_\_ kg
14. 50 L = \_\_\_\_\_ gal.
15. 200 yds. = \_\_\_\_\_ m