Study Guide for Unit 2 Lessons 3-5

Length

(from smallest unit to largest unit)
(abbreviations are in paranthesis)
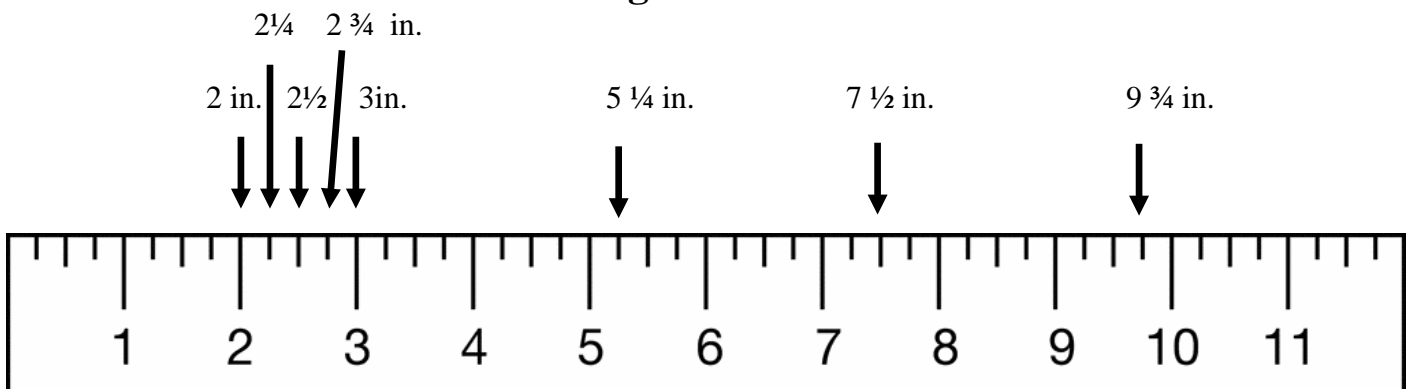
Customary System	Metric System
1. Inch (in.) …. similar to →	Centimeter (cm.)
2. Foot (ft.) …. similar to →	Decimeter (dm.)
3. Yard (yd.) …. similar to →	Meter (m.)
4. Mile (mi.) …. similar to →	Kilometer (km.)

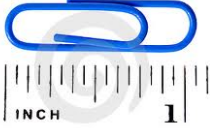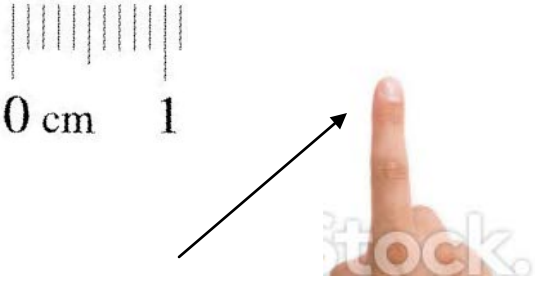| When you think….	You should think of:
Inch →	1 joint on your index finger OR a small paperclip
Foot →	Loaf of bread
Yard →	Baseball bat
Mile →	It would take you 15-20 minutes to walk this far.
Centimeter →	Width of your index finger

Units you should know:

Customary	Metric
1 foot = 12 inches	1 decimeter = 10 centimeters
1 yard = 36 inches	1 meter = 100 centimeters
1 yard = 3 feet	1 Kilometer = 1,000 meters
1 mile = 1,760 yards	
1 mile = 5,280 feet	

Reading a Ruler:

Length

When you see...	Think…
Inch	
Foot	
Yard	
Centimeter	

Capacity = measures liquids

(from smallest unit to largest unit)
(abbreviations are in paranthesis)

Customary System	Metric System
	milliliter (mL.)
1. cup (c.)	
2. pint (pt.)	
3. quart (qt.) … is similar to →	Liter (L.)
4. gallon (gal.	

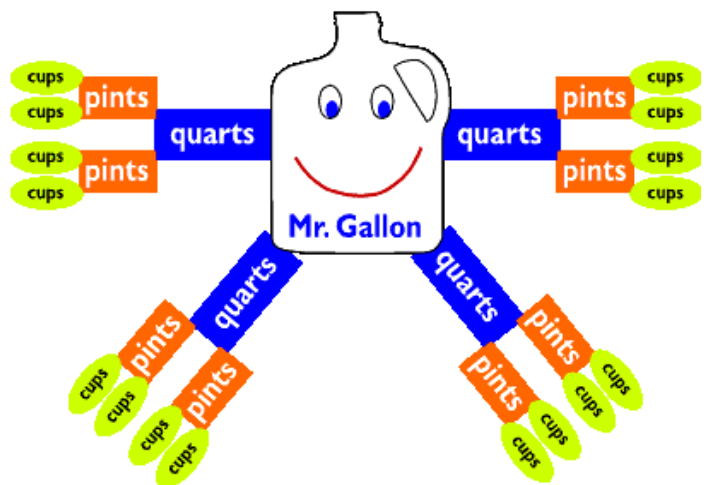## Customary System

When you think….	You should think of:
cup →	Milk carton at school or measuring cup to cook with
Pint →	2 school milk cartons put together or small ice-cream carton
Quart →	Fat Gatorade bottle or tall carton of milk
Gallon →	Big milk jug

Metric System

When you think….	You should think of:
Milliliter →	Small medicine dropper
Liter →	Fat Gatorade bottle or half of a 2-Liter Soda bottle

Units you should know:

Customary System	Metric System
1 gallon = 16 cups	1 Liter = 1,000 milliliters
1 gallon = 8 pints	
1 gallon = 4 quarts	
1 quart = 2 pints	
1 quart = 4 cups	
1 pint = 2 cups	
2 pints = 4 cups	

Capacity = Liquid Measurement

When you see...	Think…
Cup	
Pint	
Quart	
Gallon	
Milliliter	
Liter	

Weight = changes on the moon!
(depends on gravity)

(from smallest unit to largest unit)
(abbreviations are in parenthesis)

Customary System
1. ounce (oz.)
2. pound (lb.)
3. ton (T.)

When you think….	You should think of:
Ounce →	Pencil
Pound →	Soccer ball
Ton →	Car

Units you should know:

Customary
1 pound (lb). = 16 ounces (oz.)
1 Ton = 2,000 pounds (lbs.)

Mass = never changes (not even on the moon!)

(from smallest unit to largest unit)
(abbreviations are in paranthesis)

Metric System
1. gram (g.)
2. kilogram (kg.)

When you think….	You should think of:
Gram →	$1.00 bill **or** a paperclip
Kilogram →	Math textbook

Units you should know:

Metric
1 Kilogram = 1,000 grams

Temperature

Customary System	Metric System
Fahrenheit	*Celsius*
Freezing Point = 32^0F	Freezing Point = 0^0C
Boiling Point = 212^0F	Boiling Point = 100^0C
Room temperature = 65^0F -70^0F	Room temperature = 20^0C
Hot summer day= 80^0F or higher	Hot summer day= 35^0C
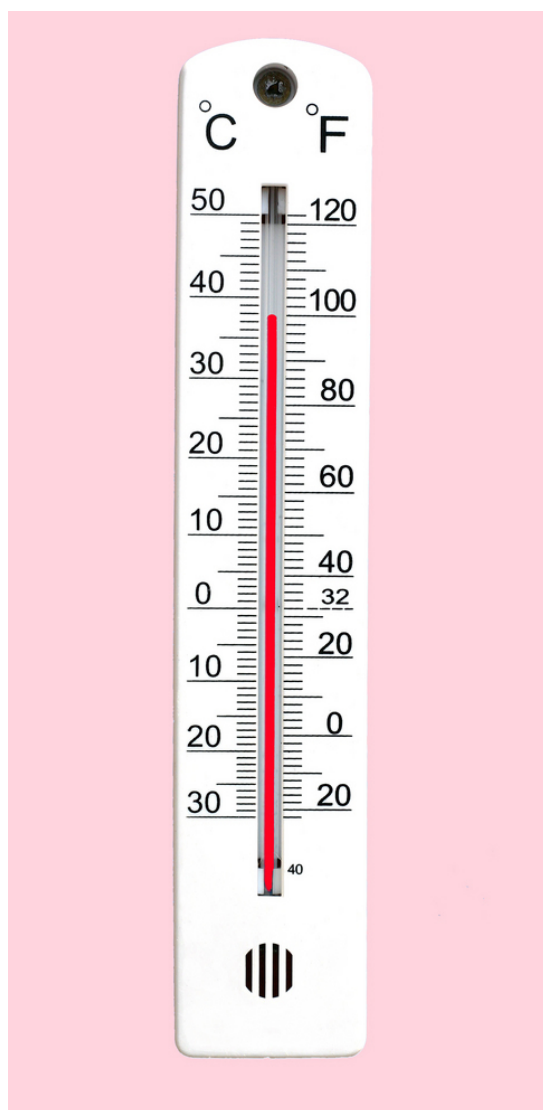
CONVERSION TIPS

A good rule of thumb when converting units is to first look at what type of unit you are converting.

➢ If you are converting a **LARGER** unit into a **smaller** one then you will need to **multiply**

Ex: larger unit (lb) to smaller unit (oz)
9 lb = _____ oz

Thought Process:

1 lb = 16 oz   therefore

16 x 9 = 144

Solution:
9 lb = 144 oz

➢ If you are converting a **smaller** unit into a **LARGER** one then you will need to **divide**

Ex: smaller unit (ft) to larger unit (yd)
15 ft = _____ yd

Thought Process:

3 ft = 1 yd   therefore

15 ÷ 3 = 5

Solution:
15 ft = 3 yd

Convert units by multiplying or dividing.

When changing smaller units to larger units, divide.

When changing larger units to smaller units, multiply.

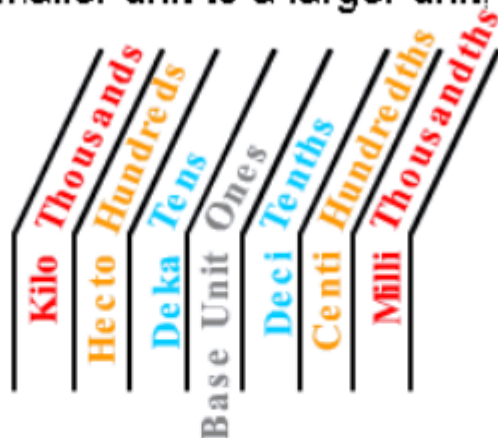The basic unit for measuring length in the metric system is the meter (m).

If Base Unit is METER:

Kilometer = 1,000 meters
Hectometer = 100 meters
Dekameter = 10 meters
Meter = 1 meter
Decimeter = one tenth meter
Centimeter = one hundredth meter
Millimeter = one thousandth meter

An easy way to remember the metric system units try this acronym:
KING HENRY DOESN'T USUALLY DRINK CHOCOLATE MILK

Kilo
 Hecta
  Deka
   Unit: Liter, Gram, Meter
    Deci
     Centi
      Milli
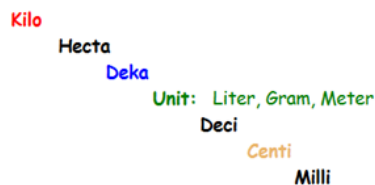
Metric Conversions are changing a basic unit into a different size. An example of metric conversion is changing a millimeter into a centimeter.

To convert a smaller unit to a larger unit, use division.

Kilo Thousands
Hecto Hundreds
Deka Tens
Unit Ones
Base
Deci Tenths
Centi Hundredths
Milli Thousandths

3.5 m = .0035 km
To convert meters to kilometers, divide the
number of meters by 1000.
3.5 ÷ 1000 = .0035

To convert a larger unit to a smaller unit, use multiplication.

Kilo Thousands
Hecto Hundreds
Deka Tens
Unit Ones
Base
Deci Tenths
Centi Hundredths
Milli Thousandths

5 m = 500 cm
To convert meters to centimeters, multiply the number of meters by
100, because centi means one hundredth.
5 x 100 = 500

PRACTICE:

Try these conversions.

K H D U D C M

104 km = _____m   480 cm = _____ m

5.6 kg= _____g   8 mm= _____ cm

1. 4 feet = _____ inches

2. 36 inches = _____ feet

3. 642 feet = _____ yards

4. 72 inches = _____ yards

5. 21 yards = _____ feet

Units of Time

60 seconds (s) = 1 minute (min)
60 min = 1 hour (hr)
24 hr = 1 day (d)
7 d = 1 week (wk)
52 wk = 1 year (yr)
12 months (mo) = 1 yr
365 d = 1 yr
366 d = 1 leap year

Examine this example that changes smaller units (hours) to larger units (days).

75 hours = _____ days
Since 24 hours = 1 day, divide 75 by 24.
75 ÷ 24 = 3r3
75 hours = 3 days, 3 hours

Here is an example that changes larger units (hours) to smaller units (minutes).

19 hrs = __ min

Since 60 min = 1 hr, multiply 19 x 60
19 x 60 = 1140
19 hrs = 1140 min

PRACTICE:

1. 5 minutes = _____ seconds

2. 660 minutes= _____ hours

3. The first bell at Tyler's school rings at 7:50am. Students are dismissed by the final bell at 2:40pm. How many hours is Tyler in school each day?

ADDITIONAL RESOURCES

METRIC MEASUREMENTS
http://www.mathsisfun.com/measure/metric-system.html
http://www.mathsisfun.com/measure/metric-system-introduction.html
http://www.mathsisfun.com/measure/metric-length.html
http://www.mathplayground.com/howto_Metric.html

CUSTOMARY MEASUREMENTS
http://www.funbrain.com/measure/
http://studyjams.scholastic.com/studyjams/jams/math/measurement/units-of-measurement.htm
http://www.myschoolhouse.com/courses/O/1/18.asp