

Dear Parent,

The following worksheets are meant to assist you as you teach your students about units of measurement. This packet is in no way exhaustive, as this topic is typically covered with your math program. Rather this packet is meant for you to use as a means of review when you cover the two different measuring systems with your students. If you have any questions or problems, please don't hesitate to email me at paige@elementalscience.com.

Paige Hudson

Answers

Metric System Worksheet

Answers

1. 0.022 L
2. 5000 g
3. 0.00762 km

Standard American Engineering (SAE) System Worksheet

Answers

1. 1.375 gal
2. 0.2414 mi
3. 12,800 oz

Between Systems Worksheet

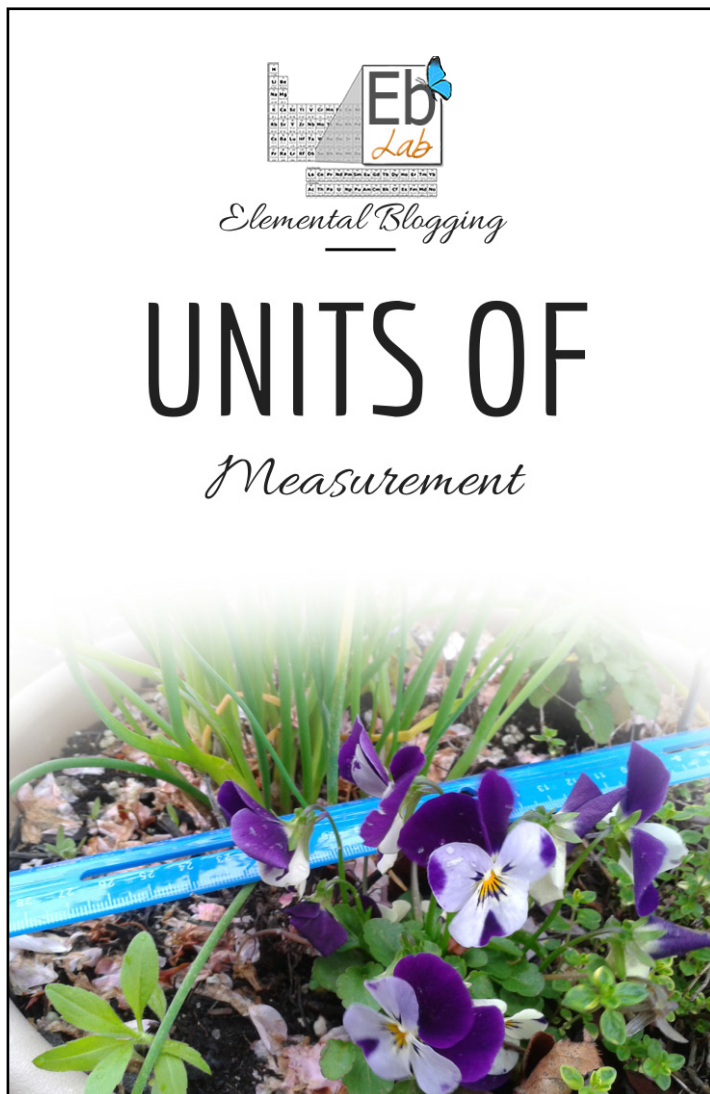
Answers

1. 15.1 L
2. 3.61 m
3. 18.3 oz

To view the original post, visit:

<http://elementalblogging.com/units-of-measurement/>

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Converting Units

(Metric System)

If you are converting to a larger unit, move the decimal point to the left or divide. If you are converting to a smaller unit, move the decimal point to the right or multiply.

Kilo (k) = 1000 • Basic Unit

Hecto (h) = 100 • Basic Unit

Deka (da) = 10 • Basic Unit

Basic Unit

Deci (d) = 0.1 • Basic Unit

Centi (c) = 0.01 • Basic Unit

Milli (m) = 0.001 • Basic Unit

Basic Units are liters (L) for capacity, meters (m) for length, and grams (g) for weight.

Converting Units

(SAE to Metric)

Pounds (lb) to Kilograms (kg)

$$1 \text{ lb} = 2.2 \text{ kg}$$

Gallons (gal) to Liters (L)

$$1 \text{ gal} = 3.785 \text{ L}$$

Feet (ft) to Meters (m)

$$1 \text{ ft} = 0.305 \text{ m}$$

Miles (mi) to Kilometers (km)

$$1 \text{ mi} = 1.61 \text{ km}$$

Cups (c) to Milliliters (mL)

$$1 \text{ c} = 240 \text{ mL}$$

Inches (in) to Centimeters (cm)

$$1 \text{ in} = 2.54 \text{ cm}$$

Ounces (oz) to Grams (g)

$$1 \text{ oz} = 28.3 \text{ g}$$

Converting Units

(SAE System)

Length

Units

Inch (in)

Foot (ft)

Yard (yd)

Mile (mi)

Conversion Factors

$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ yd} = 3 \text{ ft} = 36 \text{ in}$$

$$1 \text{ mile} = 1760 \text{ yd} = 5280 \text{ ft}$$

Capacity (Volume)

Units

Teaspoon (t or tsp)

Tablespoon (T or Tbsp)

Cups (c)

Pints (pt)

Quarts (qt)

Gallons (gal)

Conversion Factors

$$1 \text{ Tbsp} = 3 \text{ tsp}$$

$$1 \text{ c} = 16 \text{ Tbsp}$$

$$1 \text{ pt} = 2 \text{ c} = 32 \text{ Tbsp}$$

$$1 \text{ qt} = 2 \text{ pt} = 4 \text{ c}$$

$$1 \text{ gal} = 4 \text{ qt} = 8 \text{ pt}$$

Mass (Weight)

Units

Ounce (oz)

Pound (lb)

Ton (T)

Conversion Factors

$$1 \text{ lb} = 16 \text{ oz}$$

$$1 \text{ T} = 2000 \text{ lb}$$

Converting Units – Metric System

The metric system is base 10 and the names are formed with prefixes. So, you have a basic unit and then you add prefix to denote the value. If you are converting to a larger unit, move the decimal point to the left or divide. If you are converting to a smaller unit, move the decimal point to the right or multiply.

Kilo (k) = 1000 • Basic Unit

Hecto (h) = 100 • Basic Unit

Deka (da) = 10 • Basic Unit

Basic Unit

Deci (d) = 0.1 • Basic Unit

Centi (c) = 0.01 • Basic Unit

Milli (m) = 0.001 • Basic Unit

Basic Units are liters (L) for capacity, meters (m) for length, and grams (g) for mass.

Sample Problem

Convert 65 millimeters (mm) into meters (m).

$$65 \text{ mm} \cdot 0.001 \text{ m} = 0.065 \text{ m}$$

Problems to Try

1. Convert 52 milliliters (mL) into liters (L).
2. Convert 5 kilograms (kg) into grams (g).
3. Convert 762 centimeters (cm) into kilometers (km).

Converting Units - Standard (SAE) System

The Standard American Engineering (SAE) system is mainly utilized in the United States. It contains units like inches, pounds and gallons. You need to know the conversion factors for this system as they are not base 10 like the metric system. Here are some of the most common units for this system and their conversion factors.

Length

Units

Inch (in)

Foot (ft)

Yard (yd)

Mile (mi)

Conversion Factors

$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ yd} = 3 \text{ ft} = 36 \text{ in}$$

$$1 \text{ mile} = 1760 \text{ yd} = 5280 \text{ ft}$$

Capacity (Volume)

Units

Teaspoon (t or tsp)

Tablespoon (T or Tbsp)

Cups (c)

Pints (pt)

Quarts (qt)

Gallons (gal)

Conversion Factors

$$1 \text{ Tbsp} = 3 \text{ tsp}$$

$$1 \text{ c} = 16 \text{ Tbsp}$$

$$1 \text{ pt} = 2 \text{ c} = 32 \text{ Tbsp}$$

$$1 \text{ qt} = 2 \text{ pt} = 4 \text{ c}$$

$$1 \text{ gal} = 4 \text{ qt} = 8 \text{ pt}$$

Mass (Weight)

Units

Ounce (oz)

Pound (lb)

Ton (T)

Conversion Factors

$$1 \text{ lb} = 16 \text{ oz}$$

$$1 \text{ T} = 2000 \text{ lb}$$

Sample Problem

Convert 54 inches (in) into yards (yd).

$$\frac{54 \text{ in}}{12 \text{ in}} \times \frac{1 \text{ ft}}{3 \text{ ft}} = 1.5 \text{ yd}$$

Problems to Try

1. Convert 22 cups (c) into gallons (gal).
2. Convert 1275 feet (ft) into miles (mi).
3. Convert 0.4 Tons (T) into ounces (oz).

Converting Units – Between Systems

With the global flow of information that occurs these days, it is helpful to know how to convert between the two systems of measurement. You should be familiar with the following conversions:

Pounds (lb) to Kilograms (kg)

$$1 \text{ lb} = 2.2 \text{ kg}$$

Gallons (gal) to Liters (L)

$$1 \text{ gal} = 3.785 \text{ L}$$

Feet (ft) to Meters (m)

$$1 \text{ ft} = 0.305 \text{ m}$$

Miles (mi) to Kilometers (km)

$$1 \text{ mi} = 1.61 \text{ km}$$

Cups (c) to Milliliters (mL)

$$1 \text{ c} = 240 \text{ mL}$$

Inches (in) to Centimeters (cm)

$$1 \text{ in} = 2.54 \text{ cm}$$

Ounces (oz) to Grams (g)

$$1 \text{ oz} = 28.3 \text{ g}$$

Sample Problem

Convert 130 ounces (oz) to kilograms (kg).

$$\frac{130 \text{ oz}}{16 \text{ oz}} \times \frac{1 \text{ lb}}{1 \text{ lb}} \times \frac{2.2 \text{ kg}}{1 \text{ lb}} = 3.69 \text{ kg}$$

Problems to Try

1. Convert 64 cups (c) to liters (L).
2. Convert 142 inches (in) to meters (m).
3. Convert 0.52 kilograms (kg) to ounces (oz).