**Applying the Metric and Imperial Systems of Measurement**

Systems of measurement are used to measure the length, volume, mass or temperature of an object.

**The Metric System**

Canada and most other countries of the world use the *metric* system of measurement.

Using the metric system, fill in the main unit of measure for each category:

Length \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Volume\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mass\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Temperature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Some of the commonly used units and conversions in the metric system are as follows:

**Length Volume Mass**

10 mm = 1 cm 1000 mL = 1 L 1000 g = 1 kg

100 cm = 1 m 1000 kg = 1 t

1000 m = 1 km

**1.** If a wall is measured to be 450 cm long, what is the measurement in metres (m)?

**2.** If a container has a volume of 2.6 L, what is the volume in millilitres (mL) ?

**3.** Consider the following examples of objects that could be measured. *Match the examples*  with the most appropriate unit of measurement by drawing lines between them.

**Column A Column B**

Volume of a cooler 170 cm

Mass of an average person 22º C

Temperature inside a room 10 mm

Thickness of a magazine 75 Kg

Height of an average person 20 L

Distance around a running track 400 m

**The Imperial System**

Some other countries, particularly the United States, use a different system of measurement called the i*mperial* system. Although it is not recognized as Canada’s main system of measurement, why is it still important for us to be able to understand and work with the imperial system?

In the case of the imperial system, fill in at least one example of a unit of measure for each category:

Length \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Volume\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mass\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Temperature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Some of the commonly used units and conversions in the imperial system are as follows:

**Length Volume Mass**

12 inches = 1 foot 16 fluid ounces = 1 pint 16 ounces = 1 pound

3 feet = 1 yard 2 pints = 1 quart 2000 pounds = 1 ton (US)

1760 yards = 1 mile 8 pints = 1 gallon

**4.** If a wall is measured to be 144 inches long, what is the measurement in feet?

**5.** If a container has a volume of 6 quarts, what is the volume in pints?

**6.** Consider the following examples of objects that could be measured. Match the examples with the most appropriate unit of measurement by drawing lines between them.

**Column A Column B**

Volume of a cooler ½ in. (inches)

Mass of an average person 5’10” (5 feet, 10 inches)

Temperature inside a room 5 gal (gallons)

Thickness of a magazine 175 lb. (pounds)

Height of an average person 200 yd. (yards)

Distance around a running track 72º F

**Converting between the Metric and Imperial Systems**

The following are approximate conversions between commonly used metric and imperial measurements:

**Length Volume Mass**

30.48 cm = 1 foot 29.574 mL = 1 fluid ounce 28.35 g = 1 ounce

2.54 cm = 1 inch 0.473 L = 1 pint 0.454 kg = 1 pound

1.6 km = 1 mile 3.785 L = 1 gallon 0.907 t = 1 ton (US)

**7.** If a wall is measured to be 14 feet long, what is the measurement in cm?

**8.** If a container has a volume of 4 L, what is the volume in gallons?

**Applying the Metric and Imperial Systems of Measurement**

9. In the following questions you will be creating a conversion chart, and then graphing your data.

inches

cm

a) Inches to Centimetres (1 inch = 2.54 cm)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Inches | 1 | 2 | 3 |  |  |  |
| cm |  |  |  | 12.7 | 17.78 | 127 |

b) Miles to Kilometres (1 mile = 1.6km)

miles

km

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Miles | 1 | 2 | 3 |  |  |  |
| km |  |  |  | 10 | 20 | 30 |

CHALLENGE:

See if you can convert Farenheit to Celcius….it’s not as easy, but we come

across it all the time!

c) Farenheit to Celcius ()

C

F

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| F | 0 |  | 100 |  |  |  |
| Celcius |  | 0 |  | 20 | 26 | 37.4 |