

Metric/Metric Conversions Introduction

You **absolutely** need to know, memorize, remember, state, and explain that:

milli means 1/1000	There are 1000 millimeters in one meter	mm means millimeter
centi means 1/100	There are 100 centimeters in one meter	cm means centimeter
deci means 1/10	There are 10 decimeters in one meter	dm means decimeter
kilo means 1000	There are 1000 meters in a kilometer	km means kilometer

Metric prefixes have the same meaning, regardless of the base used.

For example, 1000mm = 1 m, 1000 mL = 1 L, and 1000 g = 1 kg.

To convert from one metric unit to another, you need to use a **conversion factor**. A conversion factor is a **ratio that is equal to one**.

Example: You start with a measurement of 1200 mg and want to convert it to grams.

The appropriate conversion factor would be: $\frac{1\text{g}}{1000\text{mg}}$ $\frac{\text{unit you want}}{\text{unit you started with}}$

Simply multiply the correct conversion factor by your original measurement, and voila!

$$1200\text{ mg} \times \frac{1\text{g}}{1000\text{mg}} = 1.2\text{ g}$$

The units you started with cancel out and the only units left are those you want!

For each of the following, be sure to show all your work.

- 1) Try converting 1500 centimeters to meters

$$1500\text{ cm} \times \frac{\text{m}}{\text{cm}} = \quad \text{m}$$

- 2) Try converting 2.3 liters to milliliters

$$2.3\text{ l} \times \frac{\text{ml}}{1} = \quad \text{ml}$$

- 3) Try converting 1200 meters to kilometers

$$1200\text{ m} \times \frac{\quad}{\quad} = \quad \text{km}$$

4) Try converting 1.8 kiloseconds to seconds

$$1.8 \text{ ks} \times \text{—————} =$$

5) Try converting 230 deciliters to liters

6) Try converting 1200 milliseconds to seconds