

# Reporting Measurements

A standard system of units (SI) was derived for use in scientists around the world.

Quantity	Unit Name	Symbol
Length	Meter	m
Mass	Kilogram	kg
Volume	Litre	L
Temperature	Kelvin	K
Amount of a substance	Mole	Mol

We use the SI units in combination with metric multiples to manipulate large and small quantities.

Prefix	Multiple	Power	Symbol
tera-	1,000,000,000,000	$10^{12}$	T
giga-	1,000,000,000	$10^9$	G
mega-	1,000,000	$10^6$	M
kilo-	1,000	$10^3$	k
hecto-	100	$10^2$	h
deca-	10	$10^1$	da
<b>base unit</b>	1	$10^0$	
deci-	1/10	$10^{-1}$	d
centi-	1/100	$10^{-2}$	c
milli-	1/1000	$10^{-3}$	m
micro-	1/1,000,000	$10^{-6}$	$\mu$
nano-	1/1,000,000,000	$10^{-9}$	n
pico-	1/1,000,000,000,000	$10^{-12}$	p

## Converting Units

1. Use a conversion factor – multiply by the fraction  
Unknown/Known

Ex 1. 25 m = ? cm

Ex 2. 35600 mm = ? km

## Scientific (Exponential) Notation

In order to handle very large and small numbers, scientists use a technique known as exponential notation.

To express a number, we use a coefficient multiplied by base 10 raised to a power (exponent).

The exponent tells you how many places the decimal has been moved, and in which direction (positive = left, negative = right)

ex. 2700 is expressed as  $2.7 \times 10^3$

ex  $0.00045 = 4.5 \times 10^{-4}$

Calculators have different ways to enter scientific notation. You either have an E, EE or  $10^x$  button.