

## Units

This international system of units is based on the following five units:

1. metre
2. kilogram
3. second
4. ampere
5. kelvin

Other SI units are defined in terms of these basic units.

You also need to know the following prefixes:

G	Giga	$10^9$	one thousand million
M	Mega	$10^6$	one million
k	kilo	$10^3$	one thousand
m	milli	$10^{-3}$	one thousandth
$\mu$	mu	$10^{-6}$	one millionth
n	nano	$10^{-9}$	one thousandth of a millionth
p	pico	$10^{-12}$	one millionth of a millionth

Each prefix can go before any SI unit. For example:

1 pF	= 1 picofarad	= $1 \times 10^{-12}$ farads	= $1 \times 10^{-12}$ F
1 ns	= 1 nanosecond	= $1 \times 10^{-9}$ seconds	= $1 \times 10^{-9}$ s
1 $\mu$ m	= 1 micrometre	= $1 \times 10^{-6}$ metres	= $1 \times 10^{-6}$ m
1 mA	= 1 milliamp	= $1 \times 10^{-3}$ amps	= $1 \times 10^{-3}$ A
1 kV	= 1 kilovolt	= $1 \times 10^3$ volts	= $1 \times 10^3$ V
1 MJ	= 1 megajoule	= $1 \times 10^6$ joules	= $1 \times 10^6$ J
1 GHz	= 1 gigahertz	= $1 \times 10^9$ hertz	= $1 \times 10^9$ Hz

When you are trying numerical problems always make sure that you use the SI unit of each quantity given - this guarantees that the quantity you are calculating will be in its SI unit.

### Be aware!

The kilogram is the SI unit for mass - do not change kilograms to grams.