



PHYSICAL QUANTITIES

DID YOU KNOW?



ORDER OF MAGNITUDE	PREFIX	SYMBOL
10^9	Giga	G
10^6	Mega	M
10^3	Kilo	k
-	-	-
10^{-1}	Deci	d
10^{-2}	Centi	c
10^{-3}	Milli	m
10^{-6}	Micro	μ
10^{-9}	Nano	n

BASE QUANTITIES		
QUANTITY	UNIT	SHORT FORM
Length	metre	m
Mass	kilogram	kg
Time	second	s
Temperature	kelvin	K
Amount of substance	mole	mol
Current	Ampere	A

Radius of earth = 6.37×10^6 m

Electron mass = 9.11×10^{-31} kg

Size of atom = 1×10^{-10} m

Mass of a car = 1500 kg

Mass of earth = 5.97×10^{24} kg

INTERESTING FACT

Conversions

To convert from one prefix to another

1. Write out the number and add x10 on its right, leaving the power blank first.
2. Determine the new power by taking the initial order of magnitude for the old prefix and subtract by the order of magnitude for the new prefix.
3. Fill in the new power.

Conversion Shortcuts

$$\text{m/s} \times 3.6 = \text{km/h}$$

$$\text{km/h} \div 3.6 = \text{m/s}$$

$$\text{g/cm}^3 \times 1000 = \text{kg/m}^3$$

$$\text{kg/cm}^3 \div 1000 = \text{g/cm}^3$$

$$\text{K} - 273 = \text{°C}$$

$$\text{°C} + 273 = \text{K}$$

1. Clamp a cork in the retort stand and push an optical pin into the cork
2. Hang a pendulum bob from the optical pin
3. Displace the pendulum bob slightly and wait until the pendulum is oscillating steadily
4. When the pendulum reaches the highest position on one end, start timing with a stopwatch
5. One complete oscillation refers to when the pendulum travels from its starting position, to the highest position on the other end and back to its original position
6. Count up to twenty oscillations, stop timing and record the time
7. The period is the time taken for the pendulum to make one full oscillation



$$\text{Period} = \frac{\text{Time recorded}}{20}$$

$$T = 2\pi \sqrt{\frac{l}{g}}$$