



## Integrated Science Stage 3: Formulae and Data Sheet

### Relevant units and definitions

- Volume:** Volumes are given in the units of litres (L), or millilitres (mL).
- Energy change:** Energy changes are given in the SI unit kilojoule (kJ).
- Population density:** Number of an individual species living in a particular place at a particular time per unit area.

### Prefixes of the Metric System

Factor	Prefix	Symbol
$10^9$	giga	G
$10^6$	mega	M
$10^3$	kilo	k
$10^{-3}$	milli	m
$10^{-6}$	micro	$\mu$
$10^{-9}$	nano	n
$10^{-12}$	pico	p

## Physical Formulae

Work done by a force

$$W = Fs$$

Potential energy

$$E_p = mgh$$

Kinetic energy

$$E_k = \frac{1}{2}mv^2$$

Potential energy change and work

$$W = \Delta E_p$$

Kinetic energy change and work

$$W = \Delta E_k$$

Power and work

$$P = \frac{W}{t}$$

Ohm's Law

$$V = IR$$

Electrical power

$$P = VI$$

Efficiency

$$\text{Percentage efficiency} = \frac{\text{energy out}}{\text{energy in}} \times \frac{100}{1}$$