



GCSE Data Sheet

v1.0 Jun 2021



Combined / Physics

Equations in **bold** are for Higher Tier only

Equation highlighted in blue are for Physics only (not Combined)

$$\text{density} = \text{mass} / \text{volume}$$

$$\text{change in thermal energy} = \text{mass} \times \text{specific heat capacity} \times \text{change in temperature}$$

$$\text{thermal energy for a change in state} = \text{mass} \times \text{specific latent heat}$$

$$\text{pressure} \times \text{volume} = \text{constant (for a gas)}$$

$$\text{pressure due to a column of liquid} = \text{height of column} \times \text{density of liquid} \times \text{gravitational field strength}$$

$$\text{charge flow} = \text{current} \times \text{time}$$

$$\text{potential difference} = \text{current} \times \text{resistance}$$

$$\text{energy transferred} = \text{charge} \times \text{potential difference}$$

$$\text{power} = \text{potential difference} \times \text{current}$$

$$\text{power} = \text{current}^2 \times \text{resistance}$$

$$\text{energy transferred} = \text{power} \times \text{time}$$

$$\text{force on a conductor carrying a current} = \text{magnetic flux density} \times \text{current} \times \text{length}$$

$$\frac{\text{potential difference across primary coil}}{\text{potential difference across secondary coil}} = \frac{\text{number of turns in primary coil}}{\text{number of turns in secondary coil}}$$

$$\text{wave speed} = \text{frequency} \times \text{wavelength}$$

$$\text{distance travelled} = \text{speed} \times \text{time}$$

$$\text{acceleration} = \text{change in velocity} / \text{time}$$

$$(\text{final velocity})^2 - (\text{initial velocity})^2 = 2 \times \text{acceleration} \times \text{distance}$$

$$\text{kinetic energy} = \frac{1}{2} \times \text{mass} \times \text{speed}^2$$

$$\text{force} = \text{mass} \times \text{acceleration}$$

$$\text{momentum} = \text{mass} \times \text{velocity}$$

$$\text{work done} = \text{force} \times \text{distance (along the line of action of the force)}$$

$$\text{power} = \text{work done} / \text{time}$$

$$\text{force exerted by a spring} = \text{extension} \times \text{spring constant}$$

$$\text{energy transferred in stretching} = \frac{1}{2} \times \text{spring constant} \times \text{extension}^2$$

$$\text{gravitational force} = \text{mass} \times \text{gravitational field strength}$$

$$\text{(in a gravitational field) potential energy} = \text{mass} \times \text{height} \times \text{gravitational field strength}$$

$$\text{pressure} = \text{force normal to surface} / \text{area of surface}$$

$$\text{moment of a force} = \text{force} \times \text{distance (normal to the direction of the force)}$$

$$\text{efficiency} = \frac{\text{useful output energy transfer}}{\text{input energy transfer}}$$

$$\frac{\text{potential difference across primary coil}}{\text{potential difference across secondary coil}} \times \frac{\text{current in primary coil}}{\text{current in secondary coil}} = \frac{\text{potential difference across secondary coil}}{\text{potential difference across primary coil}} \times \frac{\text{current in secondary coil}}{\text{current in primary coil}}$$

