

## Physics Equations Sheet

### GCSE Additional Science / Physics (AS1, AS2 and PH2)

$a = \frac{F}{m}$ or $F = m \times a$	<i>F</i> resultant force <i>m</i> mass <i>a</i> acceleration
$a = \frac{v - u}{t}$	<i>a</i> acceleration <i>v</i> final velocity <i>u</i> initial velocity <i>t</i> time taken
$W = m \times g$	<i>W</i> weight <i>m</i> mass <i>g</i> gravitational field strength
$F = k \times e$	<i>F</i> force <i>k</i> spring constant <i>e</i> extension
$W = F \times d$	<i>W</i> work done <i>F</i> force applied <i>d</i> distance moved in the direction of the force
$P = \frac{E}{t}$	<i>P</i> power <i>E</i> energy transferred <i>t</i> time taken
$E_p = m \times g \times h$	<i>E<sub>p</sub></i> change in gravitational potential energy <i>m</i> mass <i>g</i> gravitational field strength <i>h</i> change in height
$E_k = \frac{1}{2} \times m \times v^2$	<i>E<sub>k</sub></i> kinetic energy <i>m</i> mass <i>v</i> speed
$p = m \times v$	<i>p</i> momentum <i>m</i> mass <i>v</i> velocity
$I = \frac{Q}{t}$	<i>I</i> current <i>Q</i> charge <i>t</i> time

$V = \frac{W}{Q}$	<p><math>V</math> potential difference</p> <p><math>W</math> work done</p> <p><math>Q</math> charge</p>
$V = I \times R$	<p><math>V</math> potential difference</p> <p><math>I</math> current</p> <p><math>R</math> resistance</p>
$P = \frac{E}{t}$	<p><math>P</math> power</p> <p><math>E</math> energy</p> <p><math>t</math> time</p>
$P = I \times V$	<p><math>P</math> power</p> <p><math>I</math> current</p> <p><math>V</math> potential difference</p>
$E = V \times Q$	<p><b><math>E</math> energy</b></p> <p><b><math>V</math> potential difference (Higher Tier only)</b></p> <p><b><math>Q</math> charge</b></p>