Word Equation	Symbolic Equation
$\text{speed} = \frac{\text{distance}}{\text{time}}$	$v = \frac{d}{t}$
$\text{Average speed} = \frac{\text{(total distance travelled)}}{\text{(total time taken}}$	$V_{av} = \frac{d}{t}$
$\text{velocity} = \frac{\text{displacement}}{\text{time}}$	$v = \frac{s}{t}$
$\text{acceleration} = \frac{\text{(final velocity - initial velocity)}}{\text{(time taken)}}$	$a = \frac{v - u}{t}$

For freely fallig objects

$$\text{Acceleration due to gravity (g)} = \frac{\text{(final velocity - initial velocity)}}{\text{(time taken)}}$$

$$g = \frac{v - u}{t}$$

weight = mass × gravitational field strength	$W = m \times g$
$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$	$d = \frac{m}{v}$ or $\rho = \frac{m}{v}$
Hooke's Law Force = spring constant × extension	$F = K x$ or $F = K e$
Newton's 2nd Law Force = mass × acceleration	$F = ma$

Word Equation	Symbolic Equation
Moment = force × perpendicular distance	Moment = F x d

Law of conservation of moment

sum of anticlockwise moments = sum of clockwise moments

$$F_1 \times d_1 = F_2 \times d_2$$

Momentum = mass × velocity	P = mv

Law of conservation of moment

momentum before collision = momentum aftar collision

$$m_1 u_1 + m_2 u_2 = m_1 v_1 + m_2 v_2$$

Kinetic energy	$\frac{1}{2}$
Potential energy	P.E. = mgh

$$\text{Efficiency} = \frac{\text{useful energy output}}{\text{total energy input}} \times 100\%$$

$$\text{Efficiency} = \frac{\text{energy}_{\text{out}}}{\text{energy}_{\text{in}}} \times 100\%$$

Mechanical Work Work= Force × parallel distance	W = F x d
Mechanical Power $\text{Power} = \frac{\text{(work done)}}{\text{(time taken)}}$ $\text{Power} = \frac{\text{(Energy transfer)}}{\text{(time taken)}}$	$\text{Power} = \frac{W}{t}$
$\text{Pressure} = \frac{\text{force}}{\text{area}}$	$P = \frac{F}{A}$

Word Equation	Symbolic Equation
Pressure in Liquids P = height × density × acc.due gravity	$p = h \rho g$
Boyle's Law pressure × volume = constant	$PV = \text{constant}$ $P_1 \times V_1 = P_2 \times V_2$
Charle's Law $\frac{\text{volume}}{\text{temperature}} = \text{constant}$	$\frac{V}{T} = \text{constant}$ $\frac{V_1}{T_1} = \frac{V_2}{T_2}$
Pressure Law $\frac{\text{Pressure}}{\text{temperature}} = \text{constant}$	$\frac{P}{T} = \text{constant}$ $\frac{P_1}{T_1} = \frac{P_2}{T_2}$
Thermal capacity $= \frac{\text{(heat energy)}}{\text{(change in Temp)}}$ OR Thermal capacity = mass × sp. Heat capacity	$C = \frac{E}{\Delta T}$ $C = m \times c$

Heat energy = mass × specific Heat capacity × change in temperature

$E = mc\,\Delta T$

Word Equation	Symbolic Equation
sp. Heat capacity $= \frac{\text{heat energy}}{(\text{mass} \times \text{change in temp})}$	$c = \frac{E}{m\Delta T}$
Specific Latent Heat of Fusion = L_f $L_f = \frac{(\text{heat energy})}{\text{mass}}$	$L_f = \frac{E}{m}$
Specific Latent Heat of Vaporisation = L_v $L_v = \frac{(\text{heat energy})}{\text{mass}}$	$L_v = \frac{E}{m}$
Wave Equation Speed = frequency × wavelength	$v = f \times \lambda$
Relationship between frequency & time period	$f = \frac{1}{T}$
Speed of echo	$v = \frac{(2 \times d)}{t}$
Refractive index	$n = \frac{\sin i}{\sin r}$
Refractive Index for critical angle = n	$n = \frac{1}{\sin c}$

Word Equation	Symbolic Equation
Electric current $=$ $\frac{\text{charge}}{\text{time}}$	$I = \frac{Q}{t}$
Electric charge $=$ current $\times$ time	$Q = I\,t$
Ohm's Law Voltage $=$ current $\times$ resistance	$V = I\,R$
Electrical Power Power $=$ voltage $\times$ current	$P = VI$
Other formulas of electric power	$P = I^2R$ & $P = \frac{V^2}{R}$
Electrical energy $=$ voltage $\times$ current $\times$ time	$E = VIt$
Two resistors in series	$R = R_1 + R_2$
Two resistors in parallel	$R = \frac{R_1 \times R_2}{R_1 \times R_2}$
For three resistors in parallel	$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$
$\frac{\text{Number of turns on primary coil}}{\text{Number of turns on secondary coil}} = \frac{\text{Primary voltage}}{\text{Secondary voltage}}$	$\frac{N_P}{N_S} = \frac{V_P}{V_S}$
Power of primary coil $=$ power of secondary coil	$V_P \times I_P = V_S \times I_S$