Equations of Motion

$$v = u + at \qquad s = ut + \frac{1}{2}at^2 \qquad v^2 = u^2 + 2as$$

Conservation of Energy

$$F = ma \qquad E_p = mgh \qquad E_k = \frac{1}{2}mv^2$$

$$\text{work done} = \text{force} \times \text{displacement}$$

joules (J)

$$P = \frac{\text{energy}}{\text{time}} = \frac{\text{work done}}{\text{time}} = \frac{\text{force} \times \text{displacement}}{\text{time}} = \text{force} \times \text{average velocity}$$

Momentum and Impulse

$$p = mv$$

momentum ($kgms^{-1}$)

$$F\Delta t = \Delta p$$

impulse (Ns) momentum

Density and Pressure

$$\rho = \frac{m}{V}$$

density (kgm^{-3}) volume (m^3)

$$P = \frac{F}{A}$$

pressure (Pa) area (m^2)

$$P = \rho g h$$

depth in fluid (m)

Combined Gas Law Equation

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

temperature (K = °C + 273)