force = mass × acceleration

(N) (Kg) (m/s^2)

$F = m \times a$

kinetic energy = 0.5 × mass × $(speed)^2$

(J) (Kg) (m/s)

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

Momentum = mass x velocity

(Kg m/s) (Kg) (m/s)

Momentum = m v

work done = force × distance

(J) (N) (m)

W = F s

$$\text{power} = \frac{\text{Energy transferred}}{\text{time}}$$

$$(W) = \frac{(J)}{(s)} \qquad p = \frac{E}{t}$$

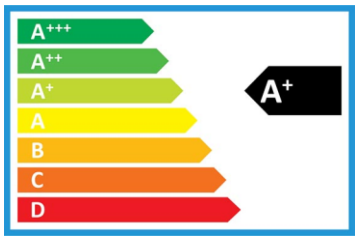
Energy transferred = Power x time

(Kwh) (kW) (h)

E = P t

$$\text{efficiency} = \frac{\text{useful energy transferred}}{\text{total energy provided}}$$

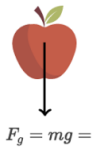
No units



weight = mass × gravitational field strength

(N) (kg) (N/kg)

$F_{gravity} = m\,g$



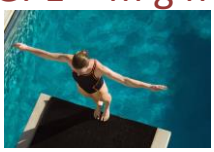
Weight is another word for the force of gravity

$F_g = mg = W$

$$Gravitational\ potential\ energy = mass \times g\ field\ strength \times height$$

(J) (kg) (N/kg) (m)

GPE = m g h



force of spring=extension × spring constant

(N) (m) (N/m)

F = k x

$$speed = \frac{distance}{time}$$

$m/s = \frac{m}{s}$ $s = \frac{d}{t}$

$$density = \frac{mass}{volume}$$

$Kg/m^3 = \frac{Kg}{m^3}$

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

$$\text{acceleration} = \frac{\text{change in speed}}{\text{time}}$$

$$m/s^2 = \frac{m/s}{s} \qquad a = \frac{v-u}{t}$$

$$\text{Potential difference} = \frac{\text{Work done(Energy transferred)}}{\text{Charge}}$$

$$V = \frac{J}{C} \qquad V = \frac{E}{Q}$$

wave speed=frequency x wavelength

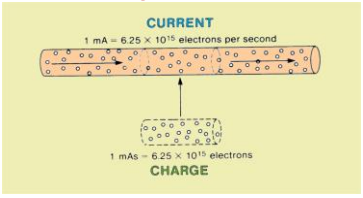
$$m/s \qquad Hz \qquad m$$

$$c = f\lambda$$

Charge = current x time

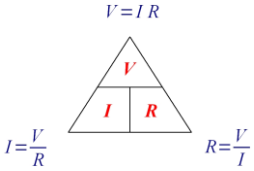
$$C \qquad A \qquad s$$

$$Q = I\,t$$



Potential difference = Current x Resistance

V A Ω



Power (electrical) = Current x Potential difference

W A V

$P = I V$

Energy transferred (electrically) = Charge x Potential difference

J C V

$E = Q V$

Power (electrical) = (current)² × resistance

W A^2 Ω

$P = I^2 R$

energy transferred (work done) = power × time

J W s

$$E = P\,t$$