Work of a constant force	$W = F\,\Delta x \cos\alpha$
(Force is parallel to displacement)	$W = F\,\Delta x$
(Work of force of friction)	$W = -F_{FRIC}\,\Delta x$
Kinetic energy	$E_K = \frac{1}{2} m\, v^2$
Gravitational potential energy (Near a planet surface)	$E_P = m\, g\, h$
Gravitational potential energy	$E_P = -G \frac{M\, m}{r}$
Elastic potential energy	$E_P = \frac{1}{2} k\, \Delta x^2$
Mechanical (total) energy	$E_M = E_K + E_P$
Mechanical energy conservation	$\Delta E_M = 0$ (all forces are conservative) $\Delta E_M = W_{NCF}$ (there are non-conservative forces)
Inelastic collision	$\vec{p}_{BEFORE} = \vec{p}_{AFTER} \rightarrow m_1\vec{v}_1 + m_2\vec{v}_2 = (m_1 + m_2)\,\vec{v}$
Elastic collision	$\vec{p}_{BEFORE} = \vec{p}_{AFTER} \rightarrow m_1\vec{v}_1 + m_2\vec{v}_2 = m_1\vec{v}'_1 + m_2\vec{v}'_2$ $E_{K\ Before} = E_{K\ After}$
Power	$P_m = \frac{W}{\Delta t}; \quad P_m = F_u\, v_m$
Unit conversions	1 cal = 4.184 J 1 J = 0.239 cal 1 HP = 736 W (nevertheless there are many definitions) 1 kW·h = $3.6 \cdot 10^6$ J

Symbol	Description	S.I. Unit
W	Work	J
E_K	Kinetic energy	J
E_P	Potential energy	J
E_M	Mechanical energy	J
F	Force	N
Δx	Displacement	m
r	Distance	m
h	Hight	m
M, m	Mass	kg
α	Force-displacement angle	°
v	Speed	m/s
v_m	Mean speed	m/s
g	Gravitational acceleration (9.8 m/s^2 in Earth surface)	m/s^2
G	Gravitational constant: $6.67 \cdot 10^{-11}$	$N \cdot m^2/kg^2$
k	Elastic constant of the spring	N/m
p	Momentum	kg·m/s
P_m	Mean power	W