

Getting Energy Straight

Force -- Newton -- Mass times Acceleration ($F = MA$)
 Kilograms times Meters per Sec²: (Kg x M) / S²
 1 newton = 10⁵ dynes
 1 pound-force \approx 4.5 newtons

Work -- Joule -- Force times Distance ($W = FD$)
 (aka Energy) Newtons times Meters -- N x M: (Kg x M²) / S²
 1 Joule = 10⁷ ergs
 .74 foot-pounds
 6.25x10¹⁸ electron volts
 1 BTU = 1 Kilo-joule

Power -- Watt -- Work per Time ($P = W/S$)
 Joules per Second -- J/S: (Kg x M²) / S³
 1 HP = 550 ft-lb/s = 745.7 watts
 1 Kw = 1.34 HP
 1 BTU/hour = .29 watts

note:
 Watt = volt x ampere
 Volt = joule / columb
 1 Columb -- amp-sec \approx 6.25 x 10¹⁸ electron-second
 Watt-seconds -- volt x columb
 1 Joule = 1 Watt-second
 1 KwHr = 3.6 Mega-joule

for extra credit:

Pressure -- Pascal -- Force per Area ($P = F/A$)
 Newtons per Meter² -- N/M²: Kg / (M x S²)
 1 pound/sqin (PSI) = 6.9 Kpascal
 1 dyne/cm² = 10 Pascal(/M²)

Or more sussicintly:

distance(d)					
time(t)					
mass(m)					
velocity(v)				= d/t	
acceleration(A)			= v/t	= d/t ²	
force (F)		= Am	= vm/t	= dm/t ²	
work(W)		= Fd	= Amd	= vmd/t	= d ² m/t ²
power(P)	= W/t	= Fd/t	= Amd/t	= vmd/t ²	= d ² m/t ³

In the SI system, there are seven fundamental units:

kilogram -- mass
 meter -- length
 candela -- luminous intensity (weighted to eye), 1/683-watt / steradian
 second -- time
 ampere -- current flow, columb per second
 kelvin -- temperature (energy?)
 mole -- Avogadro's # elementary entities == 6.02214179 x 10²³