Units

SI units: International system of units (French: "SI" means "Système Internationale")

The seven SI base units are:

Mass:	kg	Defined by the prototype "standard kilogram" located in Paris. The standard kilogram is made of Pt metal.
Length:	m	Originally defined by the prototype "standard meter" located in Paris. Then defined as 1,650,763.73 wavelengths of the orange-red radiation of Krypton^{86} under certain specified conditions. (*Official definition*: The distance traveled by light in vacuum during a time interval of 1 / 299 792 458 of a second)
Time:	s	The second is defined as the duration of a certain number of oscillations of radiation coming from Cs atoms. (*Official definition*: The second is the duration of 9,192,631,770 periods of the radiation of the hyperfine-level transition of the ground state of the Cs^{133} atom)
Current:	A	Defined as the current that causes a certain force between two parallel wires. (*Official definition*: The ampere is that constant current which, if maintained in two straight parallel conductors of infinite length, of negligible circular cross-section, and placed 1 meter apart in vacuum, would produce between these conductors a force equal to 2×10^{-7} Newton per meter of length.
Temperature:	K	One percent of the temperature difference between boiling point and freezing point of water. (*Official definition*: The Kelvin, unit of thermodynamic temperature, is the fraction 1 / 273.16 of the thermodynamic temperature of the triple point of water.
Amount of substance:	mol	The amount of a substance that contains Avogadro's number $N_{Avo} = 6.0221 \times 10^{23}$ of atoms or molecules. (*Official definition*: The mole is the amount of substance of a system which contains as many elementary entities as there are atoms in 12 grams of C^{12}. When the mole is used, the elementary entities must be specified and may be atoms, molecules, ions, electrons, other particles, or specified groups of such particles)
Luminous intensity:	cd	The candela was defined as the luminous intensity of one candle with standardized dimensions and construction. (*Official definition*: The candela is the luminous intensity, in a given direction, of a source that emits monochromatic radiation of frequency 540×10^{12} Hertz and that has a radiant intensity in that direction of (1 / 683) Watt per steradian)

Some SI-derived units and useful conversions

Force	Newton	=	N	=	$kg\ m / s^2$
Mechanical energy and work	Joule	=	J	=	$N\ m = kg\ (m / s^2)\ m = kg\ m^2 / s^2$
Electrical energy and work	Joule	=	J	=	$C\ V = V\ A\ s$
Power	Watt	=	W	=	$J / s = V\ A$
Voltage	Volt	=	V	=	W / A
Capacitance	Faraday	=	F	=	C / V
Resistance	Ohm	=	Ω	=	V / A
The "electron Volt"	eV	=	eV	=	1.602×10^{-19} CV where $e = 1.602 \times 10^{-19}$ C

Work with units: Always "carry along" units. If units in an equation do not work out, it is erroneous.