Updated 30 August 2009; values supersede those found in our textbooks.

Diameter of hydrogen atom	1.06×10^{-8} cm	**Typical masses:**	
Diameter of the Moon	3.5×10^{3} km	Smallest star	$0.08 M_{\odot}$
Diameter of the Earth	1.3×10^{4} km	Normal star	$1 M_{\odot}$
Diameter of the Sun	1.4×10^{6} km	Giant star	$10 M_{\odot}$
Diameter of the Milky Way	1.7×10^{5} ly	Normal galaxy	$10^{11}-10^{12} M_{\odot}$
Distance to the Moon	3.8×10^{5} km	Galaxy cluster	$10^{14}-10^{15} M_{\odot}$
Distance to the Sun	1.5×10^{8} km	**Typical luminosities:**	
Distance to the next nearest star	4.2 ly	Normal star	$1 L_{\odot}$
Distance to the center of the Milky Way	2.8×10^{4} ly	Giant star	$10^{3}-10^{5} L_{\odot}$
Distance to the nearest galaxy	1.7×10^{5} ly	Normal galaxy	$10^{9}-10^{10} L_{\odot}$
Mass of hydrogen atom	1.67×10^{-24} gm	Quasar	$10^{12}-10^{13} L_{\odot}$
Mass of the Moon	7.4×10^{25} gm	**Typical timespans:**	
Mass of the Earth	6.0×10^{27} gm	Planetary revolution	1 year
Mass of the Sun $\left(1 M_{\odot}\right)$	2.0×10^{33} gm	Galaxy rotation	$10^{7}-10^{9}$ years
Mass of the Milky Way	$3\times10^{12} M_{\odot}$	Life of giant stars	$10^{6}-10^{9}$ years
Luminosity of the Sun $\left(1 L_{\odot}\right)$	3.8×10^{33} erg/s	Life of normal star	10^{10} years
Luminosity of the largest stars	$10^{5} L_{\odot}$	**Typical speeds:**	
Luminosity of the Milky Way	$2\times10^{10} L_{\odot}$	Planetary orbits	10 km/s
Luminosity of quasar 3C 273	$10^{12} L_{\odot}$	Stellar motion in galaxy	100 km/s
Earth's rotation period (1 day)	8.64×10^{4} s	Between nearby galaxies	100 km/s
Moon's revolution period	27.322 days		
Earth's revolution period (1 year)	365.25 days	**Other important constants:**	
Sun's revolution period within Milky Way	2.4×10^{8} years	1 ly = 9.46×10^{12} km	1 Mly = 10^{6} ly
Age of the solar system	4.6×10^{9} years	1 ly = 9.46×10^{17} cm	1 km = 10^{5} cm
Expected life span of the Sun	1.5×10^{10} years	1 hour = 3600 s	
Age of the Universe	1.4×10^{10} years	1 year = 3.16×10^{7} s	
Earth's equator rotation speed	0.47 km/s	1 erg = 1 gm cm²/s²	
Earth's revolution speed	30 km/s	c = 2.99792458×10^{5} km/s	Speed of light
Sun's speed within the Milky Way	250 km/s	c = 2.99792458×10^{10} cm/s	Speed of light
Milky Way's speed within the local Universe	550 km/s	c = 1 ly/year	Speed of light
Typical lengths:			
Normal star diameter	10^{6} km	$G = 6.67\times10^{-8}$ cm³$/$(gm s²)	**Gravitational constant**
Distance between stars	a few ly		
Normal galaxy diameter	10^{5} ly	H_0 = 20 km/(sec Mly)	Hubble constant
Distance between galaxies	10^{6} ly	$1/H_0 = 1.5\times10^{10}$ years	Hubble time