

LENGTH			AREA			VELOCITY			ENERGY		
Planck-Wheeler Length	1.616	-10 <sup>-35</sup> m	barn	1	-10 <sup>-28</sup> m <sup>2</sup>	Continental drift	2	-10 <sup>-9</sup> m/s	Room Temp	4	-10 <sup>-21</sup> J
Diam, Proton	2	-10 <sup>-15</sup> m	Thomson cross section	6.652	-10 <sup>-27</sup> m <sup>2</sup>	Hair growth	3	-10 <sup>-9</sup> m/s	H Ionization Energy	2.2	-10 <sup>-18</sup> J
Radius of electron (Classical)	2.818	-10 <sup>-15</sup> m	bit on a hard disk	1	-10 <sup>-12</sup> m <sup>2</sup>	Glacier creep	1	-10 <sup>-6</sup> m/s	Fission of 1 U-235 nucleus	3.2	-10 <sup>-11</sup> J
Diam, Iron Nucleus	8	-10 <sup>-15</sup> m	magnetic domain	1	-10 <sup>-12</sup> m <sup>2</sup>	Bacterium	50	-10 <sup>-6</sup> m/s	KE, Falling rain drop	4	-10 <sup>-3</sup> J
Electron Compton λ, h/m <sub>e</sub> c	2.4	-10 <sup>-12</sup> m	period	0.5	-10 <sup>-6</sup> m <sup>2</sup>	Drift vel., 1A, 12ga Cu Wire	20	-10 <sup>-6</sup> m/s	KE, Cosmic ray	50	J
Bohr radius of hydrogen atom	5.292	-10 <sup>-11</sup> m	mm <sup>2</sup>	1	-10 <sup>-6</sup> m <sup>2</sup>	Paramecium	100	-10 <sup>-6</sup> m/s	KE, Man Walking	60	J
Copper atom Spacing (solid)	2.6	-10 <sup>-10</sup> m	cm <sup>2</sup>	100	-10 <sup>-6</sup> m <sup>2</sup>	Snail	1	-10 <sup>-3</sup> m/s	One push up	300	J
NaCl Unit Cell Length	5.641	-10 <sup>-10</sup> m	postage stamp	550	-10 <sup>-6</sup> m <sup>2</sup>	Brisk walk	1.3	m/s	KE, Man Running	4	-10 <sup>3</sup> J
λ, 1 keV X ray	1.240	-10 <sup>-9</sup> m	Square inch	645	-10 <sup>-6</sup> m <sup>2</sup>	Marathon runner, 2.5 hr	4.7	m/s	Typical flashlight battery	7	-10 <sup>3</sup> J
DNA Diameter	2	-10 <sup>-9</sup> m	Letter Paper	60.3	-10 <sup>-3</sup> m <sup>2</sup>	Gentle Breeze (Beaufort 3)	5	m/s	Metabolization of 1 kJ ATP	29	-10 <sup>3</sup> J
DNA Double helix turn length	3.4	-10 <sup>-9</sup> m	Square foot	92.9	-10 <sup>-3</sup> m <sup>2</sup>	Elevator in skyscraper	9	m/s	KE, Rifle Bullet	40	-10 <sup>3</sup> J
SEM Resolution	5	-10 <sup>-9</sup> m	Square yard	836	-10 <sup>-3</sup> m <sup>2</sup>	Raindrop terminal velocity	10	m/s	Metabolization of apple	460	-10 <sup>3</sup> J
λ, Blue hydrogen line	434	-10 <sup>-9</sup> m	Surface Area, Avg Woman	1.6	m <sup>2</sup>	200 m Dash, World Record	10.35	m/s	KE, Large Locomotive	500	-10 <sup>3</sup> J
λ, Green hydrogen line	486	-10 <sup>-9</sup> m	Surface Area, Avg Man	1.8	m <sup>2</sup>	Karate Chop!	12	m/s	Metabolization of 1 kg Beer	1.8	-10 <sup>6</sup> J
λ, Lower of sodium D lines	589	-10 <sup>-9</sup> m	Acre	4.0	-10 <sup>-3</sup> m <sup>2</sup>	Strong Wind (Beaufort 6)	14	m/s	Explosion of 1 kg TNT	4.6	-10 <sup>6</sup> J
λ, Higher of sodium D lines	590	-10 <sup>-9</sup> m	City Block, Manhattan	23	-10 <sup>-3</sup> m <sup>2</sup>	60 MPH	25	m/s	Daily Food Intake, Adult Male	13	-10 <sup>6</sup> J
λ, Red hydrogen line	657	-10 <sup>-9</sup> m	Square mile	2.6	-10 <sup>6</sup> m <sup>2</sup>	Cheetah	28	m/s	Combustion of 1 kg Coal	29.3	-10 <sup>6</sup> J
Diam, Small virus	2	-10 <sup>-8</sup> m	Manhattan	60	-10 <sup>6</sup> m <sup>2</sup>	Nolan Ryan Fastball	45.1	m/s	Combustion of 1 kg Gasoline	48	-10 <sup>6</sup> J
Atmosphere Mean free path	7	-10 <sup>-8</sup> m	Rhode Island	4.0	-10 <sup>9</sup> m <sup>2</sup>	Nerve signal	49	m/s	Combustion of 1 gal gasoline	130	-10 <sup>6</sup> J
Limit, Optical Microscopy	2	-10 <sup>-7</sup> m	New York State	127	-10 <sup>9</sup> m <sup>2</sup>	Hurricane Winds	50	m/s	Lightning Flash	1	-10 <sup>9</sup> J
Diam, Largest viruses	3	-10 <sup>-7</sup> m	Texas	696	-10 <sup>9</sup> m <sup>2</sup>	Skydiver, Terminal Velocity	55	m/s	Mrg of 747 at 30,000 ft	20	-10 <sup>9</sup> J
Diam, typical bacterium	1	-10 <sup>-6</sup> m	United States	9.16	-10 <sup>12</sup> m <sup>2</sup>	McLaren F1 Top Speed	107.4	m/s	Hiroshima size A bomb	60	-10 <sup>12</sup> J
Diam, human red blood cell	7.5	-10 <sup>-6</sup> m	Earth's Land Area	1.49	-10 <sup>14</sup> m <sup>2</sup>	Water Speed Record (318 mph)	142.9	m/s	Fission of 1 kg U235	82	-10 <sup>12</sup> J
Diam, human hair	1	-10 <sup>-4</sup> m	Earth's Oceans	3.61	-10 <sup>14</sup> m <sup>2</sup>	Sound in air at 0 C, 1 atm	331.5	m/s	Fusion of 1 kg Hydrogen	630	-10 <sup>12</sup> J
Diam, Grain of Sand	3	-10 <sup>-4</sup> m	Earth's Total Surface Area	5.11	-10 <sup>14</sup> m <sup>2</sup>	Land Speed Record (763 mph)	339.1	m/s	Earthquake, 7.0 (1979, CA)	2	-10 <sup>15</sup> J
Diam, a Period (2 pts): .	7	-10 <sup>-4</sup> m			Sound in air at 20 C, 1 atm	343	m/s	1 megaton nuclear weapon	4.2	-10 <sup>15</sup> J	
Diam, 12 gauge wire	2.05	-10 <sup>-3</sup> m			Random motion, air molecules	450	m/s	Nuclear fuel in reactor	10	-10 <sup>15</sup> J	
1 inch	2.54	-10 <sup>-2</sup> m	<b>VOLUME</b>		Earth's rot vel at equator	465	m/s	1 kg mass, Energy Equivalent	89.87	-10 <sup>15</sup> J	
Light nanosecond	.2998	m	teaspoon (tsp)	4.93	-10 <sup>-6</sup> m <sup>3</sup>	SR-71A Blackbird	980	m/s	Krakatoa volcano	6	-10 <sup>18</sup> J
1 foot	.3048	m	Tablespoon (Tbs)	14.79	-10 <sup>-6</sup> m <sup>3</sup>	Rifle bullet	1000	m/s	Largest Earthquake, 9.5	1.23	-10 <sup>19</sup> J
Length, DNA Molecule	1	m	cubic inch	16.39	-10 <sup>-6</sup> m <sup>3</sup>	Sound in Water	1500	m/s	Est. Energy stock- natural gas	1	-10 <sup>22</sup> J
Height, Average Male	1.8	m	Fluid Ounce	29.57	-10 <sup>-6</sup> m <sup>3</sup>	Escape vel, Moon	2.38	-10 <sup>3</sup> m/s	Est. Energy stock- petroleum	1	-10 <sup>22</sup> J
λ, 100.0 MHz FM radio wave	3	m	Blood/Beat, Human Heart	70	-10 <sup>-6</sup> m <sup>3</sup>	Earth around Sun	3	-10 <sup>3</sup> m/s	All fossil fuels on Earth	2	-10 <sup>23</sup> J
Height, One Storey	3.8	m	cup	236.6	-10 <sup>-6</sup> m <sup>3</sup>	Sound through Earth	7	-10 <sup>3</sup> m/s	Est. Energy stock of coal	2.5	-10 <sup>23</sup> J
Length, Bowling Alley	19.2	m	Liter	1	-10 <sup>-3</sup> m <sup>3</sup>	Escape vel, Earth	11.18	-10 <sup>3</sup> m/s	Est. Energy stock of oil shale	2	-10 <sup>24</sup> J
Length, Blue whale	30	m	quart	1.10	-10 <sup>-3</sup> m <sup>3</sup>	Escape vel, Surface of Sun	620	-10 <sup>3</sup> m/s	Earth, Rot. KE about Axis	2.1	-10 <sup>24</sup> J
NY uptown block (1/20 mi)	80	m	gallon	4	-10 <sup>-3</sup> m <sup>3</sup>	n=1 Hydrogen Electron (Z α c)	2	-10 <sup>6</sup> m/s	Earth, Rot. KE about Sun	2.6	-10 <sup>33</sup> J
Tallest Tree	112	m	Human Lung Capacity	6	-10 <sup>-3</sup> m <sup>3</sup>	Quasar recession velocity	2.7	-10 <sup>8</sup> m/s	Supernova Explosion	1	-10 <sup>44</sup> J
NY crosstwn block (-0.18 mi)	290	m	Molar Volume of Gas at STP	22	-10 <sup>-3</sup> m <sup>3</sup>	Light in vacuum, c	2.998	-10 <sup>8</sup> m/s	Nuclear fuel in Sun	1	-10 <sup>45</sup> J
Light microsecond	299.8	m	Toilet Flush	22.7	-10 <sup>-3</sup> m <sup>3</sup>						
λ, 1000 kHz AM radio wave	300	m	cubic foot	28.32	-10 <sup>-3</sup> m <sup>3</sup>	<b>ACCELERATION</b>			<b>POWER</b>		
Length, HMS Queen Elizabeth	310	m	Typical Shower	113.6	-10 <sup>-3</sup> m <sup>3</sup>	Centripetal Acc at Equator	3.4	-10 <sup>-4</sup> m/s <sup>2</sup>	Bumblebee in Flight	2	-10 <sup>-2</sup> W
Empire State Building	444	m	Bathtub	136.3	-10 <sup>-3</sup> m <sup>3</sup>	Gravity on surface of Moon	1.7	m/s <sup>2</sup>	Lightbulb	60	W
1 mile	1.609	-10 <sup>3</sup> m	Daily Water Cons./Person, US	390.0	-10 <sup>-3</sup> m <sup>3</sup>	Gravity (0 lat)	9.780	m/s <sup>2</sup>	Heat output of man (typ.)	100	W
Schwarzschild radius of Sun	3	-10 <sup>3</sup> m	cubic yard	764.6	-10 <sup>-3</sup> m <sup>3</sup>	Gravity (mean)	9.807	m/s <sup>2</sup>	Food Intake - Avg Woman	106	W
Depth of oceans (mean)	3.79	-10 <sup>3</sup> m	Sandbox	1	m <sup>3</sup>	Gravity (90 lat)	9.832	m/s <sup>2</sup>	Food Intake - Avg Man	135	W
Height Mt. Everest (vs. SL)	8.85	-10 <sup>3</sup> m	Volkswagen Beetle	1	m <sup>3</sup>	Causes "blackout"	7	-10 <sup>1</sup> m/s <sup>2</sup>	Human Athlete	200	W
Diam, Dinosaur Asteroid	10	-10 <sup>3</sup> m	Swimming Pool	50	m <sup>3</sup>	Ejection Seat, jet (extreme)	1.5	-10 <sup>2</sup> m/s <sup>2</sup>	Toaster	1	-10 <sup>3</sup> W
Depth of the Marianas Trench	11.03	-10 <sup>3</sup> m	747 Jet (40,000 ft3)	1.10	-10 <sup>3</sup> m <sup>3</sup>	Gravity on surface of Sun	2.7	-10 <sup>2</sup> m/s <sup>2</sup>	Car Battery	4.5	-10 <sup>3</sup> W
Height of Troposphere	12	-10 <sup>3</sup> m	acre-foot	1.23	-10 <sup>3</sup> m <sup>3</sup>	Parachute opening (extreme)	3.2	-10 <sup>2</sup> m/s <sup>2</sup>	Large radio transmitter	100	-10 <sup>3</sup> W
Typical asteroid diameter	20	-10 <sup>3</sup> m	Oil Tanker (80 MGal)	300	-10 <sup>3</sup> m <sup>3</sup>	Auto crash, 60 mph vs barrier	1	-10 <sup>3</sup> m/s <sup>2</sup>	Car engine	150	-10 <sup>3</sup> W
Height, Ozone Layer	20	-10 <sup>3</sup> m	Water Usage, NYC, Yr	1.8	-10 <sup>9</sup> m <sup>3</sup>	Ultracentrifuge	3	-10 <sup>6</sup> m/s <sup>2</sup>	Porsche 911 Turbo (2001)	309	-10 <sup>3</sup> W
Thick, Earth's cont. crust	40	-10 <sup>3</sup> m	cubic mile	4.17	-10 <sup>9</sup> m <sup>3</sup>	Proton at Fermilab	9	-10 <sup>13</sup> m/s <sup>2</sup>	Large tugboat	1	-10 <sup>6</sup> W
λ of a tsunami	200	-10 <sup>3</sup> m	Water Use, USA Domest, Yr	41	-10 <sup>9</sup> m <sup>3</sup>				747 jet engine	210	-10 <sup>6</sup> W
Light millisecond	299.8	-10 <sup>3</sup> m	Water Use, USA Agric, Yr	210	-10 <sup>9</sup> m <sup>3</sup>	<b>PRESSURE</b>			Large Power Plant	1	-10 <sup>9</sup> W
Height, Shuttle orbit	300	-10 <sup>3</sup> m	Water Use, World Total, Yr	2300	-10 <sup>9</sup> m <sup>3</sup>	Best Laboratory Vacuum	1	-10 <sup>-13</sup> Pa	Pwr Consm U-235, world	0.2	-10 <sup>12</sup> W
Radius, Moon	1.738	-10 <sup>6</sup> m	Lake Superior	12.2	-10 <sup>12</sup> m <sup>3</sup>	Atmospheric, 100 km	56	-10 <sup>-3</sup> Pa	Pwr Consm Coal, USA	0.5	-10 <sup>12</sup> W
Miami - Boston (1506 mi)	2.424	-10 <sup>6</sup> m	Pacific Ocean	700	-10 <sup>15</sup> m <sup>3</sup>	Atmospheric, 50 km	99	-10 <sup>0</sup> Pa	Pwr Consm Petroleum, USA	1.3	-10 <sup>12</sup> W
Thickness, Earth's Mantle	2.89	-10 <sup>6</sup> m	Earth's Oceans	1.3	-10 <sup>18</sup> m <sup>3</sup>	Acoustic, 2m from Jet engine	2	-10 <sup>1</sup> Pa	Pwr Consm Coal, World	2.9	-10 <sup>12</sup> W
Length, Great Wall of China	3.2	-10 <sup>6</sup> m	Earth	1.09	-10 <sup>21</sup> m <sup>3</sup>	Foot of Water	2.989	-10 <sup>3</sup> Pa	Pwr Consm Total, USA	3	-10 <sup>12</sup> W
Wash DC - San Fran (2822mi)	4.543	-10 <sup>6</sup> m	Sun	1.41	-10 <sup>27</sup> m <sup>3</sup>	Inch of Mercury (1" Hg)	3.386	-10 <sup>3</sup> Pa	Pwr Consm Petroleum, Wrld	4.3	-10 <sup>12</sup> W
Miami - Seattle (3367 mi)	5.419	-10 <sup>6</sup> m			Atmospheric, 20 km	5.6	-10 <sup>3</sup> Pa	Pwr Consm Total, World	12	-10 <sup>12</sup> W	
Radius, Earth Polar	6.357	-10 <sup>6</sup> m	<b>FORCE</b>		One psi (Pound-Force / Sq. Inch)	6.895	-10 <sup>3</sup> Pa	Hurricane	2	-10 <sup>13</sup> W	
Radius, Earth Equator	6.378	-10 <sup>6</sup> m	Proton on Electron, H atom	8	-10 <sup>-8</sup> N	diastolic blood pressure	11	-10 <sup>3</sup> Pa	Total, Sunlight striking Earth	1.7	-10 <sup>17</sup> W
Altitude, Geosynchr Orbit	3.577	-10 <sup>7</sup> m	Air Friction on walking person	3	-10 <sup>-1</sup> N	systolic blood pressure	16	-10 <sup>3</sup> Pa	Radiated by Sun into space	3.7	-10 <sup>26</sup> W
Circum, Earth Equator	4.008	-10 <sup>7</sup> m	Forearm, isometric exercise	270	N	Atmospheric, 10 km	28	-10 <sup>3</sup> Pa			
Diam, Jupiter	1.428	-10 <sup>8</sup> m	Weight, Average Male	730	N	Atmospheric, 0 km (standard)	101.3	-10 <sup>3</sup> Pa	<b>NUMBER AND POPULATION</b>		
Light second	2.998	-10 <sup>8</sup> m	Automobile braking	10	-10 <sup>3</sup> N	Bulk Mod, Air, STP	142	-10 <sup>3</sup> Pa	Cobblers in USA	14	-10 <sup>3</sup>
Orbital radius of Moon	3.844	-10 <sup>8</sup> m	Proton-Nucleus Strong Force	10	-10 <sup>3</sup> N	Ult Str, Mild Steel (1018CR)	200	-10 <sup>3</sup> Pa	Households in USA (2000)	104.7	-10 <sup>3</sup>
Radius, Sun	6.960	-10 <sup>8</sup> m	Baseball Bat - Baseball	36	-10 <sup>3</sup> N	One ksi (1000 psi)	6.895	-10 <sup>6</sup> Pa	Cars in USA (1.77/hh)	185.3	-10 <sup>3</sup>
Light minute	1.799	-10 <sup>10</sup> m	Thrust 747-400, 4 Jet engines	1008	-10 <sup>3</sup> N	Compr Str, 1 Year Old Concrete	14	-10 <sup>6</sup> Pa	Words in English Language	616.5	-10 <sup>3</sup>
Orbital radius of Mercury	5.795	-10 <sup>10</sup> m	Thrust, Space Shltn main engs	29	-10 <sup>6</sup> N	Compr Str, Granite	131	-10 <sup>6</sup> Pa	Base Pair, Hum Chromosome	1.55	-10 <sup>6</sup>
Dist, Avg Earth-Sun (A.U.)	1.496	-10 <sup>11</sup> m	Gravity, Earth-Moon	2	-10 <sup>20</sup> N	Yield Str, Soft Aluminum (Al99.5)	55	-10 <sup>6</sup> Pa	Population of USA (1650)	2.3	-10 <sup>6</sup>
Orbital radius of Jupiter	7.783	-10 <sup>11</sup> m	Gravity, Sun-Earth	3.5	-10 <sup>22</sup> N	Yield Str, Cast Aluminum (AlMgSi)	180	-10 <sup>6</sup> Pa	Population of USA (1850)	76	-10 <sup>6</sup>
Orbital radius of Pluto	5.909	-10 <sup>12</sup> m			Yield Str, 18-8 Stnls Steel, Annlid	207	-10 <sup>6</sup> Pa	Population of USA (1900)	92	-10 <sup>6</sup>	
To Oort Cloud	1	-10 <sup>15</sup> m	<b>ANGULAR MOMENTUM</b>		Yield Str, Mild Steel (1018CR)	221	-10 <sup>6</sup> Pa	Population of USA (1950)	152	-10 <sup>6</sup>	
Light year	9.461	-10 <sup>15</sup> m	Orbital motion of electron	1.05	-10 <sup>-34</sup> J-s	Yield Str, Wrought Al 6061-T6	262	-10 <sup>6</sup> Pa	Population of USA (2000)	285.0	-10 <sup>6</sup>
Parsec	3.086	-10 <sup>16</sup> m	Bullet from rifle	2	-10 <sup>-3</sup> J-s	Ult Str, Mild Steel (1018CR)	341	-10 <sup>6</sup> Pa	Population of world (1650)	0.5	-10 <sup>9</sup>
Dist, Sun-Alpha Centauri	3.8	-10 <sup>16</sup> m	Phonograph record (33 rpm)	6	-10 <sup>-3</sup> J-s	Yield Str, Titanium (Ti 99.7)	483	-10 <sup>6</sup> Pa	Population of world (1850)	1.1	-10 <sup>9</sup>
Thickness, Milky Way	3.1	-10 <sup>18</sup> m	Frisbee	1	-10 <sup>-1</sup> J-s	Ult Str, 18-8 Stnls Steel, Annealec	517	-10 <sup>6</sup> Pa	Population of world (1900)	1.6	-10 <sup>9</sup>
Dist, Sun-Milky Way Center	2.6	-10 <sup>20</sup> m	Toy gyroscope	1	-10 <sup>-1</sup> J-s	Bottom of ocean	6	-10 <sup>7</sup> Pa	Population of world (1950)	2.5	-10 <sup>9</sup>
Diam, Milky Way galaxy	7.6	-10 <sup>20</sup> m	Electric fan	1	J-s	Bulk Mod, Water, STP	2.2	-10 <sup>9</sup> Pa	Population of world (2000)	6.2	-10 <sup>9</sup>
Dist, Nearest Galaxy (LMC)	1.7	-10 <sup>21</sup> m	Automobile wheel (55 mph)	1	-10 <sup>2</sup> J-s	To Form Diamond from Carbon	10	-10 <sup>9</sup> Pa	Galaxies in universe	5	

# THE SCALE OF THE UNIVERSE

A DIVERSE ASSORTMENT OF MEASURES HISTORICAL, PHYSICAL, AND BIOLOGICAL BY WHICH THE MAGNITUDE OF ANY RESULT MIGHT BE COMPREHENDED

TIME		MASS		DENSITY	
Planck-Wheeler Time	5 · 10 <sup>-44</sup> s	Electron Rest Mass	9.110 · 10 <sup>-31</sup> kg	Hydrogen (0°C, 1 atm)	0.09 kg/m <sup>3</sup>
Strong Interaction Res lifetime	4 · 10 <sup>-24</sup> s	Pion Rest Mass	2.5 · 10 <sup>-28</sup> kg	Helium (0°C, 1 atm)	0.18 kg/m <sup>3</sup>
Electron Light Crossing Time	8 · 10 <sup>-21</sup> s	Atomic Mass Unit (amu)	1.661 · 10 <sup>-27</sup> kg	Air, STP	1.225 kg/m <sup>3</sup>
Rough time, atom move 1 Å	100 · 10 <sup>-15</sup> s	Proton Rest Mass	1.673 · 10 <sup>-27</sup> kg	Nitrogen (0°C, 1 atm)	1.25 kg/m <sup>3</sup>
Period, Atomic Vibration in Solid	100 · 10 <sup>-15</sup> s	Neutron Rest Mass	1.675 · 10 <sup>-27</sup> kg	Air (0°C, 1 atm)	1.293 kg/m <sup>3</sup>
Chem reactn time (ICN dissasoc)	200 · 10 <sup>-15</sup> s	Hydrogen Atom	1.68 · 10 <sup>-27</sup> kg	Oxygen (0°C, 1 atm)	1.43 kg/m <sup>3</sup>
Half Life of positive pi meson	2.67 · 10 <sup>-8</sup> s	Iron Atom	95 · 10 <sup>-27</sup> kg	Liquid Sodium (98 C)	929 kg/m <sup>3</sup>
Period, AM radio wave	1 · 10 <sup>-5</sup> s	W Boson	140 · 10 <sup>-27</sup> kg	Balsa	0.20 · 10 <sup>3</sup> kg/m <sup>3</sup>
Period, middle C	3.8 · 10 <sup>-3</sup> s	Z Boson	170 · 10 <sup>-27</sup> kg	Pine (Softwood)	0.52 · 10 <sup>3</sup> kg/m <sup>3</sup>
Duration, typical eye saccade	80 · 10 <sup>-3</sup> s	DNA Nucleotide	400 · 10 <sup>-27</sup> kg	Walnut (hardwood)	0.65 · 10 <sup>3</sup> kg/m <sup>3</sup>
Duration of the blink of an eye	150 · 10 <sup>-3</sup> s	Typical protein molecule	1 · 10 <sup>-22</sup> kg	Ethyl Alcohol	0.79 · 10 <sup>3</sup> kg/m <sup>3</sup>
Time between saccades	400 · 10 <sup>-3</sup> s	E. Coli ribosome	5 · 10 <sup>-21</sup> kg	Paper	0.9 · 10 <sup>3</sup> kg/m <sup>3</sup>
Period, Avg heartbeat	0.9 s	Smallest virus	9.5 · 10 <sup>-21</sup> kg	Ice	0.92 · 10 <sup>3</sup> kg/m <sup>3</sup>
Period, Avg Walking Pace	1 s	Human DNA Molecule	8 · 10 <sup>-15</sup> kg	Human body fat	0.95 · 10 <sup>3</sup> kg/m <sup>3</sup>
Light Travel Time, Moon	1.3 s	Red blood cell	9 · 10 <sup>-14</sup> kg	Wax	0.96 · 10 <sup>3</sup> kg/m <sup>3</sup>
Period, Avg Breathing Rhythm	5 s	Typical cell	7 · 10 <sup>-13</sup> kg	Water (4 °C)	1 · 10 <sup>3</sup> kg/m <sup>3</sup>
Time between blinks	5 s	Planck-Wheeler Mass (f/(hc/G))	2.2 · 10 <sup>-8</sup> kg	Human Muscle	1.1 · 10 <sup>3</sup> kg/m <sup>3</sup>
Minute	60 s	Mosquito	1 · 10 <sup>-6</sup> kg	Sun	1.41 · 10 <sup>3</sup> kg/m <sup>3</sup>
Travel time for light from Sun	500 s	Snowflake	3 · 10 <sup>-6</sup> kg	Human Bone	1.7 · 10 <sup>3</sup> kg/m <sup>3</sup>
Hour	3600 s	Rain drop	20 · 10 <sup>-6</sup> kg	Cement, Set	2.1 · 10 <sup>3</sup> kg/m <sup>3</sup>
Day	8.64 · 10 <sup>4</sup> s	One Ounce	31.1 · 10 <sup>-3</sup> kg	Aluminum	2.7 · 10 <sup>3</sup> kg/m <sup>3</sup>
Week	7 d	Golf Ball	45.9 · 10 <sup>-3</sup> kg	Marble	2.7 · 10 <sup>3</sup> kg/m <sup>3</sup>
Fortnight	14 d	Baseball	145 · 10 <sup>-3</sup> kg	Titanium	4.5 · 10 <sup>3</sup> kg/m <sup>3</sup>
Period of Revolution of Moon	27.32 d	Goldfish	.02 kg	Earth	5.519 · 10 <sup>3</sup> kg/m <sup>3</sup>
Month (Period of Moon Phases)	29.53 d	Hamster	.1 kg	Stainless Steel (18-8)	7.9 · 10 <sup>3</sup> kg/m <sup>3</sup>
Tropical Year (365.2422 d)	365.2 d	One Pound	.454 kg	Mercury (element)	13.6 · 10 <sup>3</sup> kg/m <sup>3</sup>
Light Travel Time, Nearest Star	4.4 yr	Tabby Cat	4.5 kg	Depleted Uranium	19.1 · 10 <sup>3</sup> kg/m <sup>3</sup>
Human lifespan (75 years)	75 yr	Spider Monkey	9 kg	Gold	19.29 · 10 <sup>3</sup> kg/m <sup>3</sup>
Period of Halley's Comet	76.1 yr	Brick	10 kg	Moon	33.42 · 10 <sup>3</sup> kg/m <sup>3</sup>
century	100 yr	Average woman	58 kg	Neutron Star	5 · 10 <sup>17</sup> kg/m <sup>3</sup>
Declaration of Independence	225 yr	Average man	70 kg	<b>TEMPERATURE</b>	
Newton's Princ. Mathematica	314 yr	African Elephant	1.5 · 10 <sup>3</sup> kg	Lowest achieved in laboratory	5 · 10 <sup>-4</sup> K
Millenium	1000 yr	Porsche 911 Turbo	1.5 · 10 <sup>3</sup> kg	Outer space	-270.4 °C 2.726 K
Goldfish domesticated	1000 yr	Tyrannosaurus Rex	10 · 10 <sup>3</sup> kg	Boiling pt, Helium	-269.0 °C 4.2 K
Fall of Rome (476 AD)	1525 yr	Blue whale	150 · 10 <sup>3</sup> kg	Melting pt, Nitrogen	-210.2 °C 63 K
1 AD	2000 yr	747-400 Plane	380 · 10 <sup>3</sup> kg	Boiling pt, Nitrogen	-196.2 °C 77 K
Pythagoras (ca. 500 BC)	2500 yr	US Corn Production	238 · 10 <sup>6</sup> kg	Moon Nighttime	-170.2 °C 103 K
Chicken domesticated	4.0 kYr	NYC Trash, per day	1.2 · 10 <sup>7</sup> kg	Blackbody Temp, Jupiter	-143.2 °C 130 K
Cats and camels domesticated	5.0 kYr	HMS Queen Elizabeth	7.6 · 10 <sup>7</sup> kg	Blackbody Temp, Earth	-23.15 °C 250 K
Oldest Written records (Sumer)	5.1 kYr	US Junk mail, per year	1.4 · 10 <sup>9</sup> kg	Record Lo Outside Temp	-89.20 °C 184 K
Horse domesticated	6.0 kYr	Ann. NO <sub>2</sub> production	2.1 · 10 <sup>9</sup> kg	Freezing pt, Water	0 °C 273.2 K
C14 Half-Life	6.0 kYr	Ann. CO production	8.5 · 10 <sup>9</sup> kg	Surface of Earth - Avg	13.9 °C 287 K
cattle domesticated	8.0 kYr	Comet	1 · 10 <sup>13</sup> kg	Room Temperature	21.9 °C 295 K
Holocene epoch begins	10.0 kYr	Mountain	3 · 10 <sup>14</sup> kg	Human Body Temp	36.9 °C 310 K
Dog domesticated	12.0 kYr	Earth Biomass	1.8 · 10 <sup>15</sup> kg	Record Hi Outside Temp	56.7 °C 330 K
Last Ice Age	18 kYr	Earth's Atmosphere	5.3 · 10 <sup>18</sup> kg	Boiling pt, Water	100.0 °C 373.2 K
Earliest Homo sapiens sapiens	90.0 kYr	Typical Asteroid	3 · 10 <sup>19</sup> kg	Moon Daytime	133.9 °C 407 K
Rough Species evolution time	1 MYr	Earth's Oceans	1.4 · 10 <sup>21</sup> kg	Candle Flame	1527 °C 1800 K
Homo erectus lives	2 MYr	Moon	7.354 · 10 <sup>22</sup> kg	Acetylene torch	2627 °C 2900 K
Homo habilis (Earliest spcs Homo)	2 MYr	Mercury	3.302 · 10 <sup>23</sup> kg	Melting Pt of tungsten	3407 °C 3680 K
Age of oldest stone tool	3 MYr	Earth	5.976 · 10 <sup>24</sup> kg	Center of Earth	3727 °C 4000 K
Lucy (Australopithecus afarensis)	3 MYr	Jupiter	1.9 · 10 <sup>27</sup> kg	Surface of Sun	4227 °C 4500 K
Main Seq. Lifetm, 30 Sol mass	5 MYr	Sun	1.989 · 10 <sup>30</sup> kg	Blackbody Temp, Sun	5477 °C 5750 K
Rough Lyapunov tm, Solar System	10 MYr	Black Hole Evol. Threshold Mass	4 · 10 <sup>31</sup> kg	Boiling pt of Tungsten	5657 °C 5930 K
Earliest Primates	50 MYr	Globular Cluster	1 · 10 <sup>36</sup> kg	Center of Sun	1.5 · 10 <sup>7</sup> K
Earliest Grasses	54 MYr	Milky Way Center Black Hole	5 · 10 <sup>36</sup> kg	Highest Achieved in laboratory	6 · 10 <sup>9</sup> K
Earliest Rodents	67 MYr	Mass of Milky Way	4 · 10 <sup>41</sup> kg	Center of H bomb	1 · 10 <sup>8</sup> K
Main Seq. Lifetime, 5 sol mass	50 MYr	Milky Way (visible and dark mass)	2.6 · 10 <sup>42</sup> kg	Hottest star	1 · 10 <sup>9</sup> K
LA to pass SF by continental drift	63 MYr	Visible matter in the universe	8 · 10 <sup>49</sup> kg	<b>THERMAL CONDUCTIVITY</b>	
Mass Extinction; Go Mammals!	65 MYr	Critical density universe	2 · 10 <sup>52</sup> kg	Thermal cond. of Styrofoam	2 · 10 <sup>-3</sup> W/m-K
Start, Cenozoic era (til now)	70 MYr	Universe	1 · 10 <sup>53</sup> kg	Thermal cond. of Down	4.6 · 10 <sup>-3</sup> W/m-K
Tm btwn coll w/ Asteroids > 4km	95 MYr	<b>RESISTIVITY</b>		Thermal cond. of Porcelain	0.25 W/m-K
Flowering Plants Originate	125 MYr	Soft Aluminum (Al99.5)	28.6 · 10 <sup>-9</sup> Ω-m	Thermal cond. of Water, 20° C	0.60 W/m-K
Archaeopteryx, (early bird)	150 MYr	Copper	17.5 · 10 <sup>-9</sup> Ω-m	Thermal cond. of Ice	2.33 W/m-K
Apatosaurus (AKA Brontosaurus)	163 MYr	Silver	15.0 · 10 <sup>-9</sup> Ω-m	Thermal cond. of Aluminum	204 W/m-K
Start, Mesozoic era (til Cen.)	225 MYr	Mica, Polystyrene, Teflon	1 · 10 <sup>14</sup> Ω-m	Thermal cond. of Silver	407 W/m-K
Orbit time, Sun - Galactic Center	231 MYr	Glass	1 · 10 <sup>10</sup> Ω-m	<b>SOUND INTENSITY</b>	
Permian extinction	250 MYr	<b>MAGNETIC FIELD</b>		dB, Threshold of hearing	4 dB
Earliest Reptiles	340 MYr	Mag Field, Typ. AM radio wave	1 · 10 <sup>-9</sup> T	dB, Normal breathing	10 dB
Plants Invade land	420 MYr	Mag Field, Earth (average)	5 · 10 <sup>-5</sup> T	dB, Whisper	20 dB
Oldest Vertebrate Fossil	469 MYr	60 Hz Field, Average Exposure	90 · 10 <sup>-9</sup> T	dB, Normal conversation	60 dB
Camerian explosion	545 MYr	Mag Field, Typ. ceramic magnet	2 · 10 <sup>-2</sup> T	dB, Heavy street traffic	70 dB
Start, Paleozoic era (til Mesz.)	571 MYr	Mag Field, Large electromagnet	2 · 10 <sup>0</sup> T	dB, NYC Subway Train	100 dB
Vertebrates, Invertbts diverge	600 MYr	Mag Field, Largest Laboratory	1 · 10 <sup>3</sup> T	dB, Threshold of pain	120 dB
Eukaryotes begin to dominate	1.4 BYr	Mag Field, Atomic Nucleus	1 · 10 <sup>12</sup> T	dB, Jet engine at 30 m	130 dB
Atmos. O <sub>2</sub> at present level	1.5 BYr	<b>ELECTRIC FIELD</b>		dB, rupture of ear drum	160 dB
Galaxy to cross a cluster	1.9 BYr	Typical radio wave	1 · 10 <sup>-1</sup> N/C	<b>MISCELLANEOUS</b>	
Age of Most ancient fossils	2.7 BYr	To Ionize air	3 · 10 <sup>6</sup> N/C	Inclination of Earth's axis	23.45 °
Age of Most ancient rocks	3.5 BYr	Field at 1s orbital in H	6 · 10 <sup>11</sup> N/C	Lightning Charge transfer	25 C
Earliest Photosynthetic Activity	3.5 BYr	Field, Surface of U nucleus	2 · 10 <sup>21</sup> N/C	Index Refrac, water	1.33
Earth formed	4.8 BYr	<b>RADIATION DOSAGE</b>		Index Refrac, Heavy Flint Glass	1.66
U238 Half-life	4.8 BYr	Rad, Dental X-ray	20 · 10 <sup>-3</sup> rem	Albedo of Snow, typical	0.7
Main Seq. Lifetime, 1 Solar Mass	9.5 BYr	Rad, Annual, from cosmic rays	50 · 10 <sup>-3</sup> rem	Albedo of Water, typical	0.05
Age of Universe	10.5 BYr	Rad, Mammography X-ray	2.5 · 10 <sup>-1</sup> rem	Albedo (sand)	0.25
Rough age of the Milky Way	12.0 BYr	Rad, 100% fatalities-2 wks	1 · 10 <sup>3</sup> rem	Coeff Kin Fric, Skis 0°C Snow	0.05
Hubble age of the universe	13.0 BYr	1.5 pack/day Smoker, Annual	1.3 rem	Coeff Kin Fric, Rubber-Concrete	1
Lower limit on proton lifetime	1 · 10 <sup>39</sup> s	Cross Country Airplane Flight	4 · 10 <sup>-3</sup> rem	Coeff Kin Fric, Steel - Steel	0.6
				Number of Human chromosomes	23