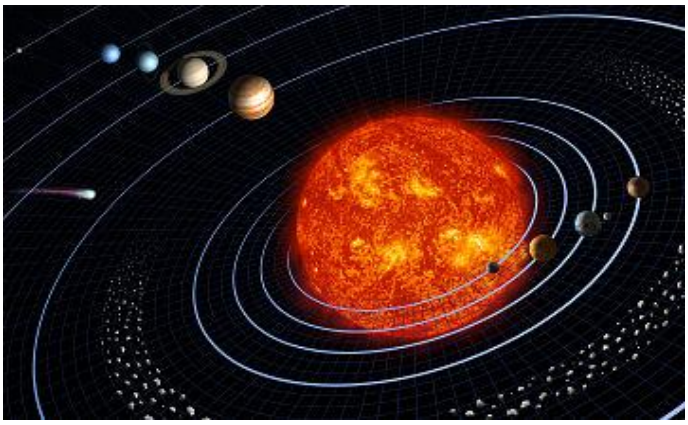
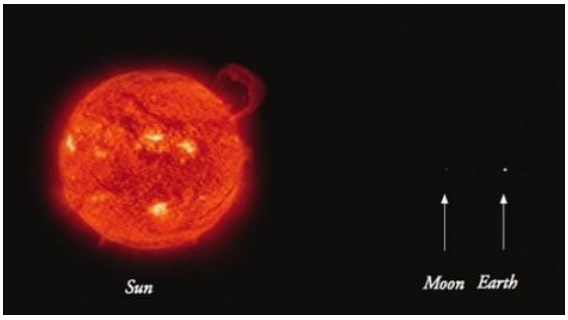
SUN

The sun is a star with spherical shape located in the center of the solar system. It consists mostly of material in a hot plasma state interlaced with magnetic fields. It is estimated that its elements are 77% hydrogen, 22% helium and the remainder from other materials.

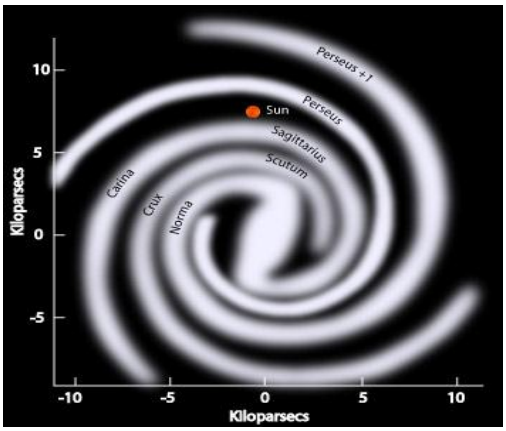
The Sun is at a distance of 150 million kilometers (about 93 million miles) from Earth. The sun holds a mass greater than 333 thousand times the mass of the Earth constituting 99.86% of the total mass of the solar system.



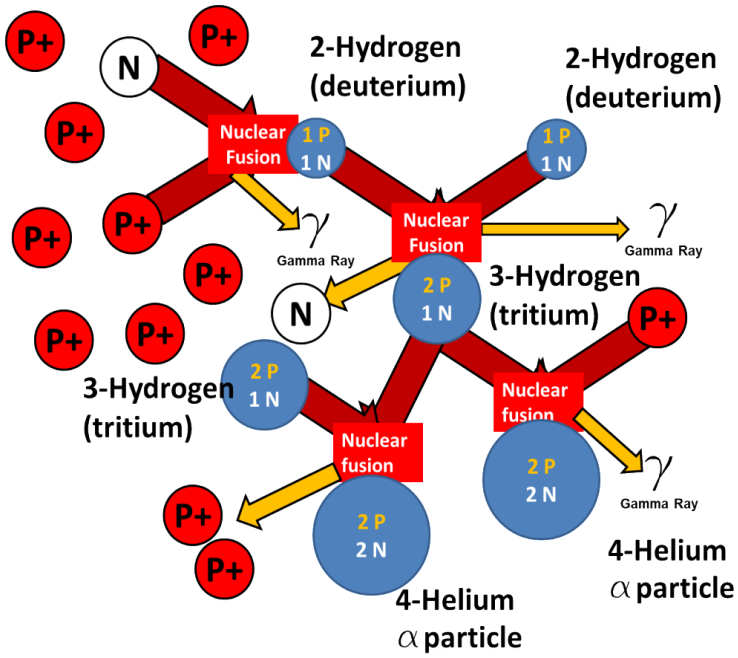
It is estimated a diameter of 1.4 million kilometers which is 109 times that of Earth, with an area of 6.0877 x 10^12 km2, a volume of 1.41 cubic X10^18 km, an average density of 1.4 tons / m3. Gravity on the surface of the sun is 274 m/s2 (28 times greater than on Earth) so to escape the sun, an object requires a speed of 617 km / sec.



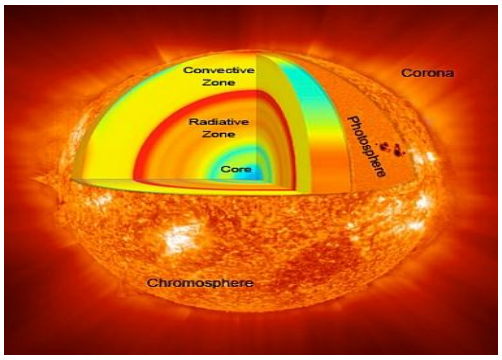
The Sun has an estimated age of 4.57 billion years. It is located at 26,000 light years from the center of the galaxy “Milky Way” in the Orion arm and takes about 230 million years to do a “Galactic year”, traveling at 220 miles per second within the galaxy.



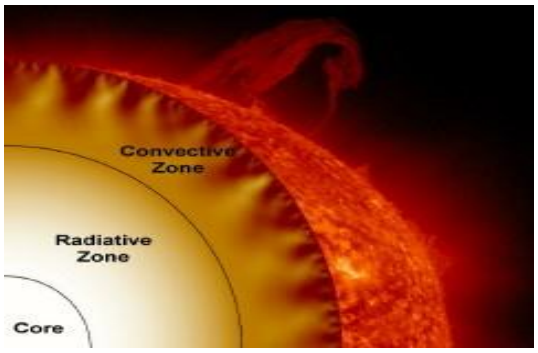
The Sun is turbulent and is constantly changing. It generates massive amounts of energy mainly through a process called nuclear fusion by fusing atoms of hydrogen, helium, and beryllium free electrons to produce “alpha” (stable isotope atoms Helium-4) free electrons, photons of light with different wavelengths and other very small particles called neutrinos.



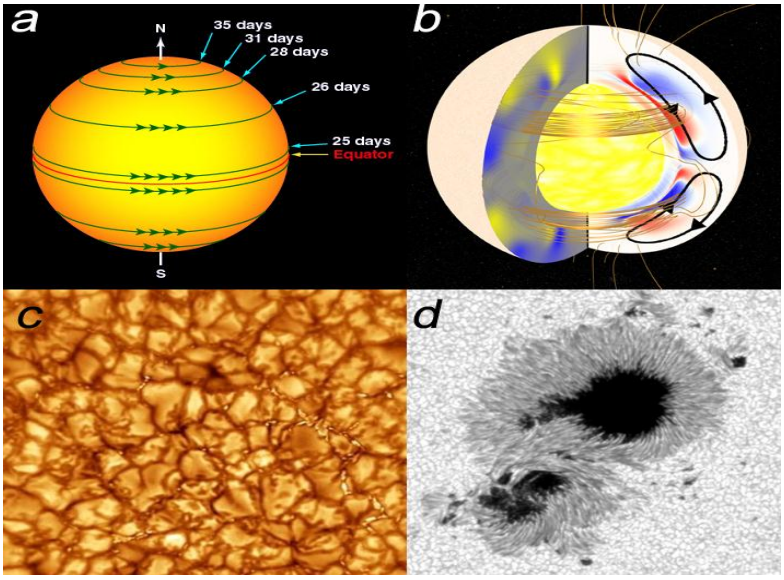
The most important Sun structural areas are its “core” (25% of its total radius), the “radiative zone” (45% of its radius) and “convective zone” (30% radius) whereas above the surface sun, in the Sun’s atmosphere it can be identified three main areas: the “photosphere”, the “chromosphere” and “corona”.



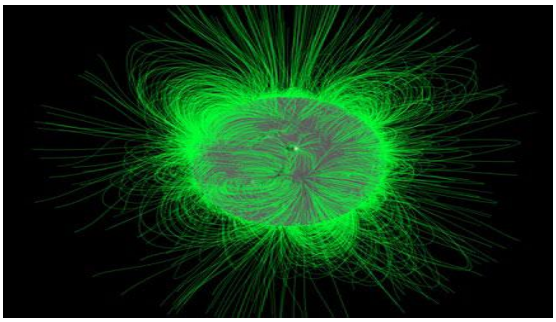
Because of its enormous amount and concentration of atoms at its core, it is generated an enormous amount of pressure and high temperatures creating friction, so the behavior of the matter is gas and plasma. The core temperature is up to 16 million°K, while the surface is 3043 ° K, but at the bottom of the corona (the atmosphere), the temperature is about 5 million ° K.



The core of the Sun has a rotation as if it is solid and from the core to the surface, as there is less pressure, matter tends to be “loose” so in the upper parts there is a differential rotation in the sun’s equator where it forms a belt that spins faster (every 25 days 7189 km / hour) than the other surface (on the pole every 34 days).



The Sun rotation has an inclination of 7.25 ° of the ecliptic and 67.23 ° to the plane of the galaxy establishing electromagnetic poles.



The Sun fuses about 620 million metric tons of hydrogen per second, emitting about 3.8 x 10^26 joules per second and has a luminosity of 3.8×10 to 26 Watts.

Source: http://www.artinaid.com/2013/04/what-is-the-sun/