

The Sun is the star at the center of the Solar System. It is a nearly perfect ball of hot plasma,[18][19] heated to incandescence by nuclear fusion reactions in its core. The Sun radiates this energy mainly as light, ultraviolet, and infrared radiation, and is the most important source of energy for life on Earth.

The Sun's radius is about 695,000 kilometers (432,000 miles), or 109 times that of Earth. Its mass is about 330,000 times that of Earth, comprising about 99.86% of the total mass of the Solar System.[20] Roughly three-quarters of the Sun's mass consists of hydrogen (~73%); the rest is mostly helium (~25%), with much smaller quantities of heavier elements, including oxygen, carbon, neon, and iron.[21]

The Sun is a G-type main-sequence star (G2V). As such, it is informally, and not completely accurately, referred to as a yellow dwarf (its light is actually white). It formed approximately 4.6 billion[a][14][22] years ago from the gravitational collapse of matter within a region of a large molecular cloud. Most of this matter gathered in the center, whereas the rest flattened into an orbiting disk that became the Solar System. The central mass became so hot and dense that it eventually initiated nuclear fusion in its core. It is thought that almost all stars form by this process.