

## Solar System

The solar system started out as a cloud made of hydrogen gas, a tiny bit of oxygen, silicon, and carbon. It is thought that this cloud may have formed from an old star that had exploded in a supernova. Due to gravity all the gas wanted to concentrate in one location, but as the gas got closer to the axis of rotation it started to rotate faster around the axis. This faster rotation meant that the gas could no longer be concentrated in one place. Instead the gas concentrated in a flat disk with most of the matter at the center. The matter at the center got more and more concentrated until it got hot enough to generate energy through nuclear fusion of the hydrogen. The very center bulged out into a sphere and formed the Sun in the manner explained above.

## Sun

The Sun accounts for 99.9% of the mass of the solar system (Jupiter essentially accounts for the rest of the mass, and the other celestial objects are miniscule in comparison). There isn't a lot of exact information on the formation of the Sun because of how long ago it happened and how complex it is (not to mention the fact that humans didn't yet have a planet), so essentially all of what I give here are consensus beliefs, basically assumptions formed by seeing other stars form far away during the time since records have started to be kept. The Sun formed from a giant cloud that rotated slowly about 4.5 billion years ago. A fusion of helium and hydrogen ignited the Sun from the cloud and started to form the core of this cloud as it bulged outward into a spherical shape. At this moment the nuclear fusion that is still going on today started and the Sun as we know it began. The Sun uses about 4 million tons of hydrogen a second. The Sun is just slightly older than the Earth, if at all. The Sun is 93 million miles away from Earth. The Sun's core can get up to 27 million degrees (F) and is about as big as Jupiter in total.

Stars will rarely form individually. Most stars come out of large clouds that give birth to a dozen or so stars at once. Over a thousand million years they move apart and you can't tell that they ever belonged together. Our Sun may have some sister stars out there, but we don't know where they are, or if they even exist.

## Earth

The Earth came into being shortly after the nuclear fusion that powers the Sun began. It is thought that when the Sun first glowed bright it sent chunks of rock flying out in all directions that ended up forming the planets. Seasons occur because the Earth's axis is tilted approximately 23 degrees as it travels along its orbit around the Sun. It is believed that at one time early in Earth's life a large asteroid collided with the Earth breaking off a huge chunk, which never escaped Earth's gravity and would later be called the Moon. The elements began to separate themselves according to their density as the planet started to cool. The atmosphere formed as a result of outgassing of carbon dioxide from its interior, and accretion of gasses from space including elements brought to Earth by asteroids and comets.