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**[Stars](http://kids.britannica.com/comptons/article-9277210/star%22%20%5Co%20%22star)** vary greatly in size and color. They range from giant stars, which are much larger than the Sun, to dwarf stars, which can be much smaller than the Sun. In color they range from whitish blue stars with very high surface temperatures (more than 30,000 Kelvin, or 53,500° F) to relatively cool red stars (less than 3,500 K, or 5,840° F). (The Kelvin temperature scale uses degrees of the same size as Celsius, or centigrade, degrees, but it is numbered from absolute zero, 273.15° C.) The Sun is a yellow dwarf star, a kind that is common in the Milky Way galaxy. It has a surface temperature of about 5,800 K (10,000° F). Its diameter is about 864,950 miles (1,392,000 kilometers), which is about 109 times the diameter of Earth. Its volume is about 1,300,000 times Earth's volume, and its mass, or quantity of matter, is some 333,000 times as great as Earth's mass. More than 90 percent of the Sun's atoms are [**hydrogen**](http://kids.britannica.com/comptons/article-9275008/hydrogen). Most of the rest are [**helium**](http://kids.britannica.com/comptons/article-9274831/helium), with much smaller amounts of heavier elements such as carbon, nitrogen, oxygen, magnesium, silicon, and iron. By mass, the Sun is about 71 percent hydrogen and 28 percent helium. The Sun has no fixed surface. It is much too hot for matter to exist there as a solid or liquid. Rather, the Sun's matter consists of gas and [**plasma**](http://kids.britannica.com/comptons/article-9276456/plasma-and-plasma-physics), a state in which gases are heated so much that the electrons are stripped away from their atomic nuclei. The heated gas is said to be ionized because it consists of a group of ions, or electrically charged particles. The free electrons carry a negative charge, and the atomic nuclei carry a positive charge. Like the [**planets**](http://kids.britannica.com/comptons/article-9276448/planet), the Sun rotates. Because the Sun is not solid, different parts of it rotate at different rates. The parts of the surface near the equator spin the fastest, completing one rotation about every 25 Earth days. The parts of the surface near the poles take 36 days to complete a rotation. |

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