

Name \_\_\_\_\_

## Stellar Diversity: Exploring the Different Types of Stars



Stars have always fascinated humanity with their brilliance and mystique. Up in the night sky, these celestial bodies come in various shapes, sizes, and colors.

### The Sun - Our Closest Star

The Sun is a yellow dwarf star and is the center of our solar system. It provides heat and light, making life on Earth possible. It's about 4.6 billion years old and has many more years to shine.

### Red Giants

Red giants are massive stars in the later stages of their lives. These stars have expanded and cooled, giving them a reddish appearance. Betelgeuse in the Orion constellation is a famous example of a red giant.

### White Dwarfs

White dwarfs are the remnants of stars like the Sun after they exhaust their nuclear fuel. They are incredibly dense, with a mass similar to the Sun but squeezed into a much smaller space. Over time, white dwarfs slowly cool and fade away.

### Supergiants

Supergiants are among the largest stars in the universe, hundreds of times bigger than the Sun. They are incredibly bright and can vary in color from blue to red. The famous supergiant star, Betelgeuse, is also an example of this category.

### Protostars

Before a star is born, it begins as a protostar—a dense region of gas and dust in space. Gravity pulls these materials together, forming a core that will eventually ignite into a new star.

### Neutron Stars:

When a massive star undergoes a supernova explosion, it can leave behind a super-dense neutron star. These stars are incredibly small but incredibly dense. A teaspoon of neutron star material would weigh as much as a mountain!

### Binary Stars

Many stars are part of binary systems, where two stars orbit around a common center of mass. They can be of different types, such as two main-sequence stars or a combination of a star and a white dwarf.

### Variable Stars

Some stars change in brightness over time due to various factors. Cepheid variables, for example, expand and contract regularly, making them valuable for measuring distances in the universe.

