

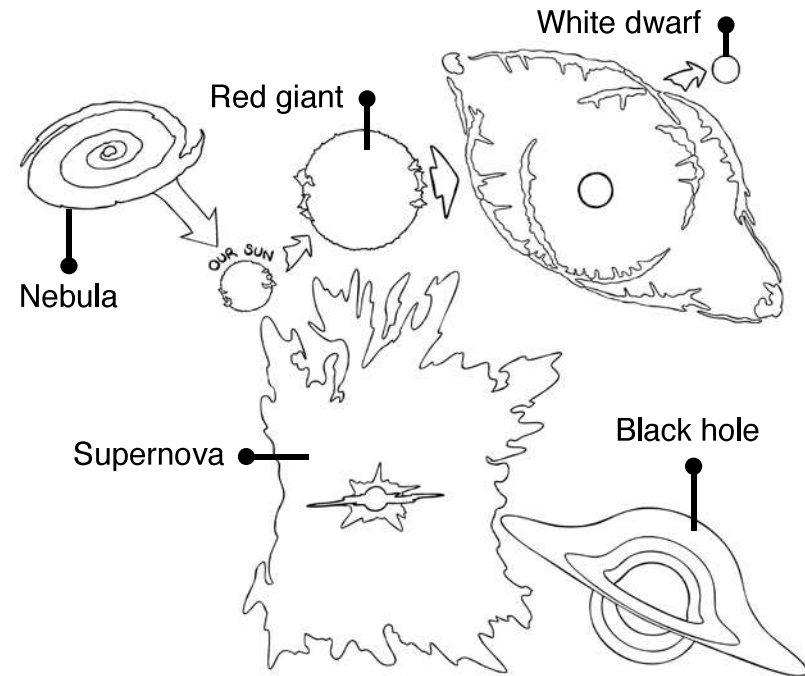
# Life Cycle of a Star

Stars have a life cycle, just like you! They are born, live for millions or even billions of years, and then die in a number of quite amazing ways. All stars begin their lives in a **nebula**, which is a huge cloud of gas and dust floating in space. Gravity pulls the gas in a nebula together until it gets hot and dense enough to start shining.

Our Sun is a medium-sized star and middle-aged at about 4.5 billion years old. One day, as it runs out of fuel to power its internal fusion engines, it will swell into a **red giant**. Stars much more massive than the Sun burn through their fuel in only a few million years, and then go out with a bang in a gigantic explosion called a **supernova**.

Red dwarfs, which are smaller than the Sun, burn their fuel much more slowly than their larger brethren. Because of this, they can live for trillions of years — that's hundreds of times longer than the current age of the universe!

After becoming a red giant, the Sun will shrink into a small, dense object called a **white dwarf**. The cores of slightly larger stars become extremely compact objects (usually about 12 miles in diameter) called neutron stars after they go through a supernova. The largest stars of all collapse into something so dense that not even light can escape: a **black hole**.



## Speaking of the Heliosphere...

For millennia, people on Earth, including the first people to inhabit its northern regions, have observed the stars. Light emitted by stars provides all kinds of information to observers. The color of light that a star emits helps astronomers understand where each star is in its life cycle. What colors are the stars you can see?



In the Central Yup'ik language, **tanqik** is the word used to mean *light*. Scan the QR code to listen to a Central Yup'ik language speaker say this word.

