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Binary Stars

There are two types of *binary* (something made of or based on two things or parts) stars: visual binaries and optical doubles. Visual binaries orbit each other around a common point (or *center of mass*) called the *barycenter*. This can be seen through a telescope. These stars are bound to each other by the force of gravity, much like Earth and its moon. Unlike visual binaries, optical doubles look like they're close to each other, but they're not. They only appear that way to us because one of the stars is actually behind the other one, as seen from Earth. Optical doubles are not gravitationally bound to one another.

Like other objects in space—our moon and sun, for example—binary stars are subject to eclipses. In a binary eclipse, one star is in front of the other in relation to the observer. Depending on the size and brightness of each star, the appearance of the binary system can vary greatly.

Astronomers estimate that approximately five to ten percent of the stars we see are members of a binary pair. In fact, based on observations and calculations, scientists believe that as many as half the stars in the sky (both visible and out of our range of sight) are binary stars. So even if you've never heard of binary stars, chances are you've seen at least one. Next time you look up at the night sky and see a beautiful canopy of stars above you, you might take a moment to remember and appreciate all the binary stars you might be seeing.