

Stellar Evolution In Orion - Educator's Guide (Ages 16-18)



At the end of these Night Sky activities students will understand:

- Stars emit light in different parts of the visible spectrum
- Stars undergo a lifecycle, during this their characteristics will change
- Older stars are more likely to emit light from the red end of the spectrum
- Groups of stars form together from gas and dust in stellar nurseries

Astronomy background information

This activity will examine some of the constellation Orion's stars as examples of stellar evolution. This term describes how stars form and develop.

Stars form in huge clouds of dust and gas called stellar nurseries. Orion contains several of these regions, for example Messier 42. Radiation from newly-formed stars in stellar nurseries excites the electrons in the surrounding atoms of gas causing the gas to glow.

Stars are different colours because their surfaces are at different temperatures. Hotter stars, for example Rigel, emit most of their light in the blue end of the spectrum. Cooler stars like Betelgeuse are reddish. The Sun's temperature would fall between the two. Rigel and Betelgeuse are roughly similar in size but are at different stages of their lives. Betelgeuse is the older of the two and is approaching the end of its life. A star shines by generating nuclear energy, turning hydrogen into helium in its core. Eventually the star starts to also convert helium to heavier elements, increasing the energy it generates. This causes it to grow enormously. As its surface area increases the star's surface effectively cools. Astronomers call these old stars like Betelgeuse 'Red Giants'.

Night Sky App Essential Settings

Go to Night Sky Settings  and make sure the following Preferences are set.

Turn On these Effects:
Real Sky Representation
Enable Messier Objects

Turn Off these Effects:
Show Satellites
Show Glass Mythology
Show Constellation Lines

Accessible Learning:

- Text size can be increased in the Preferences section
- Star numbers can be reduced by sliding two fingers down the screen

