

## Senior Space Science Expert Badge

### Lifecycle of a Star p.1

Stars, like people, have a lifecycle. Scrapbook the lives of stars.

#### Star Forming Region/Prenatal Stage:

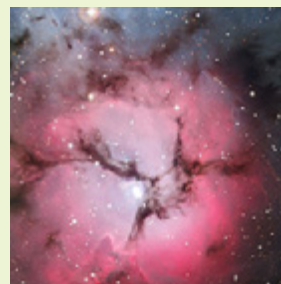
Stars are created in large clouds of gas and dust called “nebula,” or stellar nurseries.



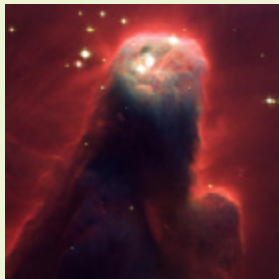
The Orion Nebula (M42)



The Rosette Nebula (NGC 2237)



The Trifid Nebula (M20)



The Cone Nebula (NGC 2264)



The Eagle Nebula (M16)

#### Protostars/Birth:

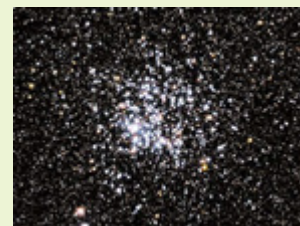
When there is enough mass for Hydrogen to fuse into Helium at its core, a star is born!



Star Cluster in the Center of the Rosette (NGC 2244)



The Pleiades (M45)



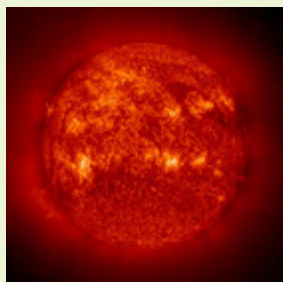
The Wild Duck Cluster (M11)

**Senior Space Science Expert Badge****Lifecycle of a Star p.2**

Stars, like people, have a lifecycle. Scrapbook the lives of stars.

**Main Sequence Stars/Adulthood:**

A star will spend most of its life steadily converting Hydrogen into Helium and not changing size very much.



The Sun



Alpha Centauri



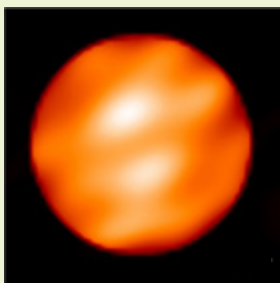
Globular Cluster (M13)



Proxima Centauri

**Crisis/Aging Stars:**

When a star runs out of Hydrogen fuel, it undergoes rapid structural changes, making the star expand and contract.



Betelgeuse



Antares



Red Giant Aldebaran

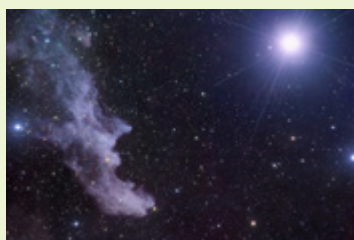
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### Lifecycle of a Star p.3

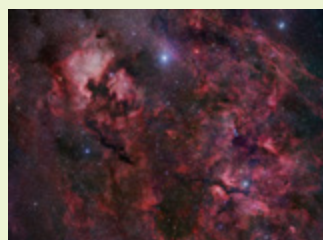
Stars, like people, have a lifecycle. Scrapbook the lives of stars.

#### Crisis/Aging Stars (contd.):

When a star runs out of Hydrogen fuel, it undergoes rapid structural changes, making the star expand and contract.



Blue Supergiant Rigel



Blue Supergiant Deneb

#### Death:

When a star dies, there are different things that occur—which are dependent upon a star's mass. A small star's outer layers will gently expand as a planetary nebula, a shell of gas, and its center will become a white dwarf. A massive star will have a more violent end—a fiery supernova explosion, with its core becoming either a high density neutron star, or compressing into a stellar black hole.



The Ring Nebula (M57)



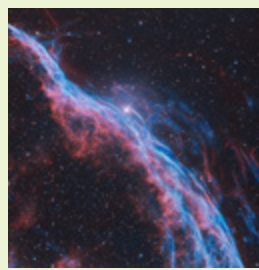
The Dumbbell Nebula (M27)



The Helix Nebula (NGC 7293)



The Crab Nebula (M1)



The Veil Nebula (NGC 6960 & 6992)