High-mass stars live for one million to tens of millions of years, while low-mass stars, like our Sun, live for tens of millions to billions of years.

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Black Hole
A star's core collapses into extremely dense matter. Even light cannot escape the gravitational pull.

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High Mass Stars
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Red Giant
Expanding hydrogen in their cores, these stars expand their outer layers and can grow to 1,000 times their main sequence size.

Planetary Nebula
The outer layers of gas are ejected while the star's core contracts into a white dwarf.

White Dwarf
This star core is typically composed of carbon and oxygen. Neodymium, magnesium, and calcium are possible.

Black Dwarf
A hypothetical version of a cooled white dwarf. The lifecycle of a black dwarf is too short to prove its existence.

High Mass Stars
- 10–150 solar masses
- 90% of lifespan
- Spica, Theta Orionis C
- Significant loss of mass
- 10% of lifespan
- Betelgeuse, Rigel
- All but 10% of the original mass is ejected
- Seconds
- Cassiopeia A, Kepler's Supernova

Low Mass Stars
- < 1.4 solar masses
- 10^33–10^45 years
- Circinus X-1, The Mouse
- All but 5–15% of the original mass is ejected
- Tens of thousands of years
- M27, NGC 40

Big History Project