

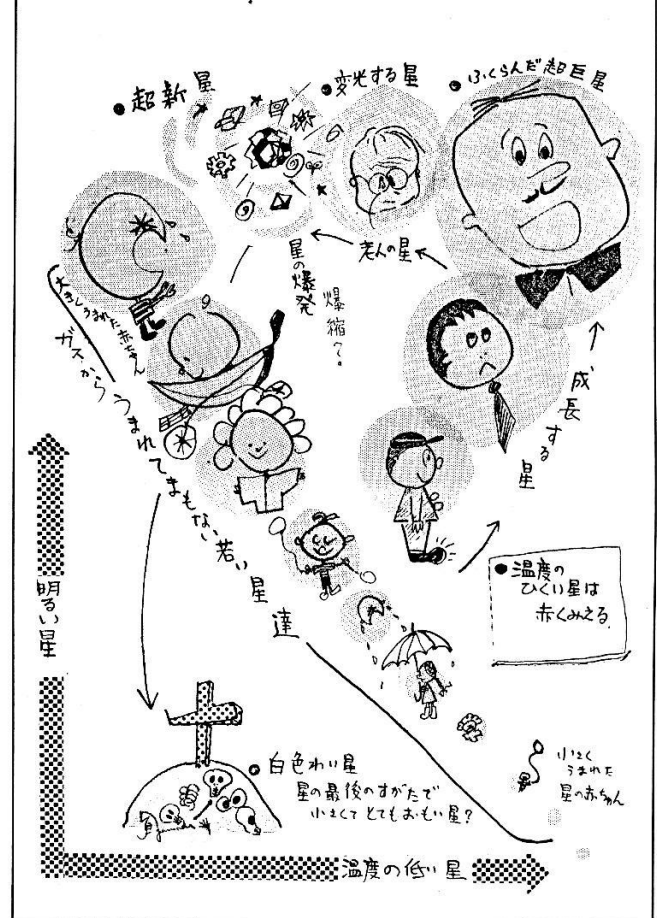
Evolution of Stars

IB PHYSICS | ASTROPHYSICS

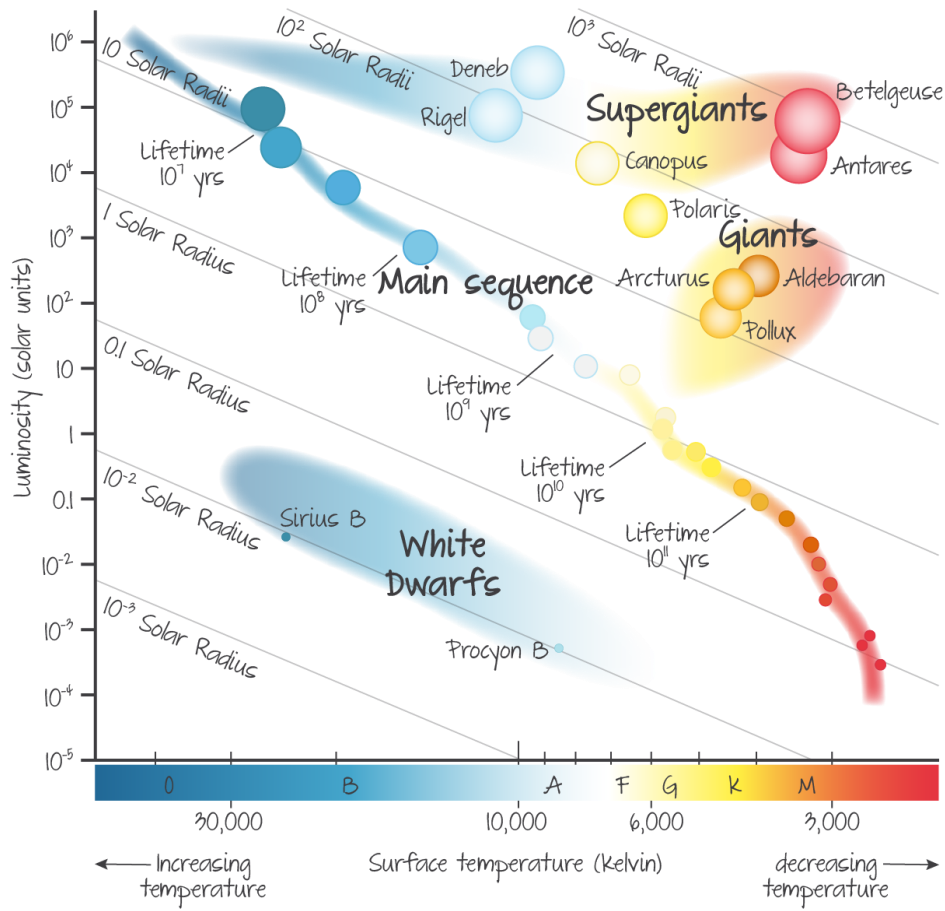
Measuring the Age of the Stars



星の一生について

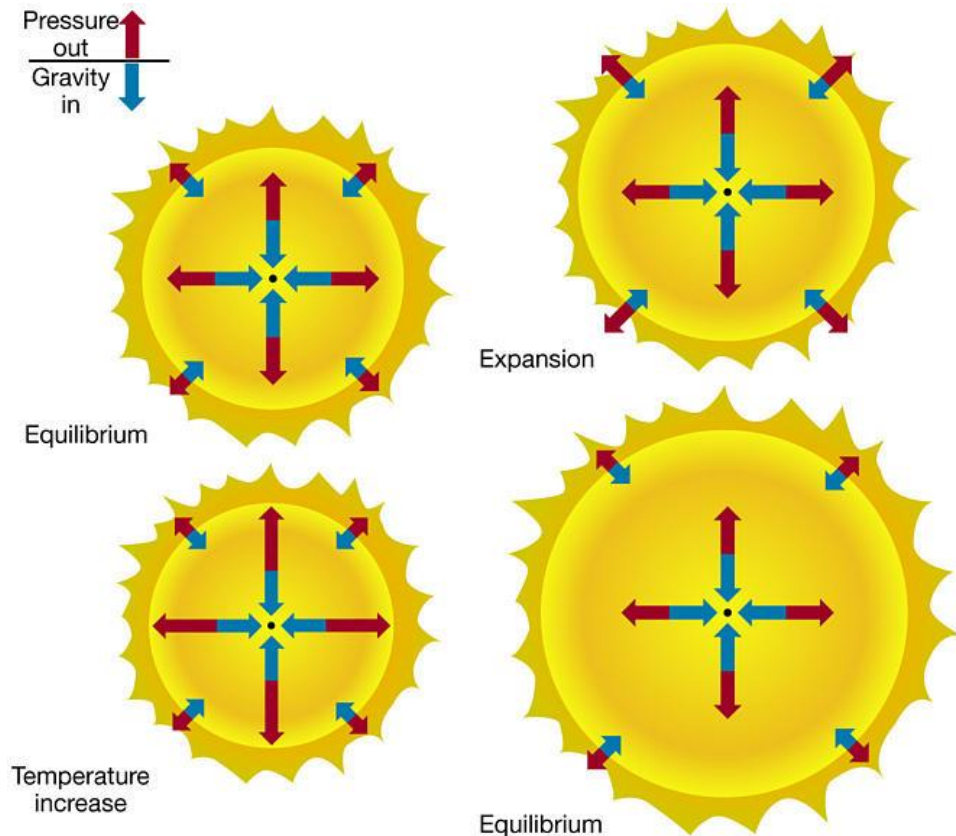


Life Span of the Stars

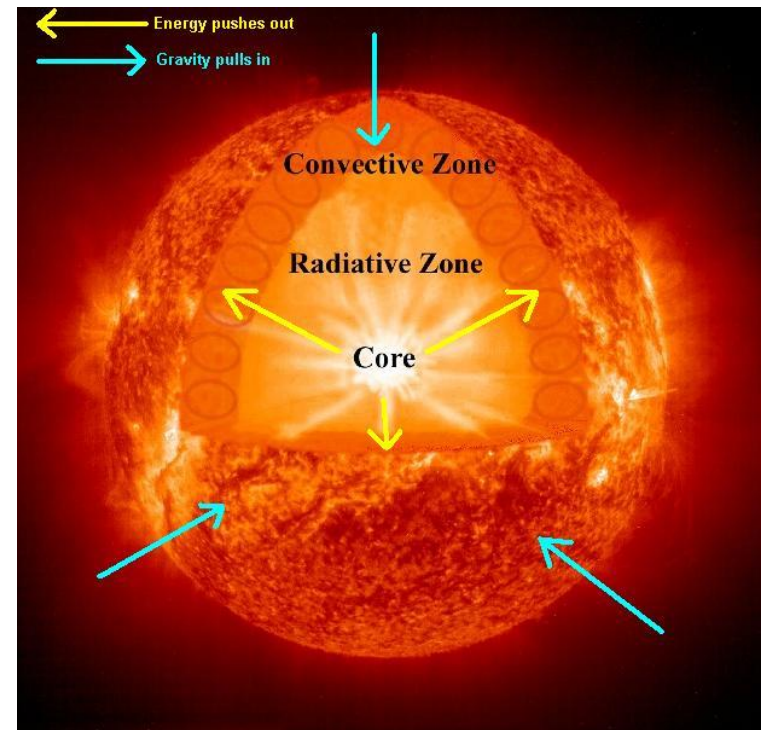


Which stars have the longest life span?

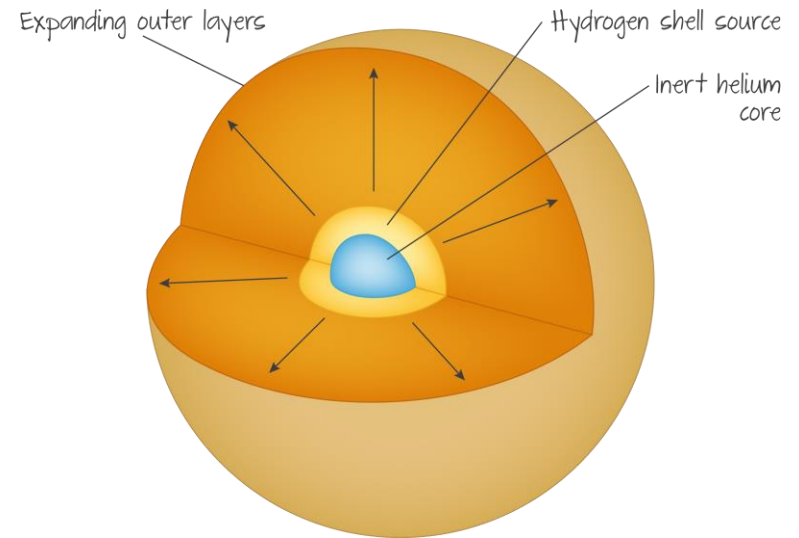
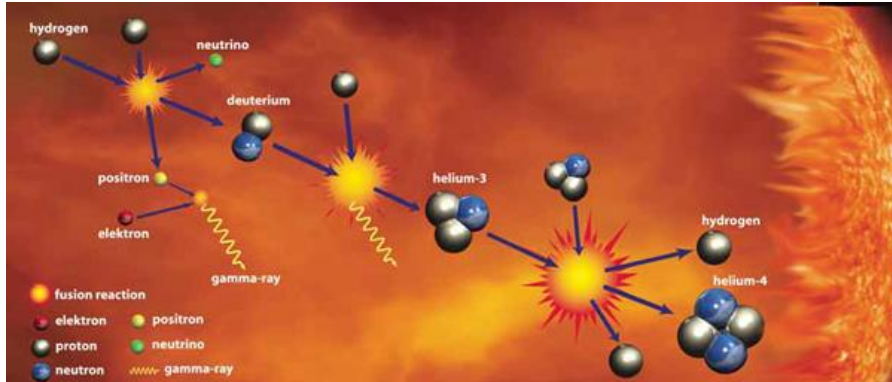
Stellar Equilibrium



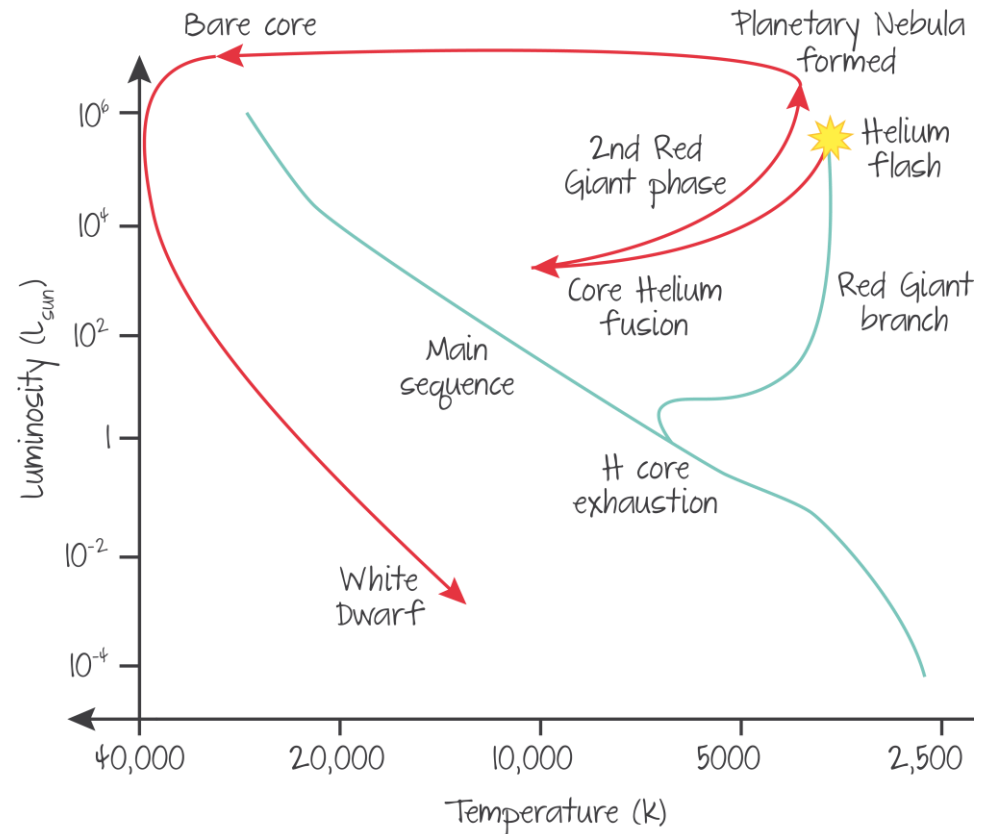
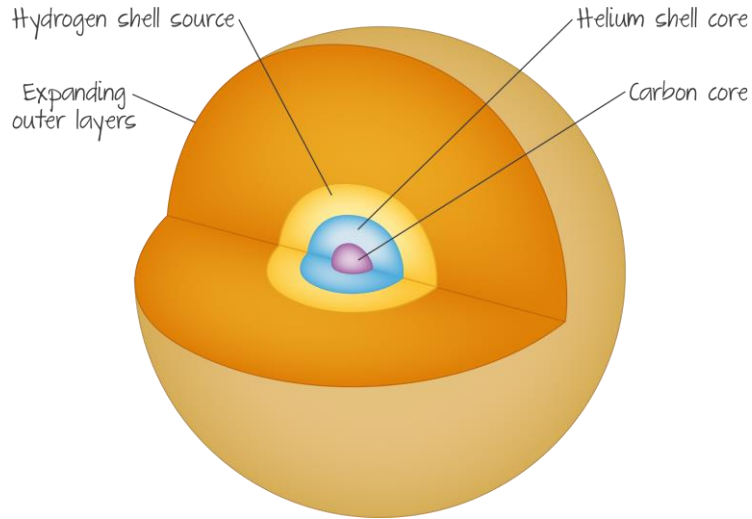
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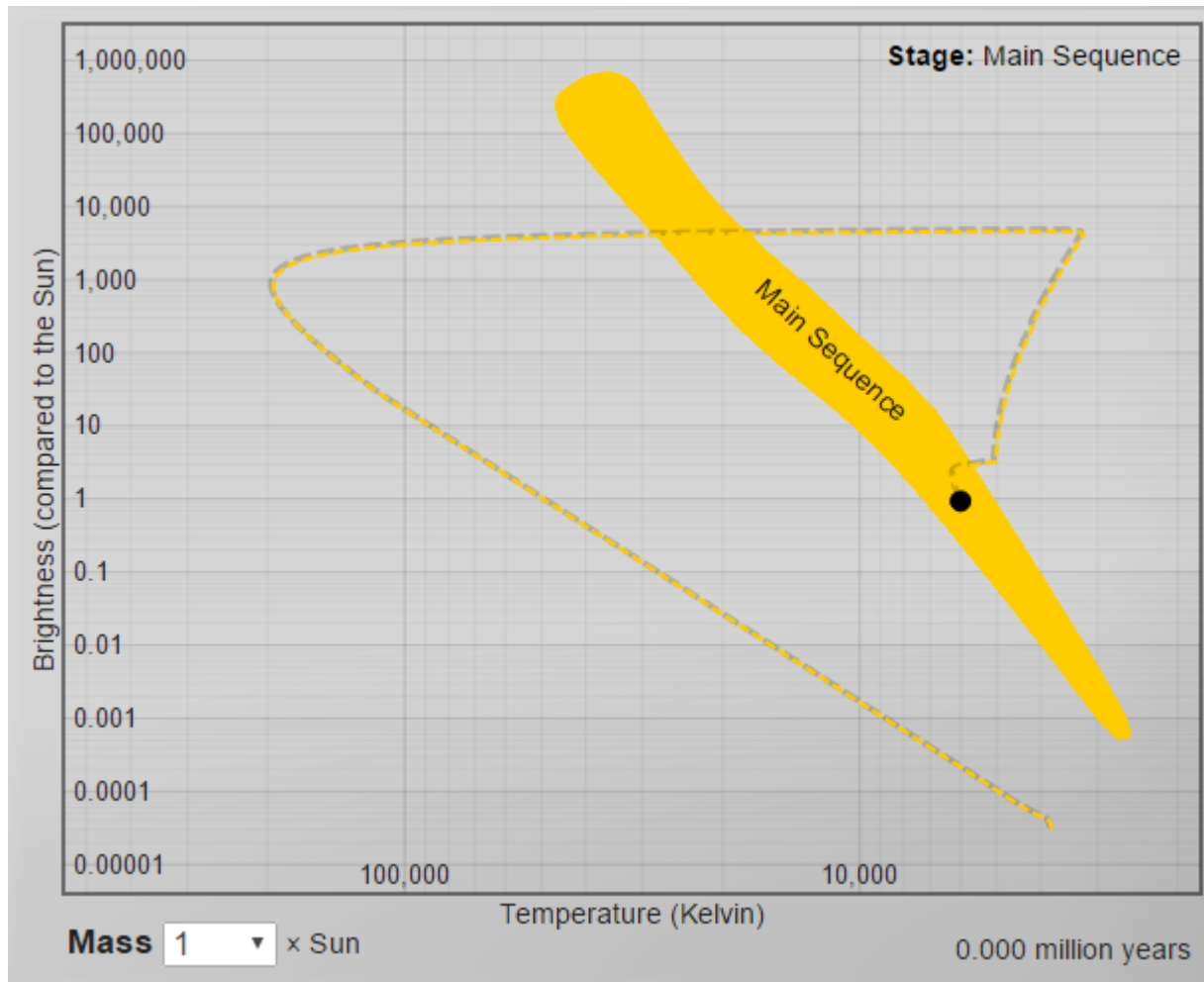
What happens as Stars Age??



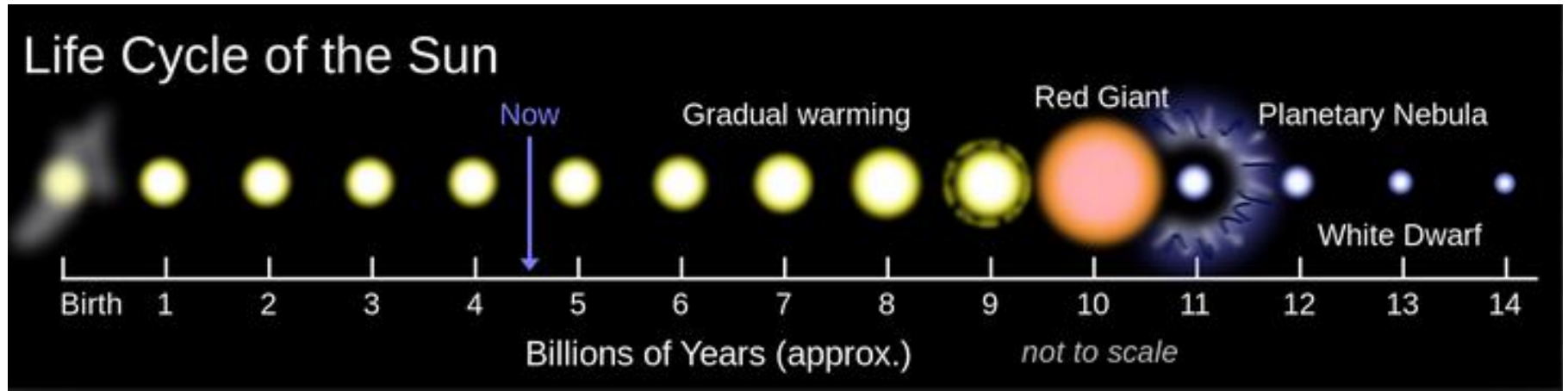
What happens as Stars Age??



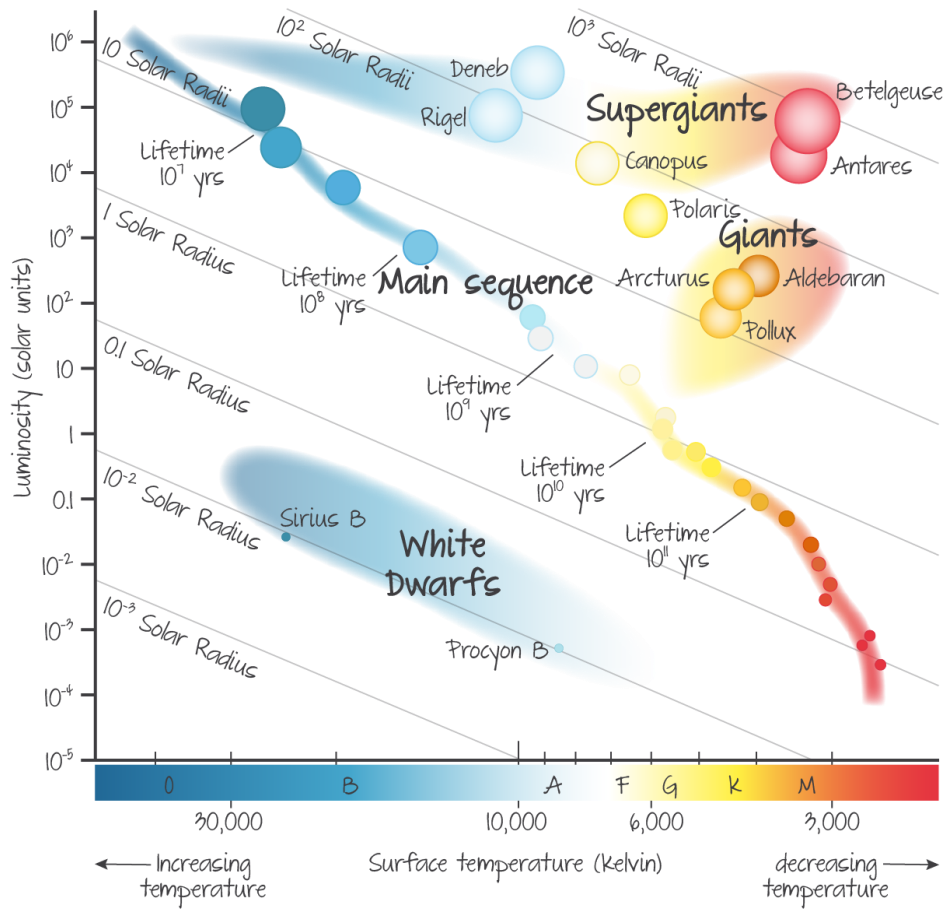
Life Cycle of Sun-Sized Star



Life Cycle of our Sun



White Dwarf Stars



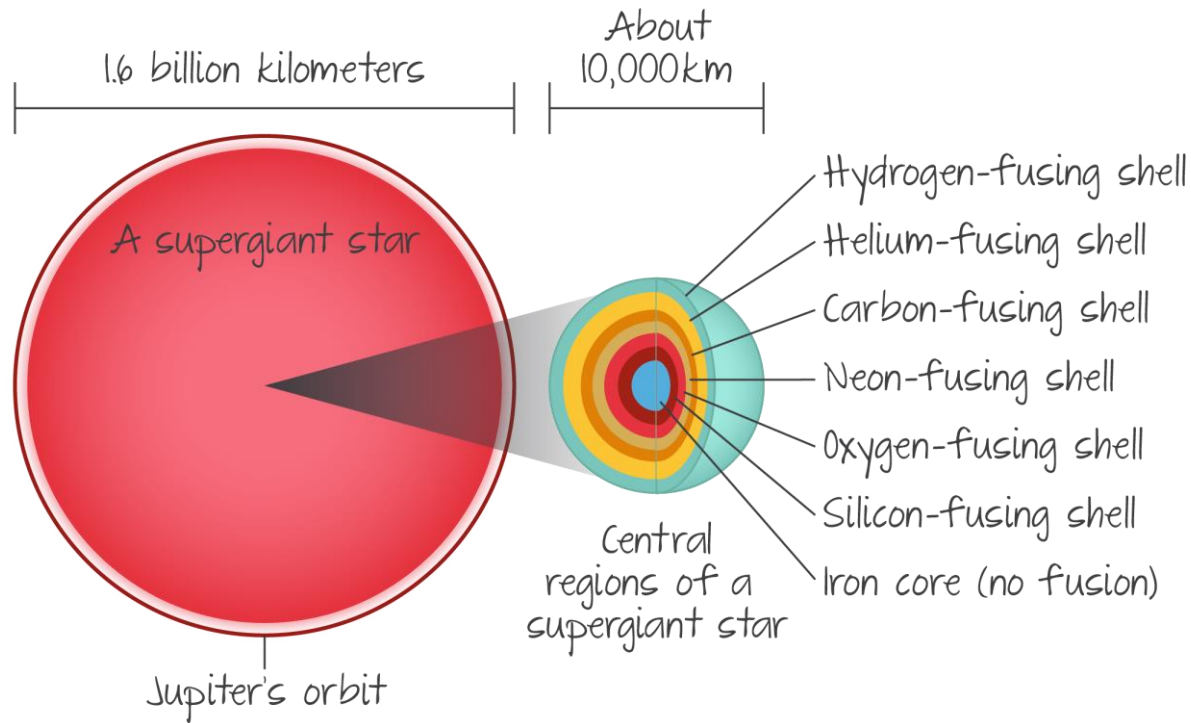
White Dwarf Stars

There is a maximum mass of a core that can become a white dwarf

$$\text{Chandrasekhar Limit} = 1.4 M_{\odot}$$

The core only makes up about 1/3 of the stars mass so a star with a total mass greater than about $4 M_{\odot}$ will not form white dwarfs

Life Cycle of Massive Star



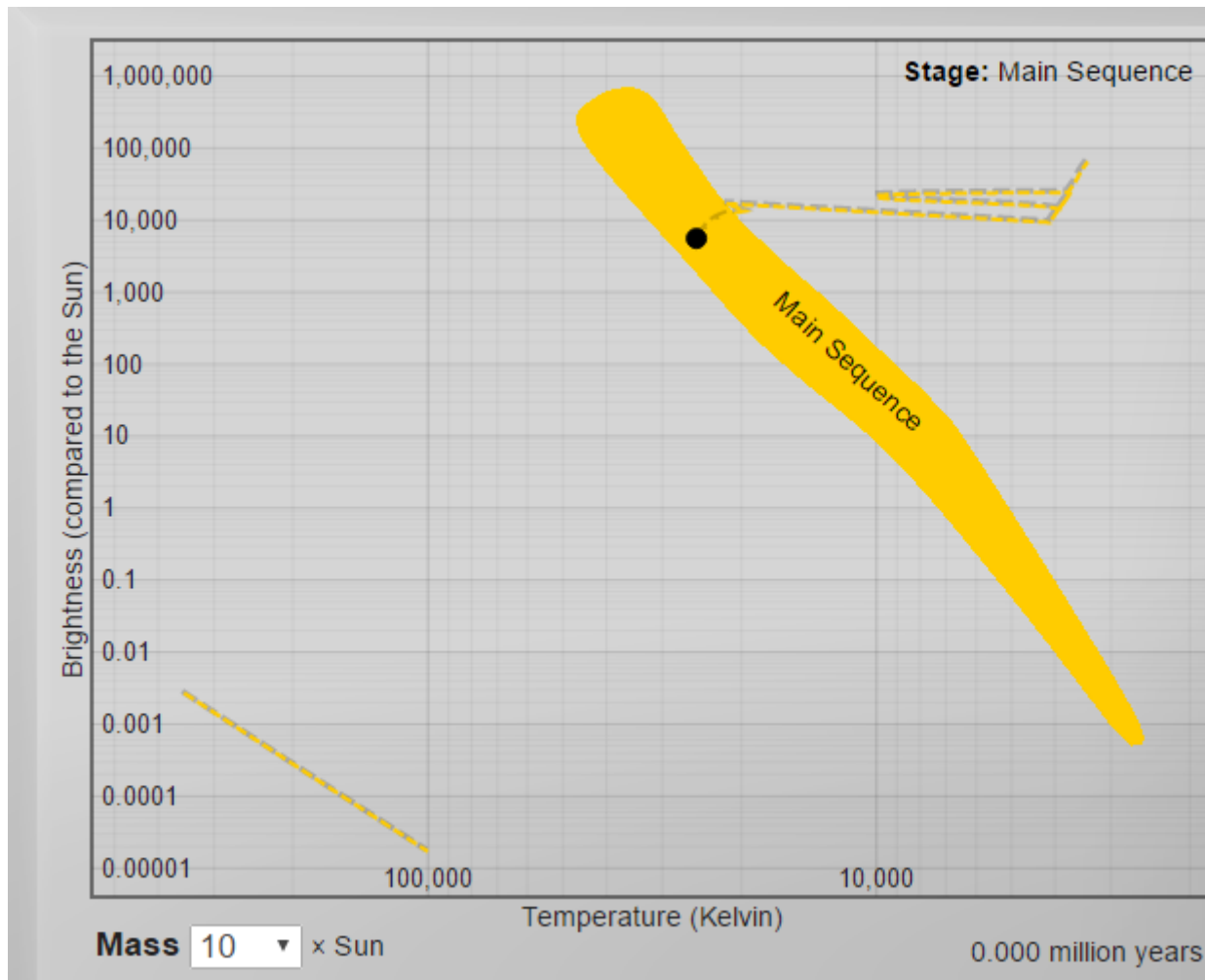
Life Cycle of Massive Star

The mass of neutron stars are limited as well...

Oppenheimer-Volkhoff Limit = $3 M_{\odot}$

A Neutron star above the Oppenheimer-Volkhoff Limit will collapse and form a Black Hole.

Life Cycle of Massive Star



Black Holes?



Life Cycle of a Star

