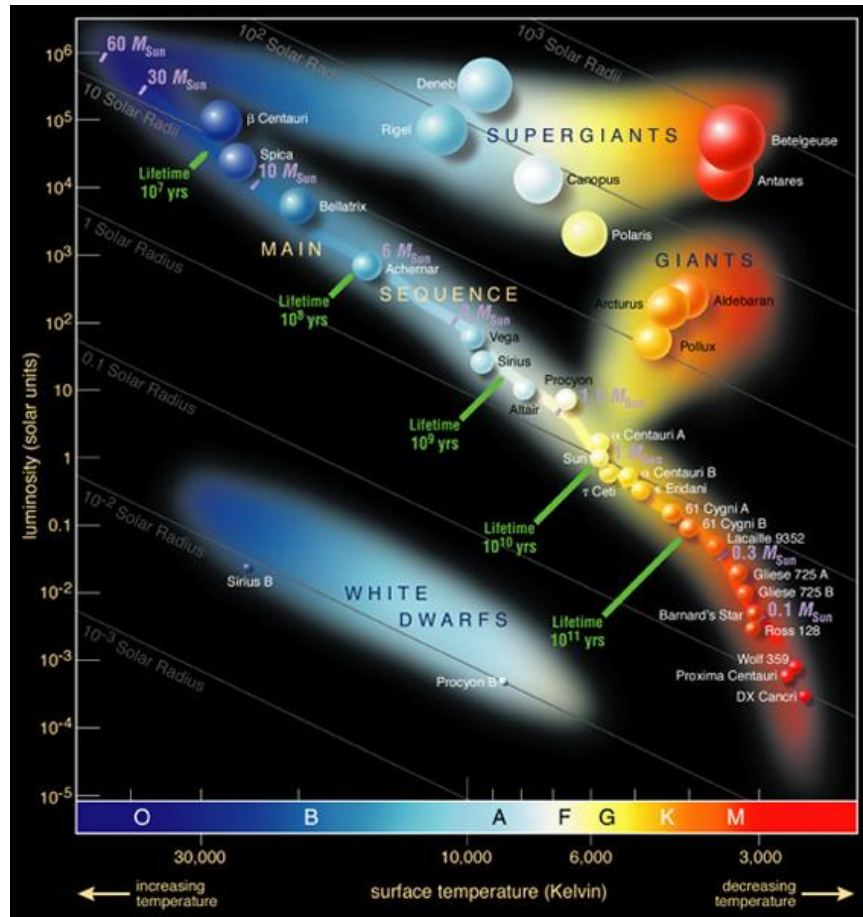
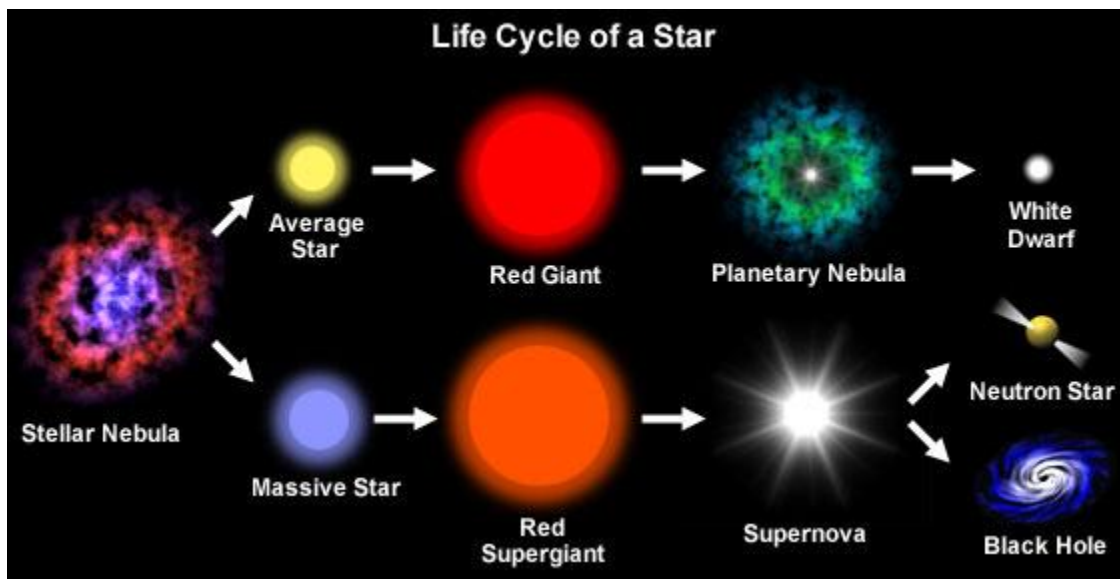


## Hertzprung-Russell Diagram (Combined)

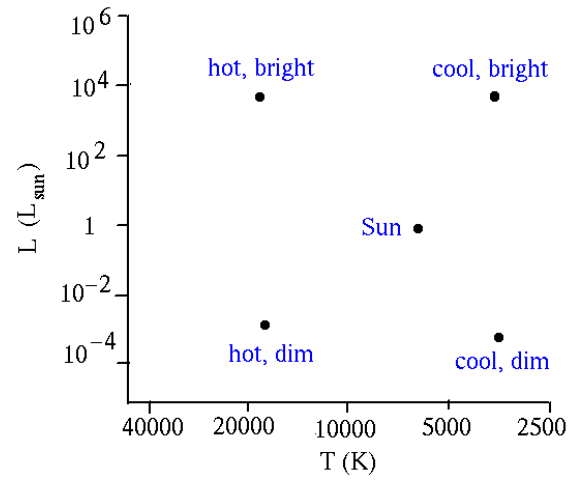


Interactive H-R Diagram at [http://aspire.cosmic-ray.org/labs/star\\_life/hr\\_interactive.html](http://aspire.cosmic-ray.org/labs/star_life/hr_interactive.html)

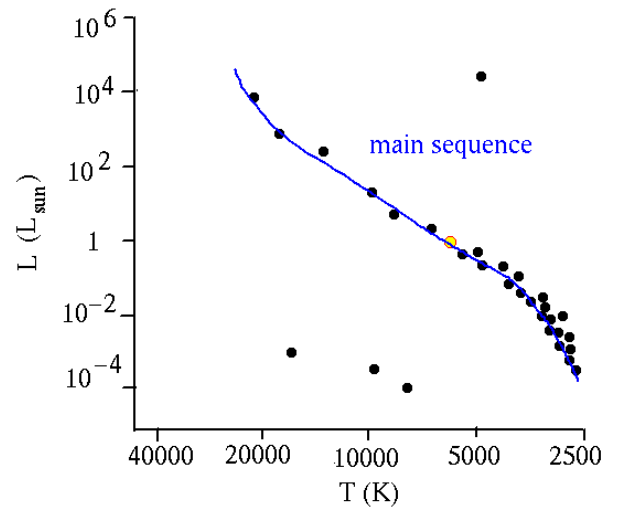


### Hertzsprung-Russell (HR) Diagram – Simplified

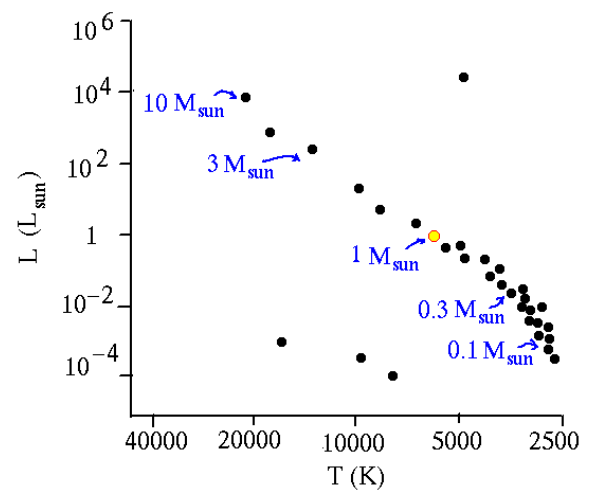
The HR Diagram shows the relationship between the luminosity and temperature of stars.



### Hertzsprung-Russell Diagram – Main Sequence



### Hertzsprung-Russell Diagram – Solar Masses



## Stellar Spectral Types

Stars can be classified by their surface temperatures as determined from Wien's Displacement Law, but this poses practical difficulties for distant stars. Spectral characteristics offer a way to classify stars which gives information about temperature in a different way - particular absorption lines can be observed only for a certain range of temperatures because only in that range are the involved atomic energy levels populated. The standard classes are:

	Temperature
O	30,000 - 60,000 K Blue stars
B	10,000 - 30,000 K Blue-white stars
A	7,500 - 10,000 K White stars
F	6,000 - 7,500 K Yellow-white stars
G	5,000 - 6,000 K Yellow stars (like the Sun)
K	3,500 - 5,000K Yellow-orange stars
M	< 3,500 K Red stars

The commonly used mnemonic for the sequence of these classifications is "**Oh Be A Fine Girl (or Guy), Kiss Me**".

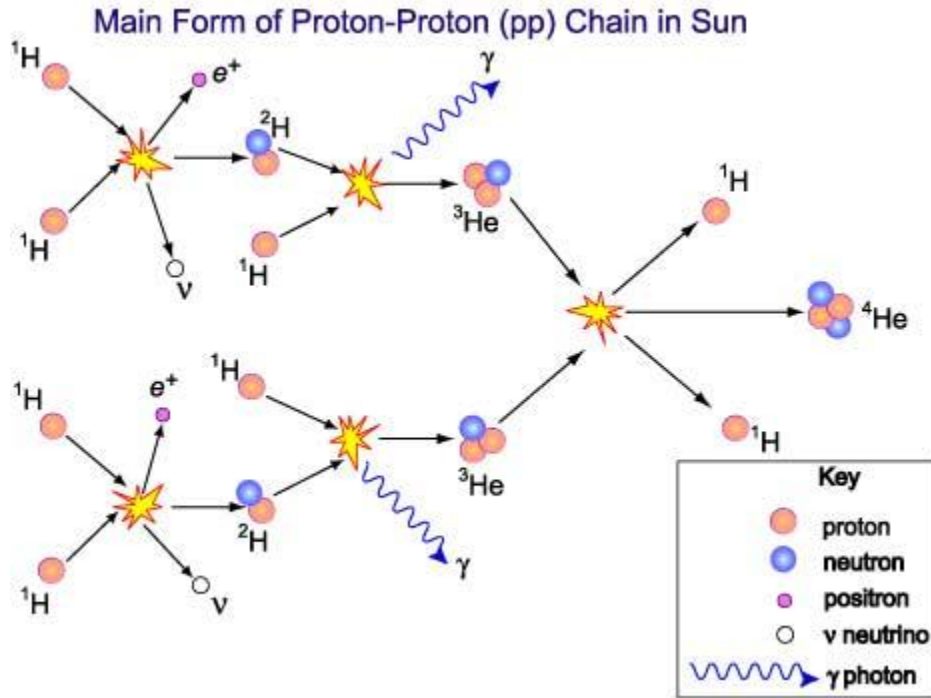
### Spectral Class Characteristics

Data from J. C. Evans, George Mason University

Spectral Class	Intrinsic Color	Temperature (K)	Prominent Absorption Lines
O	Blue	41,000	He+, O++, N++, Si++, He, H
B	Blue	31,000	He, H, O+, C+, N+, Si+
A	Blue-white	9,500	H(strongest), Ca+, Mg+, Fe+
F	White	7,240	H(weaker), Ca+, ionized metals
G	Yellow-white	5,920	H(weaker), Ca+, ionized & neutral metal
K	Orange	5,300	Ca+(strongest), neutral metals strong, H(weak)
M	Red	3,850	Strong neutral atoms, TiO

Find more information at <http://hyperphysics.phy-astr.gsu.edu/hbase/wien.html#c1>

## Nucleosynthesis – Hydrogen Fusion in Stars



## Nucleosynthesis – Higher Order Fusion in Massive Stars

