

TmARTSCIENCE YOUTUBE

ASTRONOMY

PROPERTIES OF STARS

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What we know about Stars

- Brightness or Luminosity
- Size
- Mass
- Motion
- Composition
- Temperature
- Distance *

Brightness of Stars

- Apparent Magnitude



– How bright a star appears

Brightness of Stars

- Absolute Magnitude



– The actual (true) brightness of star (10pc or 32 ly)

Stellar Size

- Diameter of Stars may vary from
 - $\sim 1 \times 10^4$ km (size of Planet)
 - $\sim 1.4 \times 10^9$ km (1000 X Sun)

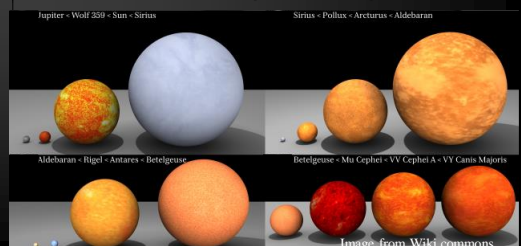
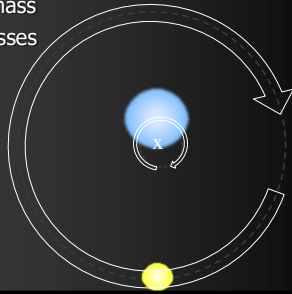


Image from Wiki commons

Stellar Mass

- 1/50 solar mass
- 50 solar masses



Stellar Motion



Stellar Motion

- Apparent Motion
 - Circumpolar- due to Earth's Rotation
 - Seasonal - Movement due to Earth's Orbit around Sun
- Actual Motion
 - Rotation
 - Orbit around other Star or object
 - Movement towards or away from Earth



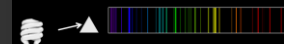
Stellar Composition

- Composition of stars known by studying spectra.

- Continuous



- Emission



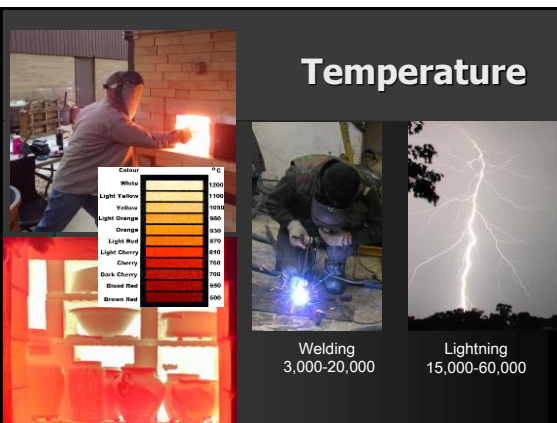
- Absorption



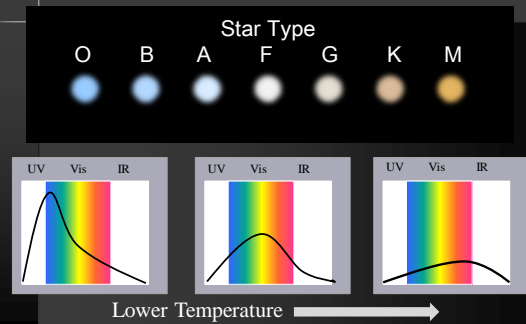
■ Most useful to study stellar composition



Temperature



Temperature and Color



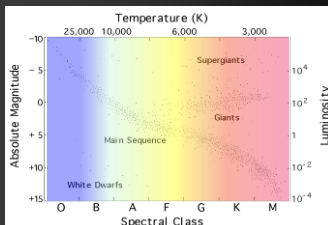
Stellar Temperature

- Color of Stars determines surface temperature
 - Blue is hot (30,000 K)
 - Red is cool (3,000 K)



Stellar Composition

- HR Diagram (Hertzsprung-Russell)
 - Graph of Absolute Magnitude and Color



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