

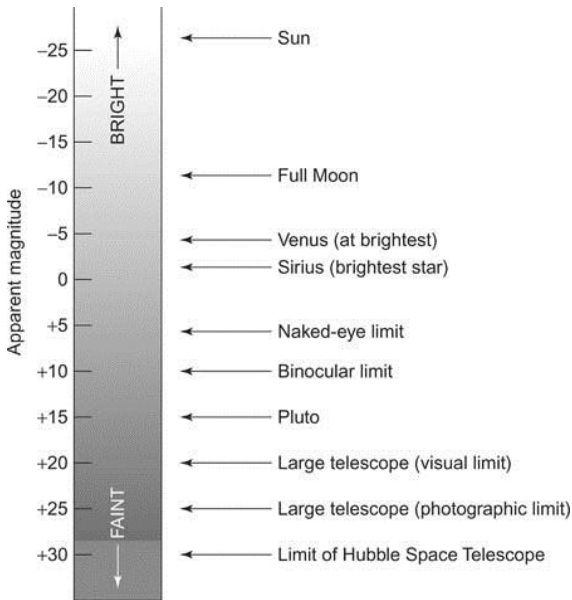
Stars

Some ways of characterizing stars:

_____:

- Called a stars _____.
- Measured as the amount of light energy given off per second by a star
- The _____ has a brightness of 1 while _____ has a brightness of 22.
 - o This means Sirius gives off _____ times as much light per second as the sun.

So why does the sun seem brighter to us?



Magnitude:

- The apparent magnitude is how bright an object _____.
- An apparent magnitude of 1 is considered the brightest star.
- Higher numbers are _____ stars
 - o The sun has an apparent magnitude of -27 while a star you can barely see with your naked eye has an apparent magnitude of 6.

But this doesn't take into account distance.

Magnitude:

- Because stars are all very different distances from earth we need a way to compare the _____ of them all.
- In order to do this we measure what their brightness would be if the star was _____ light years from earth.
- On this scale the sun's absolute magnitude would be 4.8 while Polaris would be -3.63. Remember that the smaller the number is the brighter the star.

Star	Apparent Magnitude	Distance(pc)	Absolute Magnitude	Luminosity (rel. to Sun)
Sun	-26.74	4.84813×10^{-5}	4.83	1
Sirius	-1.44	2.6371	1.45	22.5
Arcturus	-0.05	11.25	-0.31	114
Vega	0.03	7.7561	0.58	50.1
Spica	0.98	80.39	-3.55	2250
Barnard's Star	9.54	1.8215	13.24	1/2310
Proxima Centauri	11.01	1.2948	15.45	1/17700

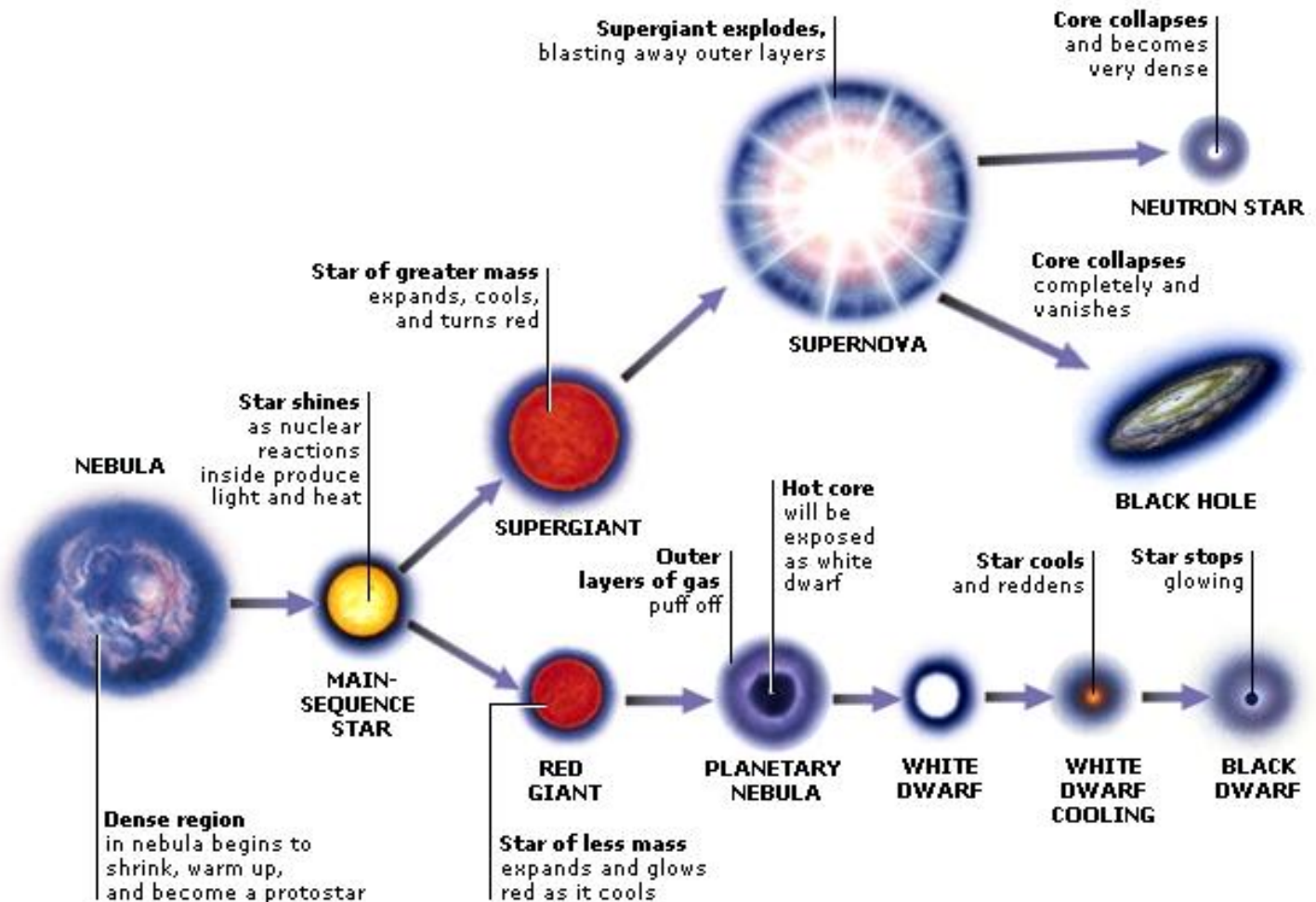
Star Colour and Temperature

- A stars' colour is dependent on its _____.
- Hotter stars are bluish to white while cooler stars are more _____
- We can tell the temperature of a stars _____ from the colour of light that it gives off.

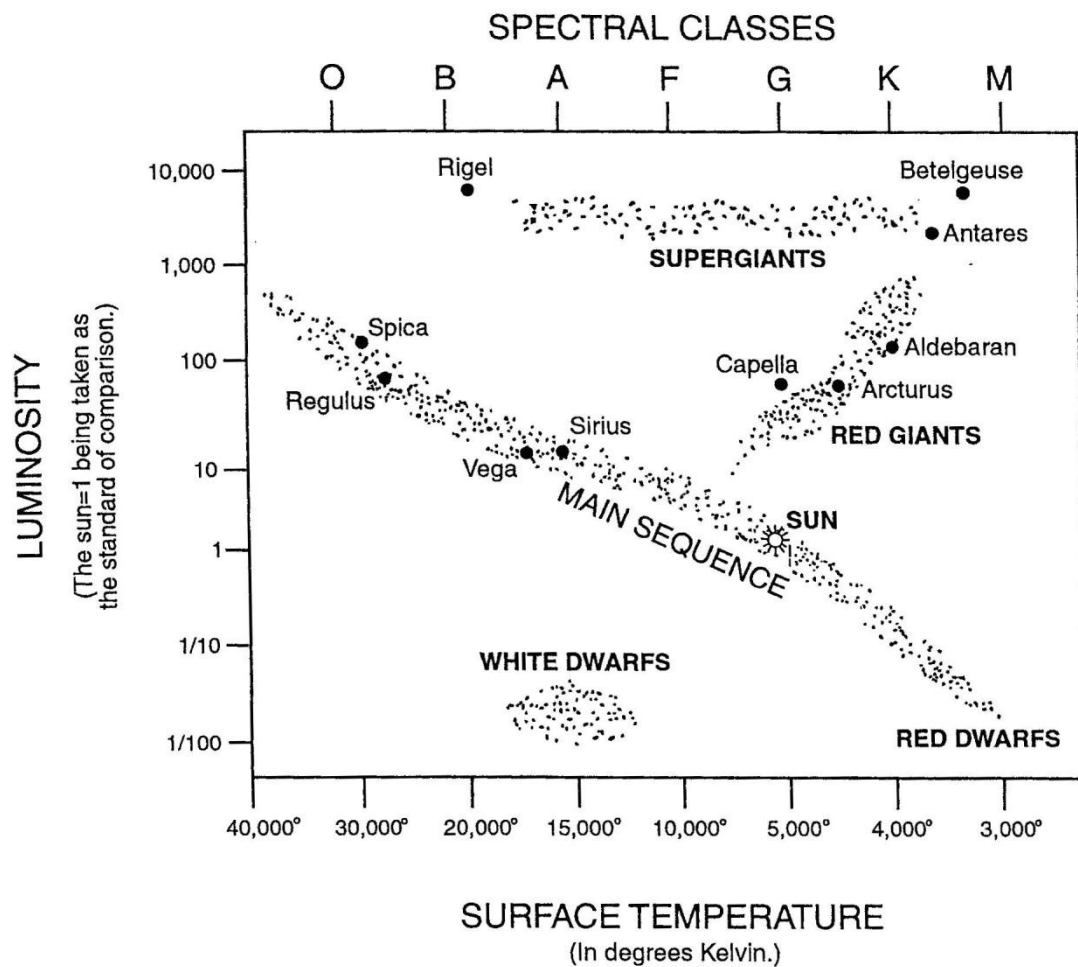


The life cycle of a Star

- Stars all begin their life as a cloud of gas and particles called a _____
- Each particle has some mass so its _____ attracts it to neighbouring particles
- These particles come together to form a larger and larger clump until the mass is so large that _____ is initiated in the core.
- Then it begins its life as a star.



- The star begins very bright with lots of _____ and is very _____.
- Over time as the star runs out of H and He fuel it fills up with _____ elements and starts to cool down. Over time it will go from a blue/white star to yellow and then to red.
- We can tell where a star is in its life cycle by the colour of light it produces.
- At the end of its life 3 things might happen to a star:
 - o If it is medium to small size it will cool off and become a white dwarf until it contains no energy and becomes a black dwarf (an extinguished star)
 - o If it is very large it may explode in a _____ throwing its particles across the galaxy.
 - o If it is extremely large it may explode in a supernova but be so large that its gravity pulls all the mass and energy back to a single point, forming a _____.



The chart above tracks the life cycle of a star.

- A typical star will follow the life cycle shown in a diagonal across the middle of the chart.
- These are called _____ stars. Our sun is one of them.

Please complete the following questions as review:

Pg 312 # 1, 2, 4-9 Pg 375 # 1-5, 7-11 Pg 382 # 4, 6, 10