Stars

The View From Earth

You have probably noticed, when looking at the sky at night, that some stars look as though they are grouped _____ into a distinct _____. Perhaps the best known star pattern in the northern hemisphere is the _____ _____.

The _____ _____ is actually just part of a larger star pattern known as _____ _____, which is itself a _____.

A constellation is a group of stars that, from Earth, have a recognizable form. Some other constellations are: _____, _____

_____, _____

Though you may think that the Big Dipper is a constellation, it is actually an _____, a smaller star pattern within a constellation.

Though star patters we see at night appear to be the same distance from Earth, they are actually not. When viewed from elsewhere these star patterns would not be visible.

How a Star Is Born

_____ stars form inside a collapsing _____, a cloud of dust and gases. This collapse can be triggered by the _____ attraction of a nearby star or the shockwave from an _____ star.

Inside a collapsing _____, the region with the _____ amount of matter will start to draw material towards it through _____.

The material falling inward to the _____ has excess _____ that causes the central ball of material to begin to _____. Extremely high _____ build up inside the ball, which in turn causes tightly packed _____ to heat up. As the _____ climbs, the core begins to glow. This is called a _____, a star in its _____ stage of formation.

Eventually, the temperature of the spinning _____ rises to _____ of degrees Celsius. This is hot enough for _____ reactions to start. Over tens of

thousands of years, the _____ from the core gradually reaches the star's outside and the star "switches on" and begins to _____.

The Life Cycle of Stars

The way in which a star evolves in its lifetime depends on the _____ it had when it originally formed. Stars fall into _____ general mass categories: low, medium and high.

Low Mass Stars

- Use their _____ much more _____ than more massive stars
- Can last for _____ _____ years
- With _____ gravity and _____ pressures than other stars, the _____ reactions in the core happen at a relatively _____ rate
- Shine _____ as small red stars called _____ _____
- The light of a _____ _____ stars dim and gradually grows _____
- As they burn out they _____ under their own _____
- _____ _____ eventually cool into smaller _____ _____

Medium Mass Stars

- Burn their fuel _____ than low mass stars
- Use their _____ up in about ____ _____ years
- Eventually, the star will _____ under its own gravity
- This process of _____ raises the _____ and _____ inside the star, and the star actually _____!
- As the star reheats, it expands rapidly into a _____ _____
- Eventually, even the _____ fuel burns out and the star collapses again and slowly burns out

High Mass Stars

- More than _____ times the mass of the Sun
- As _____ pulls matter into the center of the star, the _____ reactions accelerate making high mass stars _____, _____, and _____ than other stars
- Always come to a _____ end in less than _____ _____ years
- As the star collapses, it _____into a _____

- When the _____ fuel runs out the core _____ again and continues to go through many cycles of _____ and _____ as new elements including _____ are formed in its core

Supernovas: The Violent End of High Mass Stars

When _____ fuses, it does not release _____. If too much of the _____ of a high mass star is made up of _____, the star will "turn off" over a period of _____

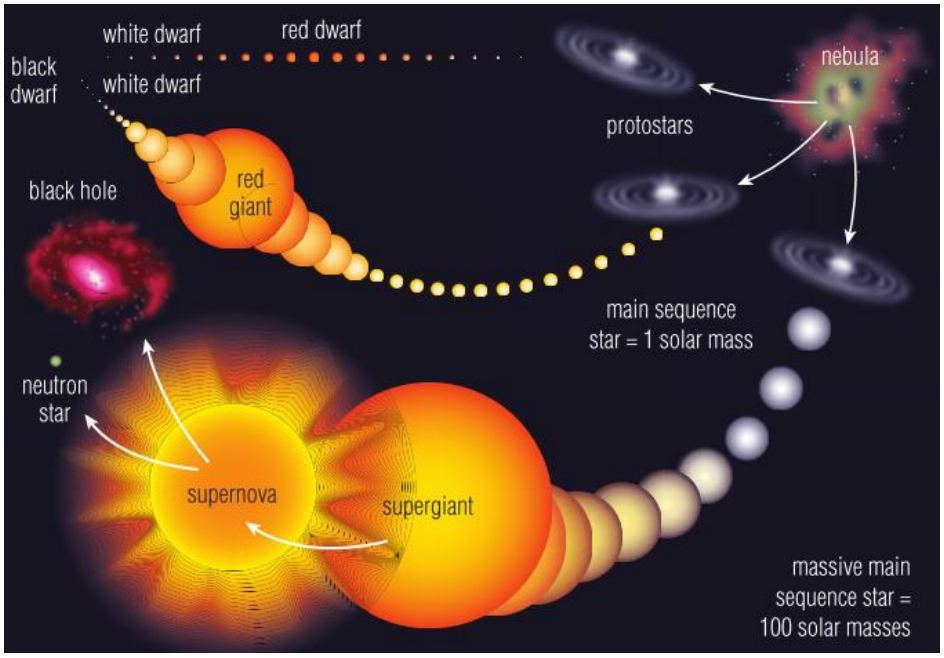
With no _____ left to produce heat energy, the star _____ one final time, so fast and intensely that the _____ of the star heats up to many hundreds of millions of degrees and explodes into a _____.

The explosion releases enough _____ to cause the _____ and other elements to fuse in various combinations. It is in this way that all of the _____ of the _____ _____ have been formed.

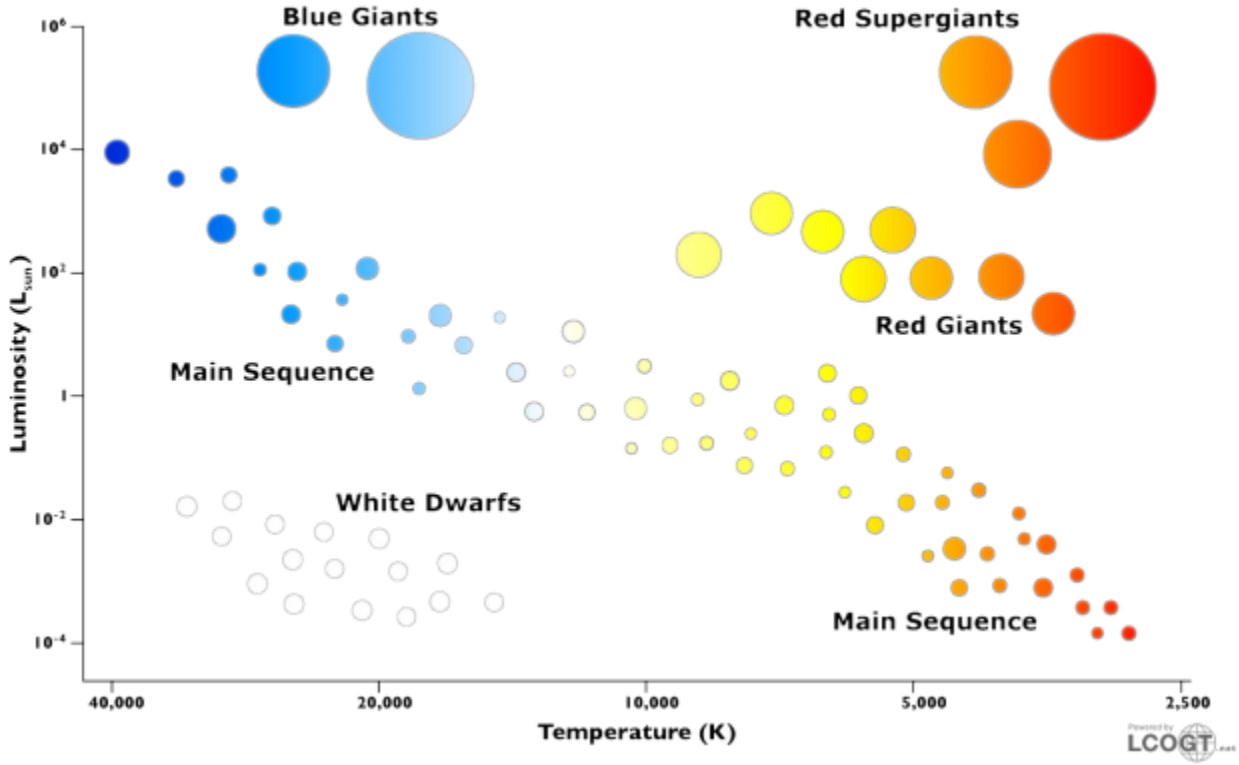
As the elements are sent out into space, some of the debris and elements from the old star create new _____ out of which new star and planet systems may form.

The star's remaining core after a supernova explosion will turn into either a _____ star or a _____ _____ depending on the mass of the original star.

Neutron Star	**Black Hole**
- Form if star was between ____ and ____ times the mass of the Sun - When an atom collapses it forms _____ - When the core of a star becomes a ball of _____ about 15 km across, it is called a neutron star - Neutron stars are made of the _____ material known	- Form if star was more than ____ times the mass of the Sun - After exploding, the star's core is under so much _____ force that nothing can stop its _____ - Results in _____ so great that space, time, light and other matter fall into a single _____



The Hertzsprung-Russell Diagram



Read pages 300 and 301 and describe the Hertzsprung-Russell Diagram in the space below.