Name: _____ Date: _____ Period: _____

Stars Life Cycle

(Web Quest)

Using the link below work your way through this worksheet. As you work you will learn about star formation and life cycle of stars.
http://sunshine.chpc.utah.edu/Labs/StarLife/index.html

OBJECTIVES

- I can describe the process of star formation
- I can identify different stages of the star life cycle
- I can explain how elements are created
- I can Describe fusion and the role it plays in stars

STUDYING STARS

- The brightness of a star as seen from earth is called its _____.
- _____ is how bright the star actually is.
- Astronomers can determine a star's temperature by _____
- Hot stars are _____ and cool stars are _____
- Play the observation simulation and describe…
    - What patterns and groupings of stars appearing in your data? (Size, color, temperature lumosity)
        -
    - In what areas of the chart do you get a lot of stars?
        - _____
    - What parts of the chart have very few stars?
        - _____
- As a star ages its _____
- The more _____ a star is, the _____ it burns through its supply of fuel
- How long can a red dwarf stars live _____
- Most of the matter in the universe is made up of _____
- In order to get other elements, they must be built out of _____ through _____, which occurs within stars
- Fusion takes tremendous amounts of _____and _____ to occur, and the bigger the new atom, the more _____ the reaction requires. _____ elements, like iron, can only be created in the most _____ stars

PROTOSTARS AND NEBULAE

- What is the interstellar medium? _____
- What is a nebula? _____
- What material is need to for stars? _____
- A star is not truly a star until it can fuse _____ into _____
- A _____ is formed as _____ begins to pull the _____ together into a ball.
- What energy pulls gasses together and begins to heat them up? _____
- What is the result of heating up the gasses? _____
- What temperature must a protostar reach to become a real star and start the hydrogen fusion process? _____

- Where do stars spend most of their life? _____
- A star that never reaches _____ to start hydrogen fusion is called a _____

MAIN SEQUENCE

- Main sequence stars like our sun have a _____, _____ core where _____ is _____ into _____. This heat is transported outwards toward the surface of the star through _____ and _____.
- Describe in your own words what ***Equilibrium in a Star*** means: _____
- Stars at equilibrium are found in the _____
- Most of the energy from a main sequence star is created by fusing hydrogen in a process known as the _____
- Describe in your own words how the **proton-proton chain** usually happens in our Sun

OLD STARS

- Once a star has exhausted its supply of _____ in its core, leaving nothing but _____, the outward force created by _____ starts to decrease and the star can no longer maintain _____
- The _____ a star's mass, the slower the _____ reactions inside it and longer it stays on the_____
- Describe a **Red Dwarf** star: _____
- Describe **Red Giant Stars** include the processes that are taking place inside the star

- Describe a ***Supergiant*** star include the internal processes that are taking place. Be sure to include how heaver materials are created and list them in order from the surface of the star to its core.

STELLAR REMNANTS

- Where do **planetary nebula** come from?

  _____
  _____
  _____

- What material other than hydrogen can be found in a planetary nebula?

  _____
  _____

- For a planet to be created in a **planetary nebula** what needs to happen?

  _____
  _____

- Where do **White Dwarfs** come from? _____
  _____

- Describe the electron degeneracy pressure and the role it plays in a **White Dwarf**

  _____
  _____

- White dwarfs are very _____ and _____, but very _____.
- Describe the formation of a **Supernova**: _____
  _____
  _____
  _____

- The tremendous amounts of _____ released in a **supernova** are enough to _____ additional particles into the nuclei of _____ elements such as _____ and _____.
- Once a supernova has subsided, the _____ and _____ forms a large nebula where new _____ can form.
- Describe in your own words the process that leads to a **neutron star**

  _____
  _____
  _____
  _____
  _____

- While a _____ dwarf may be the size of the _____, a _____ star may be only _____ kilometers across
- **Neutron stars** _____ very _____. Some of these stars _____ beams of _____ radiation out of their magnetic poles
- If beams from a neutron star pass over the Earth, they appear as a constant _____ of _____ and _____ waves. These neutron stars are known as _____
- Describe a **Black Hole** and how and how they comes to be.

  _____
  _____
  _____

- A Black hole is so _____ and so _____ that not even _____ can escape from its _____
- As this _____ is drawn into the black hole, it begins to _____ around it like a _____.