Week 7 Virtual Binder Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per \_\_\_\_

Sjuts Office Hours: Tuesday-Friday 2:30-3:30 P.M. → <https://lps.zoom.us/j/188685904>

Smith Office Hours: Monday/Wednesday 12:30-1:30 P.M. and Friday 12:00-1:00 P.M → <https://lps.zoom.us/j/8246353539>

Objectives: Text Key Concepts

|  |  |  |
| --- | --- | --- |
| 5. Compare & contrast the properties of different stars. | GS 30.2- 30.3 | Magnitude, Temperature, Brightness, Luminosity, Mass, Composition, HR Diagram    b=L/(4πd2), λT=2.90\*10-3 m\*K |
| 6. Sequence & summarize the processes in the life cycle of the stars. | GS 30.3 | Nebula, Protostar, Main Sequence Star, Red Giant, Super Red Giants, White Dwarf, Black Dwarf, Red Dwarf, Neutron Star, Black Hole, Element formation |
| 7. Compare relative distances and sizes of astronomical entities. | GS 30.2 | Astronomical Unit, Light year, Parsec, Relative distances between/radius of: Planets, Stars, Galaxies, Universe |

Week 7 Virtual Binder Objective Work:

|  |
| --- |
| Objective 5: |
| Objective 6: |
| Objective 7: |

Objective 5 Tasks:

* Read Ch 30.2 and use the Properties of Stars slides to supplement
* Complete Properties of Stars Notes

1. Distance
   1. Describe how astronomers use parallax to find distance. Insert an image. What limits the use of parallax?
   2. What are common units of distance in astronomy? (see objective 7)
2. Mass
   1. Describe how astronomers determine the mass of stars in the binary using binary stars.
   2. How common are binary stars in the Milky Way galaxy?
3. Temperature/Color
   1. Describe two ways a flame is similar to stars.
   2. What color star has more energy? Less energy?
4. Brightness
   1. Apparent Magnitude –
   2. Absolute Magnitude –
   3. What is a limiting factor of absolute magnitude?
   4. Luminosity (L) –
   5. Apparent Brightness (b) –
   6. Compare and contrast luminosity and apparent brightness. Include units.
   7. Insert an image of a Hertzprung-Russell Diagram. You will use the image to answer the questions below.  
        
        
        
        
        
        
      1. What factor affects the color of a star?
      2. What factors affect the luminosity of a star?
      3. What is the approximate surface temperature of the sun?
      4. Is the surface temperature of white dwarf stars higher or lower than red supergiants?
      5. List the color of the stars from hottest to coldest:
      6. Most of the stars on the HR Diagram are classified as which type of star?
      7. What type of star has a high temperature but a low luminosity?
      8. What type of star has a low temperature but a high luminosity?
   8. Variable Stars –
      1. Cepheid Variables –
      2. Nova –

Objective 6 Tasks:

* Watch the [Life and Death of a Star](https://live.myvrspot.com/iframe?v=fMjEwOGYyYzc2ZmJlOGYwZjdkMmEyMzNkZDI5OTUwNGE) and use Ch 30.3 and the Star Life Cycle slides to supplement
* Complete the Star Life Cycle Practice

**Section One - Sequencing**

The stages below are not in the right order. Number the stages in the correct order.

\_\_\_\_\_ The star begins to run out of fuel and expands into a **red giant** or **red super**

**giant**.

\_\_\_\_\_ Stars start out as diffused clouds of gas and dust drifting through space. A single

one of these clouds is called a **nebula**

\_\_\_\_\_ What happens next depends on the mass of the star.

\_\_\_\_\_ Heat and pressure build in the core of the **protostar** until **nuclear fusion** takes place.

\_\_\_\_\_ The force of gravity pulls a nebula together forming clumps called **protostars**.

\_\_\_\_\_ Hydrogen atoms are fused together generating an enormous amount of energy igniting the star causing it to shine.

**Section Two - Vocabulary**

Match the word on the left with the definition on the right.

**\_\_\_\_ black dwarf** **e.** star left at the core of a planetary nebula

**\_\_\_\_ white dwarf** **g.** a red supergiant star explodes

**\_\_\_\_ nebula c.** what a medium-mass star becomes at the end of its life

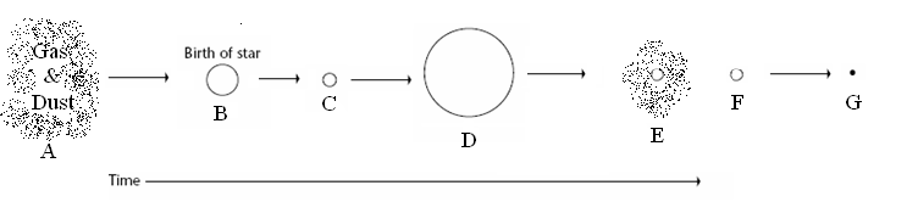
**\_\_\_\_ protostar b.** a large cloud of gas or dust in space

**\_\_\_\_ supernova** **a.** exerts such a strong gravitational pull that no light escapes

**\_\_\_\_ neutron star d.** the earliest stage of a star ’s life

**\_\_\_\_ black hole f.** the remains of a high mass star

**Section Three – Understanding Main Ideas - Low Mass Star**



**\_\_\_\_ 1.** Red giant

**\_\_\_\_ 2.** Where fusion begins

**\_\_\_\_ 3.** Nebula

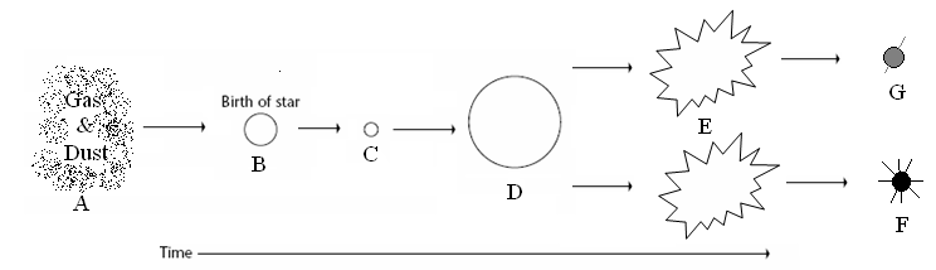
**\_\_\_\_ 4.** Black dwarf

**\_\_\_\_ 5.** The stage the sun is in

\_\_\_\_ **6.** White dwarf

\_\_\_\_ **7**. Planetary Nebula

**Section Four – Understanding Main Ideas - High Mass Star**

****

**\_\_\_\_ 1.** Black Hole

\_\_\_\_ **2**. Supernova

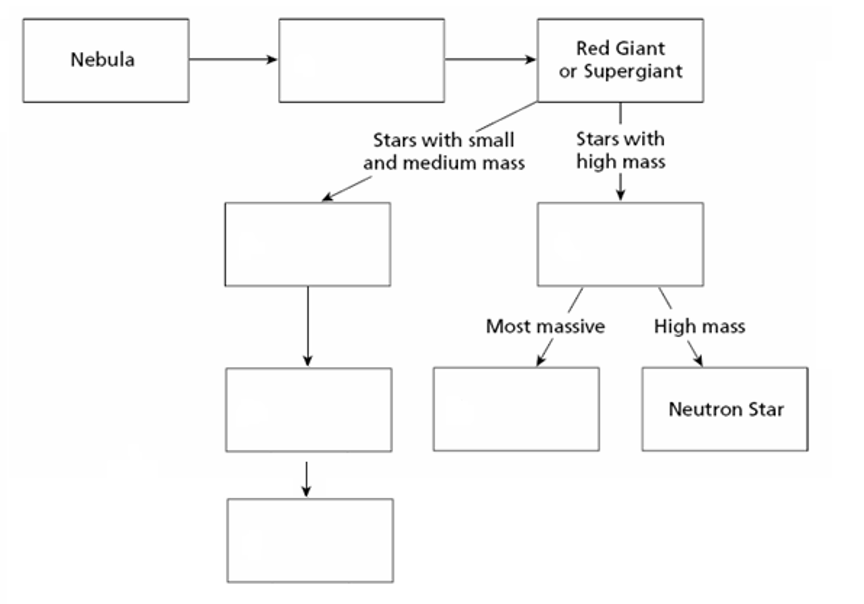
\_\_\_\_ **3**. Protostar

\_\_\_\_ **4**. Gravity causes this to condense into a protostar

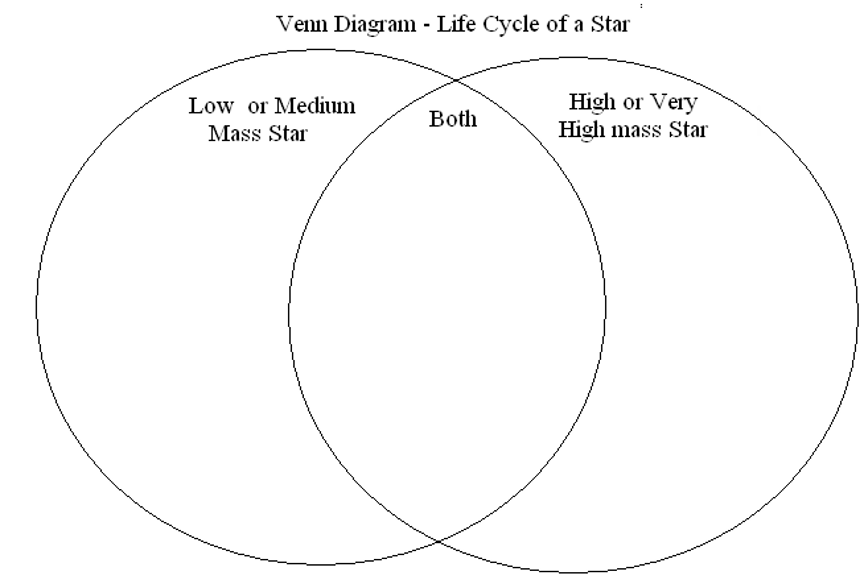
\_\_\_\_ **5**. Main sequence star

\_\_\_\_ **6**. When a star begins to run out of fuel and grows larger

\_\_\_\_ **7**. Neutron star

**Section Five – Graphic Organizer – Putting it all Together  
**

**Section Six – Venn Diagram - Compare and Contrast**



Objective 7 Tasks:

* Investigate the Scale of the Universe [animation](http://htwins.net/scale/). Allow Flash!

|  |
| --- |
| Reflect: What surprised you? What interested you? What was cool? |