**The Universe: Life and Death of a Star**

Use these questions as supplementary notes for the **Stellar Life-Cycle and Classification Sub Unit (Chapt 3)**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. **The “Pillars of Creation” are really made up of what substance?**
2. **The key element found in stars is \_\_\_\_\_\_\_\_\_\_\_\_.**
3. **Which force is required in order for the gas and dust to contract into a sphere?**
4. **The earliest phase of a star, when the gas and dust coalesce into a sphere is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
5. **What process powers a star throughout its life cycle?**
6. **Stars spend the majority of their life cycle in this stage (90%). Our sun is in this stage and is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ star. During this stage a star is in equilibrium, where gravity is equal to the force of fusion.**
7. **What characteristic/variable of a star indicates its temperature?**
8. **If a star has a surface temperature much greater than our sun (~45,000 F), and is 20 times larger than our sun, it is considered a:**
9. **Which stars live the longest? Stars with lower mass or stars with higher mass?**

**10.) How long is our Sun expected to live?**

**11.) Once all the hydrogen has been converted to helium in the main sequence stage, what happens?**

**12.) What is the next element that begins to fuse in this next stage of a stars life cycle?**

**13.) After this gas is burned, the outer layers of the giant shed and is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**14.) When a low- average mass star uses up all of the initial helium or heavier elements to fuse it will collapse into a \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_.**

**15.) How big is a white dwarf?**

**Massive Stars:**

**16.) Supermassive stars will fuse heavier elements up until Iron. Iron will not fuse further into other elements, therefore there is a collapse within the star’s iron core. This results in the formation of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**17.) The elements that make up our bodies really came from what?**

**18.) In massive stars, electrons and protons combine to form neutrons. The type of star created is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**19.) These stars are so small and compact, about \_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_ times our sun. The neturons cannot hold up and are crushed into a \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**20.) When a star is SO MASSIVE, about \_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_ times our sun, the neutrons again can not hold up, but this time, collapse into a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_.**

**Summary Questions:**

**21.) All stars start out as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**22.) Most stars spend their life as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ stars.**

**23.) White dwarfs, neutron stars, and black holes all occur at the (end, beginning, or middle) \_\_\_\_\_\_\_\_\_\_\_ of a stars life.**

**24.) Initial mass of a star determines how \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the star burns through its fuel, and thus, it’s life span.**