ESS 100 (Stapleton) Name: Key

Practice Quiz: Medium Star Life Cycles

1. What process gives stars their energy?

Nuclear fusion

2. What is a star's main fuel?

Hydrogen

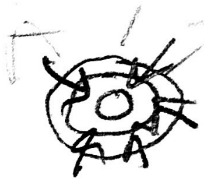
3. What new substance is produced inside a star when that fuel is used up?

Helium

4. Put these star life stages in order, from earliest to latest:

3 2 1 4 5 6

Main Sequence Star, Protostar, Nebula, Red Giant, White Dwarf, Black Dwarf



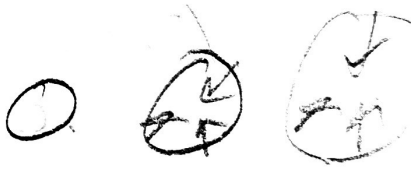
5. Describe the source of energy for each of these stages in a star's life:

a. Red giant (2 sources)

1) Helium Fusion in core
2) Hydrogen Shell fusion

b. White dwarf (1 source)

Compression



c. Main sequence star (1 source)

Hydrogen Fusion in Core

6. a. How is a star's temperature related to its mass?

Hotter → More Mass
Cooler → less mass

b. Explain why a star's temperature is related to its mass in this way.

More mass → More gravity → More Compression → Higher temp

7. Where does the helium in a medium star end up, and why does it go there?

Center, because it is more dense or because it fuses in the core.

8. When our Sun becomes a red giant why will it turn red?

It's cooling down on the surface

9. When our Sun becomes a red giant why will it get bigger?

Heat from fusion is making the outer layers expand outward.

10. When our Sun becomes a white dwarf why will it turn white?

a. What happens to its temperature?

It heats up

b. Why does the temperature change?

It's core compresses

11. Approximately how many years does the Sun have before it turns into a red giant?

5 Billion Years

