Name:_____ Date:_____ Period:_____

Our Star: Review Guide

Astronomy

1. Describe how ancient thinkers explained sunshine. What did scientists in the mid-1800's find out was wrong with previous explanations?

2. What did Einstein's Special Theory of Relativity show was responsible for the thermal energy generated in the Sun?

3. What is the process that is responsible for generating the Sun's energy?

4. Where in the Sun does nuclear fusion occur? What two conditions are present there that enable fusion to occur?

5. Identify the reason and explain why the center of the Sun stays hot.

6. What is the general state of matter of the Sun? Describe what makes this state of matter different from other gases.

7. What are the two main elements in the Sun (and their percentages)?

8. How do we know the composition of the Sun?

9. How much larger is the Sun compared to Earth? (use radius and mass to describe)

10. Identify each solar layer based on the description:
    a. _____ - the, hottest layer of the atmosphere, extends several million km above visible surface.

b. _____ - middle layer of solar atmosphere, emits UV radiation.

c. _____ - The visible surface of the Sun

11. The layers in #10 are all part of the sun's _____.

12. Identify each solar layer based on the descriptions:
    a. _____ - where hot gas rises and falls.

    b. _____ - where energy moves outward in the form of photons; emits intense x-ray radiation.

    c. _____ - where nuclear fusion occurs.

13. Out of all 6 layers of the Sun, which is the hottest?

14. Define:
    a. nuclear fusion:

    b. Deuterium nucleus:

    c. Neutrino:

15. The sun transforms _____ into _____ during the process of nuclear fusion.

16. Describe the four steps of nuclear fusion that is occurring in the sun. Draw a diagram of each step.

17. Decide whether the statement makes sense (or is clearly true) or does not make sense (or is clearly false). Explain clearly.

    If fusion in the solar core ceased today, worldwide panic would break out tomorrow as the Sun began to grow dimmer.

18. The “solar cycle” is the rising and falling in the number of _____ seen on the surface of the Sun.

19. How many years are between solar maximums? How many years are between solar minimums?

20. Describe the following:
    a. Sunspot-
    b. Solar Flare-
    c. Coronal Mass Ejection-
    d. Solar Wind -