

/STELLAR EVOLUTION WEBQUEST

4

Go to the Life & Death of Stars website (address is just below.) Answer the following questions as you read the information on this website. BE CAREFUL TO TYPE IN THE WEBSITES ACCURATELY!

http://map.gsfc.nasa.gov/m_uni/uni_101stars.html

1. Where are stars born?
2. What do they form when the nebula collapses?
3. What is the initial source of energy for the collapsing star?
4. Once the central core becomes hot enough, what is the core doing to become a main sequence star?

Main Sequence Stars

5. What is a main sequence star?
6. What color are more massive stars?
7. Do high mass stars exhaust their supply of hydrogen faster or slower than less massive stars?
8. What happens to a star as it exhausts its supply of hydrogen?

Death of an “Ordinary Star

9. Nuclear fusion no longer goes on in the core. Where is it happening?
10. At that time, what stage will the Sun become?
11. What will happen to Earth?

Name _____
Date _____ Per _____

12. What happens to the core? Why?

13. What is “burning” now in the core?

14. What stage will the Sun become next?

15. What is left behind?

16. What eventually becomes of the core of our Sun?

Death of a Massive Star

17. What elements does it start to “burn” after helium is gone? (Name them all in order)

18. What happens to the iron core?

19. How bright is a supernova?

20. How much mass does a star need to form a neutron star?

21. What happens to stars that are larger than the ones that form neutron stars?

Click on White Dwarfs at the bottom of the page--

http://chandra.harvard.edu/xray_sources/white_dwarfs.html

Be sure to read pages 1 & 2 (at the bottom) in order to find the answers to these questions.

22. When will the Sun become a Red Giant (look at the illustrations & notice the relative sizes of the Sun now, as a Red Giant, & Earth)?

Name _____
Date _____ Per _____

23. Again, look at the next illustration and note the relative sizes. When will the sun become a White Dwarf?

24. Finish this statement: “In the white dwarf state, all the material contained in the star... will be packed into a volume 1 millionth the size of the original star. An object the size of an olive made of this material would have the same mass as an automobile !”

Go back to Life & Death of Stars website.

http://map.gsfc.nasa.gov/m_uni/uni_101stars.html

Click on Neutron Stars

http://map.gsfc.nasa.gov/m_uni/uni_101stars.html

Be sure to read pages 1 – 3 (you can skip pp. 4, 5, & 6)

25. What happens to the atoms in a neutron star?

26. What would happen to your spacecraft if you could travel to a neutron star? Why?

27. If the gravitational force didn't do you in, what else would?

Go back to Life & Death of Stars website

http://map.gsfc.nasa.gov/m_uni/uni_101stars.html

Click on Black Holes

http://chandra.harvard.edu/xray_sources/blackholes.html

Then click on Stellar (Be sure to read pages 1 – 3 to answer the questions.)

28. How much mass is required for a stellar black hole to form?

29. Place the cursor over “black hole” and answer the question: What is a black hole?

30. What happens to anything that passes beyond the event horizon?

Name _____

Date _____ Per _____

31. How do astronomers see a black hole?

32. How do black holes grow?