Earth Science 11 Unit 1 Worksheet

Part 1.

1. Constellations are groups of _____.

2. Constellations which are continuously visible above the North Pole are called _____ because they _____.

3. The Earth rotates on its axis from _____ to _____.

4. The North Star is called _____. It is located almost exactly above the axis of the _____.

5. The North Star is in the constellation _____.

Part 2.

6. An astronomical unit (AU) is about _____ km.

7. The next closest star, other than the sun is _____.

8. A light year is _____ km.

Part 3.

9. The sun has a diameter of _____ km, and a density about _____ times that of water.

10. Betelgeuse is only one ten-millionth as dense as the _____.

11. Cool stars are _____ in colour than hotter stars. Hotter stars are _____in colour.

12. A red hot star might have a surface temperature of only _____.

13. The temperature of our sun is _____.

14. Blue hot stars have a surface temperature of _____.

Part 4.

15. The brightest star in the sky is _____. It has a magnitude of _____.

16. The brightness of a star as seen from earth is called _____. The true brightness of a star is known as _____.

17. The difference between the brightness of a first magnitude star and a second magnitude star is about _____ times.

18. Absolute magnitude is the brightness of a star if it was placed _____ from the sun.

Part 5.

19. The sun is a yellow star in the _____ or stable state.

20. Giants and supergiants are cooler, but because of their size are highly _____.

21. Antares and Betelgeuse are examples of _____ stars.

22. Less luminous stars are called _____ stars. Their absolute magnitude is never greater than _____.

23. A special type of dwarf star is the _____ dwarf. It is very faint and very tightly packed, often 100,000 times more _____ than the earth, yet the same size.

Part 6.

24. The huge clouds of dust between the stars are about _____ % gas.

25. Most of this gas is _____.

26. The clouds of gas and dust are known as _____.

27. The Great Nebula is in the constellation _____.

28. A nebula that is not near a star is called a _____.

29. Large glowing clouds of gas which will eventually become stars are known as _____.

30. Fusion begins at the centre of a new star when the gas and dust continues to _____.

31. Yellow stars like our sun take a few _____ years to contract to a stable state.

Part 7.

32. In a stable star, the contraction due to gravity and the expansion due to nuclear fusion are _____.

33. Stars can stay stable for _____ of years.

34. Once the star loses much of the _____ atoms in the core, which are replaced by _____, it loses its _____.

35. The star expands to become a _____.

Part 8.

36. When most of the fuel for the fusion reaction is used up the star collapses and forms a _____.

37. The _____ are squeezed tightly together, so the _____ is very high, even though the size is about that of Earth.

38. The star gets very dim because most of its _____ is gone. It can continue to shine faintly for _____ years.

39. A white dwarf which flares brightly is called a _____.

40. Our sun is believed to be _____ years old.

41. Eventually, our sun will swell to a _____, then collapse to a _____.

Part 9.

42. White dwarves form from stars of about the same mass as the _____.

43. A massive red giant explodes violently as a _____ to form a _____ star.

44. Supernovas may be _____ times more luminous than the sun.

45. Chinese astronomers are believed to have observed a supernova in _____.

46. The supernova they saw is now known as the _____.

Part 10.

47. A collection of thousands or millions of stars is called a _____.

48. The _____ is the galaxy which we are in.

49. There are _____ stars in our galaxy.

50. The diameter of our galaxy is about _____.

51. The Andromeda Galaxy is a nearby galaxy, about _____ light years away.

Part 11.

52. The three main types of galaxies are _____, _____, and _____.

53. Describe each type.

Part 12.

54. Explain the Big Bang Theory of the creation of the universe.

55. The universe is thought to be _____ years old.

56. What evidence is there for the Big Bang Theory?

Part 13.

57. In the space below, draw the Hertzsprung-Russell Diagram. Be sure to show all the major features. Also show how a star moves from the main sequence, through the giant or supergiant stage into the white dwarf stage of its life.