Space 3- Non-Planet Objects Continued

**Exoplanets**

1. **Extrasolar** Planets or **exoplanets** are planets found outside of our solar system.

2. One way that astronomers detect stars that may have possible exoplanets is to watch for **slight** **movement** of the star in response to having a planet circling it.

3. **Astrometry** detects exoplanets by looking at a star’s **wobble**.

4. Astrometry is somewhat unreliable because of the effects of the **Earth**.

5. **Radial** **Velocity** **Method** uses the **Doppler** method to measure differences in distance between the Earth and a star thought to have an exoplanet.

6. **Photometry** is used to identify stars with exoplanets by measuring tiny changes in the intensity of light when a planet passes in front of the star.

7. **Infra**-**red** telescopes are used to find exoplanets by their heat signature.

**Galaxies**

8. A **galaxy** is a massive cluster of stars.

9. There are three basic shapes of galaxies: **irregular**, **spiral**, and **elliptical**.

10. **Irregular** galaxies consist mainly of young stars.

11. **Spiral** shaped galaxies are disk shaped and consist mainly of middle-aged aged stars and a moderate amount of cosmic dust.

12. **Elliptical** galaxies can be shapes varying from round to flat and consist mainly of older stars and have little dust or galaxies.

13. Galaxies are continually **moving** **away** from each other.

14. The light from a star or object moving away from us would be experiencing **redshift**.

15. The light from a star or object moving toward us would be experiencing **blueshift**.

**Life Cycle of Stars**

16. Stars start as clouds of dust and gas called **stellar** **nurseries**.

17. The first stage of a star is the **protostar** which is when stellar masses form and begin to produce heat.

18. When nuclear fusion begins, the star ignites beginning the star’s phase, the **main** **sequence**.

19. What happens to a star after its main sequence depends on the star’s **mass**.

20. Medium density stars, like our sun, shrink into a **white** **dwarf**.

21. Before a star collapses into a white dwarf it first expands into a **Red** **Giant**.

22. Red Giants expand to many times its size as it begins burning up its **helium**.

23. The dust and gases from the collapsed Red Giant form a **Planetary** **Nebula**.

24. Larger density stars collapse so quickly that they explode in an explosion called a **Supernova**.

25. Some cores from Supernovas collapse, compressing electrons and protons into neutrons, from a **Neutron** **Star**.

26. Some of the Neutron Stars spin rapidly, emitting radio waves. These stars are called **pulsars**.

27. Super dense stars, more than ten times bigger than our sun, will collapse upon itself forming a **singularity** or **black** **hole**.

**Milky Way:**

28. There are between **200** billion and **400** billion stars in the Milky Way.

29. Our galaxy is called the Milky Way because it has a **hazy** look in the night time sky.

30. From the outside of our galaxy, the Milky Way looks like a **spiral** with a **band** across the middle.

31. Our Milky Way is called a **Barred** **Spiral**.

32. What is a galactic year? The time it takes for the sun to **orbit around the center of the galaxy**.

33. How many major arms does the Milky Way spiral have? **4**

34. Where is the Milky Way Galaxy’s Halo? **Outside the disk**.

35. It is thought that there is a black hole in the **center** of the galaxy.

36. Our sun is found in the **Orion** **Arm**.

**Outer Solar System**

37. What are all objects orbiting the sun beyond Neptune known as? **Trans**-**Neptunian** **Objects**

38. What is the Oort Cloud thought to be composed of? **Billions** **of** **small** **objects** **like** **comets**.

39. What are charged particles emitting from the sun called? **Solar** **wind**

40. Pluto, Charon, and Quaoar are all members of the **Kuiper** **Belt**.

41. **Orcus**, **Quaor**, and **Varuna** are other larger Kuiper Belt objects.

42. Just after the Kuiper Belt are scattered objects called the **scattered** **disc**.

43. The largest dwarf planet in the solar system is **Eris**.

44. One of the reddest bodies in the solar system is **Sedna**.