**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_**

**Journey to the Edge of the Universe Movie Notes**

1. \_\_\_\_\_\_\_\_\_\_\_ men have walked on the moon.

2. The moon is about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ miles from Earth.

3. The first footprints are still there because there is no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_air to change them.

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is about the same size and gravity of Earth. The clouds are made of sulfuric acid and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

5. It’s hot on Venus, about \_\_\_\_\_\_\_\_\_\_\_\_\_\_ degrees F.

6. All the CO2 traps the sun’s heat, which creates a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ greenhouse effect.

7. Everything we do depends on the sun. It takes the sun’s light \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to reach us, and 8 million Earth’s can fit inside it.

8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contain organic material, and may have delivered it to the Earth a long time ago.

9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a dead planet. The things that make Earth livable died out years ago here. There is wind on Mars, and where there is wind, there is \_\_\_\_\_\_\_\_\_\_\_\_\_. All the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on Mars is frozen.

10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ is the largest volcano in the solar system, 3x higher than Mt. Everest.

11. The key to life is \_\_\_\_\_\_\_\_\_\_\_\_.

12. The rover \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is finding evidence that the plains are ancient lakes or oceans that could have supported life.

13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are about the same age as our Earth, indicating that Earth were formed about the same time.

14. The great red spot is the largest \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the solar system, and has been going for at least \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ years.

15. Flying a plane to Jupiter would take \_\_\_\_\_\_\_\_\_\_\_\_ years.

16. Europa has ice that may be floating on liquid water. It’s not frozen solid because Jupiter’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is causing the crust to heave.

17. Saturn is so light, that it would float on \_\_\_\_\_\_\_\_\_\_\_\_\_\_. The rings are the remnants of a shattered \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ once orbiting Saturn.

18. Neptune is made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gas. It’s moon \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is getting ripped apart by the mother planet.

19. The first solar system other than our own would take a 150,000 year ride in the space shuttle.

20. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the measure of distance in interstellar space.

21. \_\_\_\_\_\_\_\_\_\_\_\_\_ LYs from earth, planets are being born before our eyes.

22. There are asteroids and comets everywhere. The comets could be delivering the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of life to the young planets.

23. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ LYs from earth, Gliza 518 is about the same age as our sun. The intelligent life that could exist there could be watching our TV shows from years ago, but we have no way of communicating with them.

24. We can prove that stars have planets by looking at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between them.

25. It takes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ LYs to reach one of the very first radio broadcasts that left Earth.

26. Deep inside the MW, the seven sisters lie. Betleguise is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_times wider than our sun, and the brightest, biggest star we’ve seen in the program so far.

27. In the constellation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, stars is being born!

28. Nebulas are vast glowing clouds of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ just hanging in space.

29. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are the building blocks of the universe, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are the building blocks of life on earth.

30. All elements were created by nuclear \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

31. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is small, white, hot, and very dense. A tsp would weigh one ton!

32. Our sun will become a white dwarf in about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ years.

33. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nebula is 6000 lys from home, and is considered a stellar graveyard. It’s the result of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which turned the star into dust and gas.

34. The Crab Nebula has a pulsar in the center, which is extremely dense. It spins 30 times a second. There’s more radiation here than on the sun.

35. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the remains of a giant star. Far denser than the pulsar, its gravity is so \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, not even light can escape. Rules of physics collapse inside black holes. There doesn’t seem to be any matter in the center.

Note: At this point we have not even left the MW!

36. 7000 Lys from home. The pillars of creation are really a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where stars are being created.

37. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the most violent star death of them all. It becomes a black hole as it rips its outer layers out into space.

38. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ could make up 90 percent of the universe. We think dark matter is holding it in place because it’s not spinning off into space.

39. \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are created as the result of a supernova.

40. 2.5 million LYs away is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The vision we have of it is millions of years old!

41. At \_\_\_\_\_\_\_\_\_\_\_ billion LYs, were starting to get to the known edge of the universe.

42. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the deadliest thing in the universe. It’s a caldron of superheated gas. Its heart is as heavy as a \_\_\_\_\_\_\_\_\_\_\_\_\_ suns! It can rip apart whole stars and devour them.

80 billion trillion miles from home is the edge of the universe!

43. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ started as an infinitely hot dense point that erupted. The light from the BB is still spreading out, and we hear it as \_\_\_\_\_\_\_\_\_\_\_\_\_hiss, and see it as \_\_\_\_\_\_\_\_\_\_\_\_\_ static.