The Universe. Season 3 Disc 1 Light Speed

1. **In one second, light can circle the Earth how many times?**
2. **What is the speed of light?**
3. **You would have to ride a bicycle how long at 12mph to go the distance light travels in one second?**
4. **Why was there a delay in communication with Neil Armstrong while he was on the moon/**
5. **It takes how long for light to reach Earth from the sun?**
6. **As you go further out from Earth it takes longer for signals to get to their destinations. It takes for a signal to reach probes exploring Mars.**
7. **It takes for signals to get to Saturn.**
8. **It takes for signals to get to Voyager 1 which is now heading out of the solar system.**
9. **How far away is Proxima Centauri?**
10. **What is the distance that light actually can travel in one year?**
11. **Sirius is 8.6 light years away. Why do astronomers say we are seeing the history of Sirius when we look at it?**
12. **Vega is how far away?**
13. **Betelgeuse is how far away?**
14. **So when we look at stars we are actually “looking back in ”.**
15. **Crab Nebula is LY away.**
16. **Galactic core is LY away.**
17. **Andromeda Galaxy is LY away.**
18. **What is cosmic background radiation?**
19. **What we can see of the universe is limited by .**
20. **Describe what “red shift” is.**
21. **What did Edwin Hubble discover in 1926?**
22. **The faster the movement objects are moving away, the greater the .**
23. **How long ago is it believed that the universe began?**
24. **So, the farthest astronomers can see in any direction would be .**
25. **What is the “light horizon”?**
26. **Galaxies really far away are actually moving away faster than “ ”.**
27. **Some galaxies we will never see because they are actually moving faster than the speed of light. Explain why we can’t see them.**
28. **What does it mean that light speed is a constant?**
29. **How does the speed of an object affect the speed of light coming away from it?**
30. **How many GPS satellites are circling the Earth?**
31. **These satellites are traveling at 7,000 mph. How does the speed of the satellite affect the clock on the satellite?**
32. **Describe some of the affects that would occur if we could travel at the speed of light.**
33. **Light travels 186, 000 mph in a vacuum. What happens to light as it enters other medium?**
34. **What is the “Giggle factor”?**
35. **What is a worm hole and how could one be created?**