

Bacteria, Virus, Protist and Fungus Review Questions

1. Why are bacteria classified in their own kingdom and not with plants, animals, protists, or fungi?
2. What feature(s) might cause cyanobacteria to be classified as plants by some taxonomists?
3. Why is endospore formation important to bacteria?
4. Describe binary fission.
5. What is conjugation in bacteria? Why is it important?
6. How is conjugation different from transformation?
7. Why are bacteria considered more primitive than protists?
8. Bacteria belong to a group of organisms known as prokaryotes. Discuss the differences between eukaryotes and prokaryotes in terms of cell wall, nuclear membrane, and chromosomes.
9. Give specific examples showing the importance of microbial sterility in
 - a) your kitchen
 - b) a microbiology lab
10. Describe the results if all bacteria died.
11. Why is there controversy as to whether a virus is living or non-living?
12. Could you accept the hypothesis that viruses were the precursors to life on this planet? Explain.
13. How is it that a virus is quite specific in the type of cell that it can infect?
14. Suppose you were trying to develop a way to stop a virus from infecting a cell. How could this be done?
15. Describe how viruses can be spread.
16. Do viruses and bacteria cause disease in the same way? Explain.
17. Why are viral infections difficult to treat?
18. Explain how each of the following is effective in protecting food against microorganisms: salting, freezing, sterilization, boiling, antibiotics.
19. Why do protists live in aqueous environments?
20. What is the evolutionary significance of the three groups of protists?
21. Kingdom Protista contains organisms which do not seem to fit in any other kingdom. Do they actually have any characteristics in common?
22. Would you expect all students to observe exactly the same shape when observing a live amoeba under the microscope? (Check out a YouTube video if you need to.) Explain.
23. Unlike the higher plants, plant-like protists do not have roots, stems, or leaves. Explain why they do not require these structures?
24. Why are multicellular algae not classified as plants?
25. You have a sample of pond water in which you want to look for protists. The jar has some mud at the bottom and some plant bits as well. Where would you look to find sarcodines? Ciliates?
26. Explain why plant-like protists are so important in aquatic food chains.
27. What are some similarities and differences between fungi and plants?
28. Aniline blue stains the cell walls of fungi more easily than plant cell walls. What substance in fungi do you think aniline blue binds to? Explain your answer.
29. Given your knowledge of fungi, what growth conditions might favor the fungus that causes athlete's foot?
30. How are fungi important to other forms of life?
31. What characteristic of yeast makes it an unusual fungus?
32. Most mushroom mycelia grow in the soil. Why do mushroom fruiting bodies grow above ground?
33. Other than eating mushrooms, what are some uses humans have found for fungi?
34. A spore may develop hundreds of kilometers away from its origin. Explain how this is so.
35. Both humans and fungi are heterotrophs. Contrast the way the two obtain food.
36. Why are fungi a more serious problem to agriculture in tropical regions of the world than they are in temperate regions?

37. Tissues from several mushrooms were collected near the base of a tree were tested and found to be genetically identical. How can you explain this?

38. The antibiotic penicillin is a natural secretion of a certain kind of fungus called *Penicillium*. Penicillin kills bacteria. Why might a fungus have evolved a way to kill bacteria?