

Assignment 9 - Biodiversity of Microscopic Organisms

1. Explain why bacteria have a cell wall?

2. Compare the bacterial cell wall and capsule. Explain how they are different.

3. Explain how bacterial move about their environment.

4. Some species of bacteria form endospores. Explain the function of an endospore.

5. Compare & contrast binary fission with mitosis by completeing the chart below.

| Types of Cell Division | |
|---|---|
| Mitosis | Binary Fission |
| <ul style="list-style-type: none">• Type of cell division done by eukaryotes• Produces identical daughter cells• Cells must go through prophase, metaphase, _____, _____ and then cytokinesis• This process occurs about once ever 24 hours, on average, in humans | <ul style="list-style-type: none">• Type of cell division done by _____ cells• Produces _____ daughter cells• Cells simply replicate their DNA and form a new cell wall between each copy• This process occurs very quickly under ideal conditions |

6. Compare various bacterial shapes by drawing an illustration of each of the listed shapes below.

| Bacterial Shapes | | |
|----------------------|----------------------|----------------------|
| Coccus | Bacillus | Spirillum |
| | | |

7. Compare protists and bacteria by explaining how they are different.

8. Analyze virus structure by creating a diagram of a single viral particle. Label ALL of the following in your diagram: capsid, spike protein, nucleic acid genome, and capsid.

9. A prion is not made of cells, nor is it a virus. Prions are simply an infectious _____ . For example, in humans, Creutzfeldt-Jakob disease is caused by a prion and may be transmitted by eating _____ . This disease is incurable.
10. Like prions, viroids are also not composed of cells. Viroids are made of small circular _____ -stranded _____ . This virus typically infects _____ .