

Name _____

Differentiating Bacteria and Viruses Answer Key

1. Bacteria are primarily classified based on their genetic similarities, specifically their DNA sequences.
2. Bacteria can be classified as aerobic (require oxygen), anaerobic (do not require oxygen), or facultative anaerobes (can survive with or without oxygen).
3. Gram-positive bacteria have a thick cell wall and retain the crystal violet stain during the Gram staining process, while gram-negative bacteria have a thinner cell wall and do not retain the stain.
4. Viruses can be classified as either DNA viruses or RNA viruses, depending on the type of genetic material they possess.
5. The host range refers to the range of species that a virus can infect. Viruses are classified based on the specific hosts they infect, such as humans, animals, or plants.
6. Bacteria can develop resistance to antibiotics through genetic mutations or acquiring resistance genes, while viruses are not affected by antibiotics as they are acellular.
7. The Capsid is the protein coat that surrounds the genetic material of a virus, providing protection and facilitating its attachment to host cells.
8. Yes, bacteria can form multicellular structures called biofilms, which are communities of bacteria enclosed in a protective matrix.
9. Generally, bacteria are much larger than viruses. Bacteria range in size from 1 to 10 micrometers, while viruses are typically much smaller, ranging from 20 to 400 nanometers.
10. Bacteria can undergo genetic recombination through processes like conjugation, transformation, and transduction. Viruses can also undergo genetic recombination when they infect host cells and exchange genetic material.