

Name _____

Physiology of Bacteria and Viruses Answer Key

1. The bacterial cell wall provides structural support and protection to the cell. It helps maintain cell shape and prevents the cell from bursting due to changes in osmotic pressure.
2. Bacteria can acquire genetic material from the environment through a process called transformation. They take up DNA fragments released by other bacteria and incorporate them into their own genome.
3. Restriction enzymes are enzymes produced by bacteria to defend against viral infections. They can recognize and cut viral DNA, restricting the replication of the virus.
4. Viruses are highly specific in their host preferences. They can only infect certain types of cells that have specific receptors on their surface that the virus can bind to.
5. Bacteria are important decomposers in nature. They break down complex organic matter, such as dead plants and animals, into simpler compounds, recycling nutrients back into the ecosystem.
6. In a latent viral infection, the virus remains dormant within the host cell without causing symptoms. In an active viral infection, the virus replicates and causes symptoms of the disease.
7. Antibiotics are medications that can kill or inhibit the growth of bacteria. They target specific bacterial structures or processes, helping to eliminate the infection.
8. Yes, viruses can evolve and undergo genetic changes through mutations and recombination events. This can lead to the emergence of new strains or variants of viruses.
9. Bacteria are a source of many antibiotics. They produce these compounds as a defense mechanism to inhibit the growth of other competing bacteria in their environment.
10. The human microbiome refers to the community of microorganisms (including bacteria) that live in and on our bodies. It plays a crucial role in various aspects of our health, including digestion, immune function, and protection against pathogens.