

Name _____

Production of Bacteria and Viruses Answer Key

1. Viruses replicate by hijacking the machinery of host cells. They use the host's cellular machinery to produce new viral components and assemble them into complete viruses.
2. Bacteria can exhibit different types of motility, including flagellar motility (using whip-like structures called flagella), gliding motility (smooth movement across surfaces), and twitching motility (jerky movements using pili or type IV secretion systems).
3. Bacteria play a vital role in the nitrogen cycle by carrying out processes such as nitrogen fixation (conversion of atmospheric nitrogen into a usable form), nitrification (conversion of ammonia into nitrate), and denitrification (conversion of nitrate back into nitrogen gas).
4. Vaccines against bacterial diseases contain weakened or inactivated bacteria or their components. When administered, they stimulate the immune system to recognize and mount a response against the specific bacteria, providing immunity.
5. An epidemic refers to a sudden increase in the number of cases of a disease within a population or region. A sporadic outbreak, on the other hand, refers to occasional cases that arise irregularly and are not linked to a specific outbreak or pattern.
6. Some bacteria are capable of carrying out anaerobic respiration or fermentation to obtain energy in the absence of oxygen. They use alternative electron acceptors, such as nitrate or sulfate, to generate energy.
7. Bacteriophages can be used as vectors in genetic engineering to introduce specific genes into bacterial cells. They can deliver foreign DNA into the host bacterium, allowing for the transfer of desired traits or the production of valuable proteins.
8. Yes, viruses can infect both plants and animals. Plant viruses typically infect plant cells, while animal viruses infect animal cells and can cause a wide range of diseases.
9. Bacteria in the gut microbiome help with digestion, produce essential vitamins, and interact with the immune system. They contribute to overall gut health and can influence various aspects of human health, including metabolism and immune function.
10. Antiviral drugs work by targeting specific steps in the viral replication cycle. They can inhibit viral entry into host cells, block viral replication, or prevent the release of new viral particles.