

Name _____

Functions of Bacteria and Viruses Answer Key

1. The three main shapes of bacteria are cocci (spherical), bacilli (rod-shaped), and spirilla (spiral-shaped).
2. Bacteria can obtain energy through various means, such as photosynthesis (using sunlight), chemosynthesis (converting chemicals), or by consuming organic matter as food.
3. Viruses are distinct from other infectious agents because they can only replicate inside the cells of a host organism. They are obligate intracellular parasites.
4. The viral envelope is an outer layer found in some viruses. Its main function is to help the virus enter host cells by fusing with the cell membrane.
5. Plasmids are small, circular pieces of DNA found in bacteria. They can carry extra genes that provide advantages, such as antibiotic resistance or the ability to produce toxins.
6. Bacteria play a crucial role in nutrient cycling by decomposing dead organisms and organic matter, releasing nutrients back into the environment.
7. An epidemic is the occurrence of a disease in a community or region above the expected level. A pandemic, on the other hand, refers to a global outbreak of a disease that affects people worldwide.
8. The immune system responds to bacterial infections by activating immune cells, such as white blood cells, to engulf and destroy the bacteria. In viral infections, the immune system targets infected cells and produces specific antibodies to neutralize the virus.
9. Bacterial conjugation is a process where bacteria exchange genetic material through direct contact, usually via a specialized structure called a pilus. This allows for the transfer of beneficial traits or the spread of antibiotic resistance genes.
10. Vaccines stimulate the immune system to recognize and remember specific viral antigens. When exposed to the actual virus, the immune system can respond quickly and effectively, preventing or minimizing the infection.