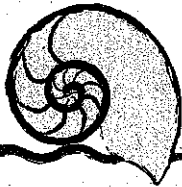


# UNIT 7



# Bacteria

Use the information contained in this passage to answer the questions below.

## Bacteria and Disease

Various types of bacteria can cause disease. These organisms are known as pathogenic bacteria. Some pathogenic bacteria cause disease by producing poisons called toxins. These poisons cause fever, body aches, and weakness. An example of a bacterium that produces toxins is *Clostridium tetani*, which causes tetanus. Other pathogenic bacteria cause disease by damaging and destroying body tissues. The bacterium *Streptococcus pyrogenes* causes an upper respiratory infection known as strep throat. *Streptococcus* also secretes a digestive enzyme that allows other types of bacteria to spread to other tissues in the body.

The body has natural defenses to prevent bacterial infections. These defenses include the skin, which prevents bacteria from entering the body. If bacteria do invade the body, then other defenses are set in motion. The main internal defense consists of the immune system, which mounts an attack against the invading bacteria.

At times, the body's defenses are not sufficient to overcome pathogenic bacteria.

In such cases, an antibiotic may be required. Antibiotics are drugs that combat bacteria by interfering with their natural functions. For example, penicillin interferes with the formation of the cell wall. Streptomycin inhibits protein synthesis. Penicillin is known as a broad-spectrum antibiotic because it combats a variety of pathogenic bacteria.

In the past, antibiotics helped conquer bacterial diseases such as tuberculosis, syphilis, gonorrhea, and cholera. However, in recent years, bacteria have become increasingly resistant to antibiotics. Resistance to antibiotics develops when a few bacteria survive being exposed to the drug. These resistant bacteria have genes that make them immune to the drug. These bacteria survive and pass on their resistant genes to their offspring. Over time, the proportion of resistant bacteria increases. As a result, the antibiotic is no longer as effective. New drugs, and new strategies, will be needed to combat these resistant bacteria.

1. What are two ways in which bacteria cause disease? \_\_\_\_\_

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2. What would a narrow-spectrum antibiotic be? \_\_\_\_\_

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3. Why should a person be sure to follow a doctor's order to take all the antibiotic prescribed even though the person starts to feel better? \_\_\_\_\_

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