



Name

Period

Date

SECTION  
**31.4**

IMMUNITY AND TECHNOLOGY  
**Reinforcement**

**KEY CONCEPT** Living in a clean environment and building immunity help keep a person healthy.

Many technologies are available today that help control the spread of pathogens.

- **Antiseptics** are chemicals, such as soap, vinegar, and rubbing alcohol, that kill pathogens on the outside of the body.
- Once pathogens are inside of the body, they must be killed by the immune system. However, living pathogens, such as bacteria, fungi, and parasites, can be killed with antibiotics, which are types of medicines. Unfortunately, some bacteria are not affected by antibiotics. As antibiotics are used more and more, **antibiotic resistance**, which is the condition of bacteria being unaffected by antibiotics, occurs. Because these bacteria are unaffected by medications, there is no way to cure someone when they are infected.
- Vaccines are a method that allows a person to develop immunity without ever contracting a disease. A **vaccine** is a substance that stimulates the immune system. When a person gets vaccinated, B cells and T cells become activated and produce memory cells. This way, if a pathogen for which a person was vaccinated against ever infects the person, the immune system will destroy the pathogen so quickly that the person will never feel ill.

1. What are three technologies that are available to help prevent the spread of disease?

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2. How does antibiotic resistance occur?

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3. How do vaccines work to provide immunity?

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