

Name _____ Date _____ Class _____

Assess Your Understanding

Infectious Disease

How Do Pathogens Cause Disease?

1a. **DEFINE** What is an infectious disease?

b. **EXPLAIN** How did Pasteur's work affect Lister's work?

got it?

☐ I **get it!** Now I know that pathogens cause disease by _____

☐ I need extra help with _____

What Pathogens Cause Infectious Disease and How Are They Spread?

2a. **IDENTIFY** Name four types of pathogens that cause disease in humans.

b. **CHALLENGE** How could people make bacteria-contaminated water safe to drink in order to prevent illness?

got it?

☐ I **get it!** Now I know that disease-causing pathogens include _____, and they are spread by _____

☐ I need extra help with _____

Infectious Disease

How Do Pathogens Cause Disease?

In ancient times, people had various beliefs about what caused disease. In the 1860s, the French scientist Louis Pasteur concluded that **microorganisms**, living things too small to see with a microscope, were the cause of most infectious diseases. A physician named Joseph Lister applied Pasteur's work to surgery, washing his hands and instruments and treating patients' post-surgical wounds with carbolic acid. Lister's methods dramatically reduced the percentage of patients who died from infection after surgery.

In the 1870s and 1880s, Robert Koch refined Pasteur's conclusions by showing that a specific microorganism causes each disease. An organism that causes disease is called a **pathogen**. A disease caused by a pathogen is an **infectious disease**. **When you have an infectious disease, pathogens are in your body causing harm.** Pathogens damage large numbers of individual cells, which makes you sick.

What Pathogens Cause Infectious Disease and How Are They Spread?

Most of the organisms on Earth are harmless, but some cause disease. Most pathogens can be seen only with a microscope. **The four major types of human pathogens are bacteria, viruses, fungi, and protists. They can be spread through contact with a sick person or object in the environment, including other living things.**

Bacteria are one-celled microorganisms that can damage body cells directly or indirectly by producing a poison, or **toxin**. Viruses are nonliving particles that damage body cells by reproducing inside them. Fungi are one-celled or multicelled organisms that grow in warm, dark, moist areas. Protists are one-celled organisms that can cause diseases such as malaria and hiker's disease.

On a separate sheet of paper, define the terms *pathogen* and *infectious disease* and explain how they relate to one another. Also, identify the four major types of human pathogens.

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Review and Reinforce

Infectious Disease

Understanding Main Ideas

Fill in the blank to complete each statement.

1. Diseases such as colds can be spread by indirectly when infected people _____.
2. A person catching the flu after using utensils that a sick person used previously is an example of pathogens spreading through _____.
3. A disease such as _____ is likely to have as its source a bite from an infected animal.
4. Contact with a pathogen that lives naturally in the soil, water, or food can causes a disease such as _____.

Answer the following question in the space provided.

5. What are the four major groups of human pathogens?

Building Vocabulary

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

- | | |
|----------------------------|--|
| 6. ____ microorganisms | a. a disease caused by a pathogen |
| 7. ____ pathogens | b. a poison |
| 8. ____ infectious disease | c. living things too small to see without a microscope |
| 9. ____ toxin | d. organisms that cause disease |

