

Fighting Disease ▪ *Guided Reading and Study*

Infectious Disease

This section explains what kinds of organisms cause infectious disease and how infectious diseases are spread.

Use Target Reading Skills

Before you read, look at the section headings and visuals to see what this section is about. Then write what you know about infectious diseases in a graphic organizer like the one below. As you read, continue to write in what you learn.

What You Know
1.
2.
3.

What You Learned
1.
2.
3.

Understanding Infectious Disease

1. Organisms that cause disease are called _____.
2. What is an infectious disease? _____

3. Is the following sentence true or false? Pathogens make you sick by damaging individual cells. _____

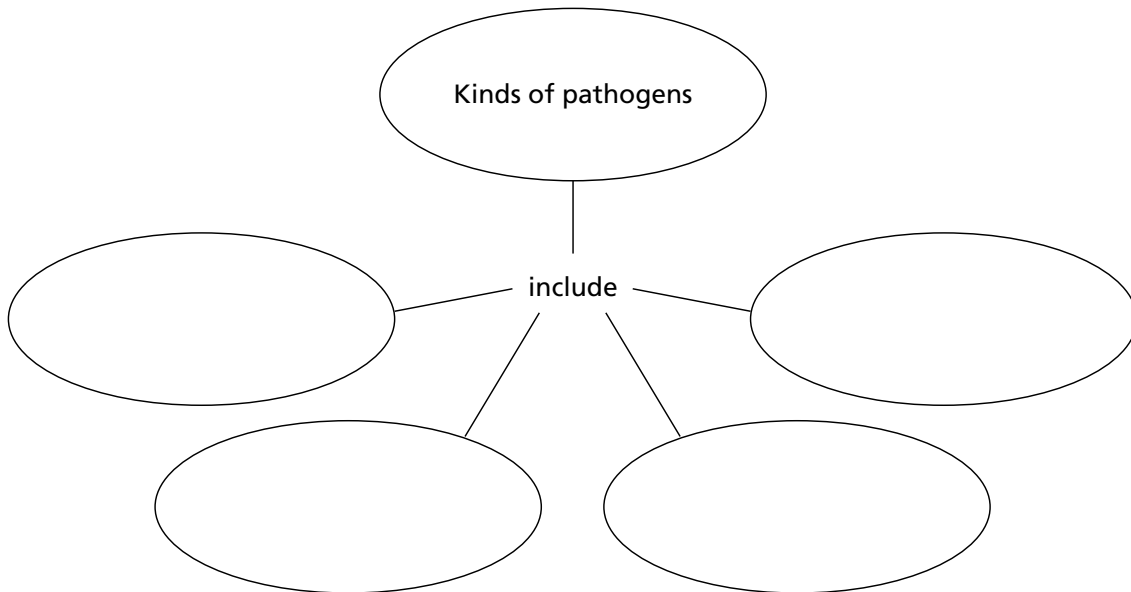


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Infectious Disease *(continued)*

Kinds of Pathogens

4. Circle the letter of each sentence that is true about infectious disease.
 - a. People always knew that organisms could cause disease.
 - b. People once thought evil spirits or swamp air made people sick.
 - c. Louis Pasteur showed that killing microorganisms could stop the spread of disease.
 - d. Each infectious disease is caused by many different pathogens.
5. Is the following sentence true or false? Most diseases are caused by pathogens that are very large. _____
6. Complete the concept map to show the different kinds of pathogens.



7. In what two ways do bacteria cause disease?
 - a. _____
 - b. _____
8. How do viruses cause disease?

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9. Circle the letter of the kind of pathogen that causes malaria.
- a. bacteria
 - b. viruses
 - c. fungi
 - d. protists

How Pathogens Are Spread

10. List four sources of pathogens.
- a. _____
 - b. _____
 - c. _____
 - d. _____
11. Circle each sentence that is true about how diseases are spread.
- a. People cannot get pathogens by drinking water.
 - b. People can get pathogens by using a towel that was handled by an infected person.
 - c. Animals cannot spread pathogens to people.
 - d. Some pathogens live in soil or water.

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Infectious Disease

Understanding Main Ideas

Complete the following table.

How Infectious Diseases Are Spread		
Source	Example of Method of Transfer	Examples of Diseases Spread in this Way
Infected people	direct contact: shaking hands indirect contact: 1.	2. 3.
Contaminated object	4.	colds, flu
5.	animal bite	rabies 6.
Soil, food, water	Contact with pathogen that lives naturally in the soil or water	7.

Answer the following question.

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

Building Vocabulary

Write a definition for each of the following in the spaces provided.

9. infectious disease _____

10. pathogen _____

11. toxin _____

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The Body's Defenses

This section describes how the body protects itself from pathogens.

Use Target Reading Skills

Write a definition of each Key Term in your own words below.

inflammatory response:

phagocyte:

immune response:

lymphocyte:

T cell:

antigen:

B cell:

antibody:

AIDS:

HIV:

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Barriers That Keep Pathogens Out

1. What is the body’s first line of defense against pathogens?

2. Complete the table to show the three different ways the body keeps out pathogens.

Barriers Against Pathogens	
Barrier	How It Works
Skin	
Breathing passages	
Mouth and stomach	

The Inflammatory Response

3. The second line of defense in the body is the _____, which occurs when body cells are damaged.

4. What happens in the inflammatory response?

5. The kinds of white blood cells that take part in the inflammatory response are called _____, which engulf pathogens and destroy them.



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The Body's Defenses *(continued)*

6. Why is the affected area red and swollen during the inflammatory response?

7. How does a fever help your body?

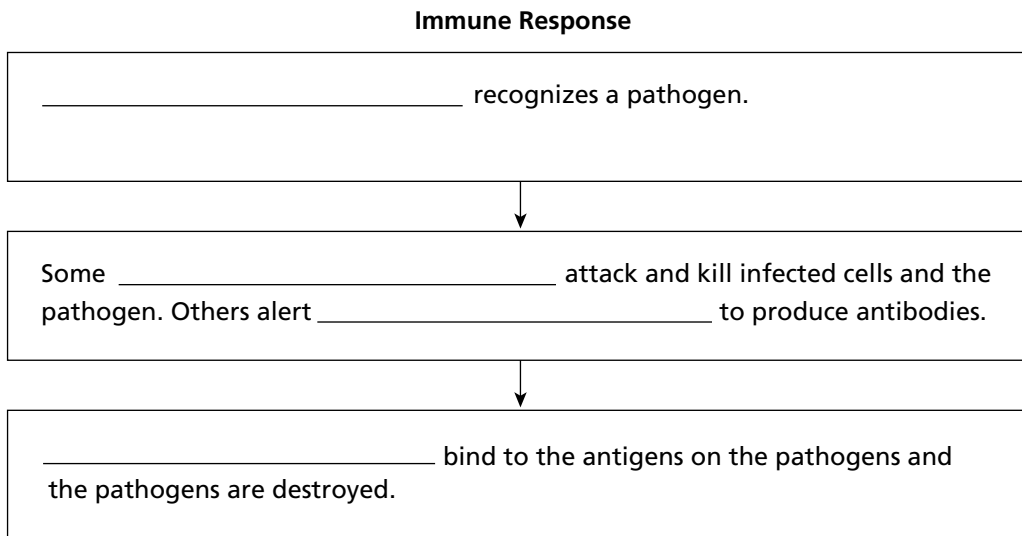
The Immune System

8. The third line of defense against pathogens in the body is the _____.

9. List the two major kinds of lymphocytes.

a. _____ b. _____

10. Complete the flowchart to show what occurs during the immune response.



11. What can lymphocytes do?

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12. What are antigens?

13. List three ways that antibodies help destroy pathogens.

- a. _____
- b. _____
- c. _____

AIDS

14. What causes acquired immunodeficiency syndrome, or AIDS?

15. Once HIV enters the body, it enters _____ where it reproduces.

16. Is the following sentence true or false? Over time, HIV damages the immune system, and the body loses its ability to fight disease.

17. Circle the letter of each sentence that is true about how HIV is spread.

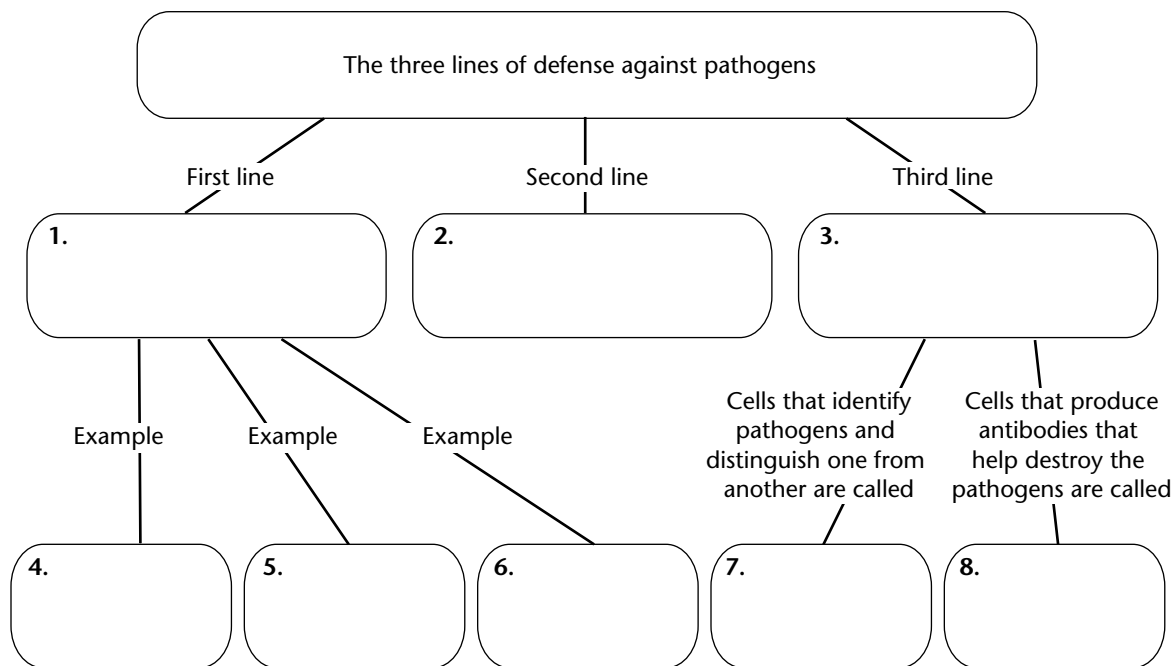
- a. HIV may spread from an infected woman to her baby through breast milk.
- b. HIV is *not* spread by sexual contact.
- c. HIV is spread by shaking hands.
- d. HIV is *not* spread by using a toilet seat after it has been used by someone with HIV.

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The Body's Defenses

Understanding Main Ideas

Complete the following concept map.



Building Vocabulary

From the list below, choose the term that best completes each sentence.

- | | | |
|----------|-----------------------|------------|
| antibody | immune response | phagocyte |
| AIDS | inflammatory response | lymphocyte |
| antigen | | |

9. A marker molecule on a cell that the immune system uses to recognize a pathogen is called a(n) _____.
10. _____ is a disease caused by a virus that attacks the immune system.
11. A(n) _____ is a white blood cell that engulfs and destroys pathogens.
12. During the _____, blood vessels widen in the area affected by pathogens.
13. In the _____, the body reacts to each kind of pathogen with a defense targeted specifically for that pathogen.
14. A chemical that helps destroy a specific kind of pathogen by locking onto a specific marker molecule is called a(n) _____.
15. The type of white blood cells involved in the immune response are called _____.

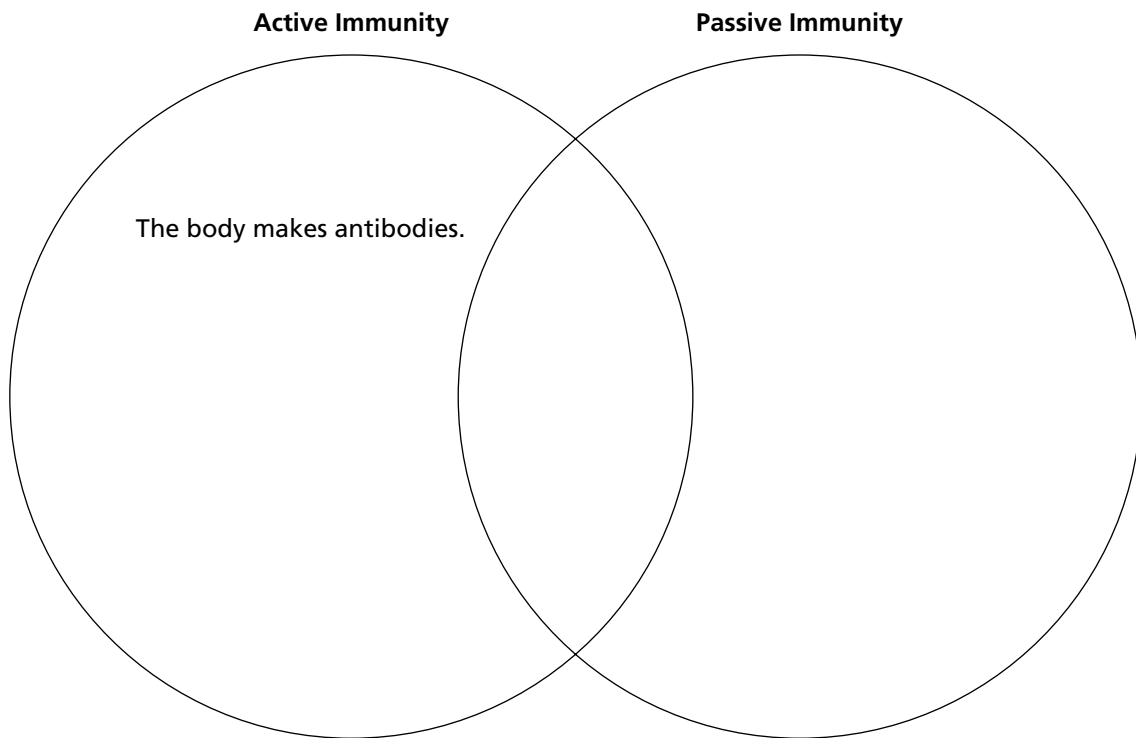
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Preventing Infectious Disease

This section describes two different kinds of immunity and some ways to stay healthy.

Use Target Reading Skills

As you read, compare and contrast active and passive immunity in the Venn diagram below. Write the similarities in the space where the circles overlap, and the differences on the left and right sides.



Introduction

1. The body's ability to destroy pathogens before they can cause disease is called _____.
2. What are the two types of immunity?
 - a. _____
 - b. _____

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Active Immunity

3. When does active immunity occur?

4. Is the following sentence true or false? Activity immunity is produced by the cells of the immune system as part of the immune response.

5. How do memory cells keep a person from getting sick?

6. The process by which harmless antigens are introduced into a person's body to produce active immunity is called _____, or immunization.

7. What does a vaccine consist of?

8. A chemical that kills bacteria or slows their growth without harming body cells is a(n) _____.

9. Is the following sentence true or false? Some medicines don't kill pathogens, but help you to feel more comfortable while you get better.

10. What three things can you do to help your body recover when you are sick?

a. _____

b. _____

c. _____

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Preventing Infectious Disease *(continued)*

Passive Immunity

11. When antibodies are given to a person and are not made by the person's immune system, the person is protected by _____ immunity.
12. Is the following sentence true or false? Passive immunity can last a lifetime. _____
13. How does a baby get passive immunity?

Fighting Disease ▪ *Review and Reinforce***Preventing Infectious Disease****Understanding Main Ideas**

Complete the table below by stating whether each characteristic applies to passive or active immunity.

Characteristic	Type of Immunity
Only lasts a few months	1.
Can last for a lifetime	2.
May be gained by coming down with a disease	3.
Passed from a pregnant mother to her unborn child	4.
Can be produced by vaccination	5.

Answer the following on a separate sheet of paper.

6. Explore two ways in which active immunity is produced.
7. Explain why you might treat a bacterial infection but not a viral disease with an antibiotic.

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.

- | | |
|--------------------------|---|
| ___ 8. active immunity | a. the immunity gained when a person's own immune system produces antibodies in response to a pathogen |
| ___ 9. antibiotic | b. a substance consisting of pathogens that have been weakened or killed |
| ___ 10. passive immunity | c. a chemical that kills or slows the growth of bacteria |
| ___ 11. vaccination | d. the deliberate introduction of harmless pathogens into a person's body |
| ___ 12. vaccine | e. the temporary immunity gained from introducing antibodies from another source into a person's own body |

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Noninfectious Disease

This section describes three different diseases that are not spread from person to person.

Use Target Reading Skills

Before you read, preview the red headings. In the graphic organizer below, ask a what or how question for each heading. As you read, write the answers to your questions.

Noninfectious Disease

Question	Answer
What is an allergy?	

Introduction

1. Is the following sentence true or false? Over the years, infectious diseases have grown more prevalent. _____
2. Diseases that are not spread from person to person are called _____ diseases.

Allergies

3. What is an allergy?

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Noninfectious Disease *(continued)*

4. Any substance that causes an allergy is a(n) _____.
5. Circle the letter of each item that people may be allergic to.
 - a. pollen
 - b. some foods
 - c. some medicines
 - d. molds
6. Antibodies produced during the allergy response signal the body to release _____, a chemical that causes sneezing and watery eyes.
7. Is the following sentence true or false? If you have an allergy, the best thing to do is avoid the substance to which you are allergic.

8. What is asthma?

Diabetes

9. Circle the letter of the chemical that enables body cells to take in glucose from the blood and use it for energy.
 - a. diabetes
 - b. allergen
 - c. insulin
 - d. histamine
10. The pancreas fails to produce enough insulin or the body cells aren't using insulin properly in _____.
11. Is the following sentence true or false? A person with diabetes has low levels of glucose in the blood and more than enough glucose in the body cells. _____
12. Circle the letter of each effect of diabetes.
 - a. Never feel hungry
 - b. Lose weight
 - c. Feel thirsty
 - d. Rarely urinate

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13. Complete the table to compare the two types of diabetes.

Forms of Diabetes		
Questions	Type I	Type II
When does it usually begin?		
What is wrong?		
How is it treated?		

Cancer

14. What is cancer?

15. As cancerous cells divide over and over, they form abnormal tissue masses called _____.

16. What are two causes of cancer?

- a. _____
- b. _____

17. Is the following sentence true or false? Surgery, drugs, and radiation are all used to treat cancer. _____

18. Circle the letter of each sentence that is true about preventing cancer.

- a. Avoid tobacco.
- b. Expose your skin to sunlight frequently.
- c. Eat plenty of fatty foods.
- d. Visit the doctor regularly for medical checkups.

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Noninfectious Disease

Understanding Main Ideas

Answer the following questions on a separate sheet of paper.

1. What is an allergy?
2. What is the difference between Type I and Type II diabetes?
3. What is cancer? Why is it dangerous?
4. What are two factors that make a person more likely to develop cancer?
5. What are three methods used to treat cancer?
6. Should you be worried about getting diabetes or cancer from a friend who has one of those diseases? Explain.

Building Vocabulary

From the list below, choose the term that best completes each sentence.

allergen	carcinogen	insulin
asthma	histamine	tumor

7. The chemical _____ enables body cells to take in and use glucose for energy.
8. A(n) _____ is any foreign substance that causes an allergy.
9. _____ is the chemical that cells release in reaction to an allergen.
10. A(n) _____ is an abnormal tissue mass caused by cancer.
11. _____ is a condition in which the respiratory passages narrow significantly.
12. A(n) _____ is any substance or factor that can cause cancer.

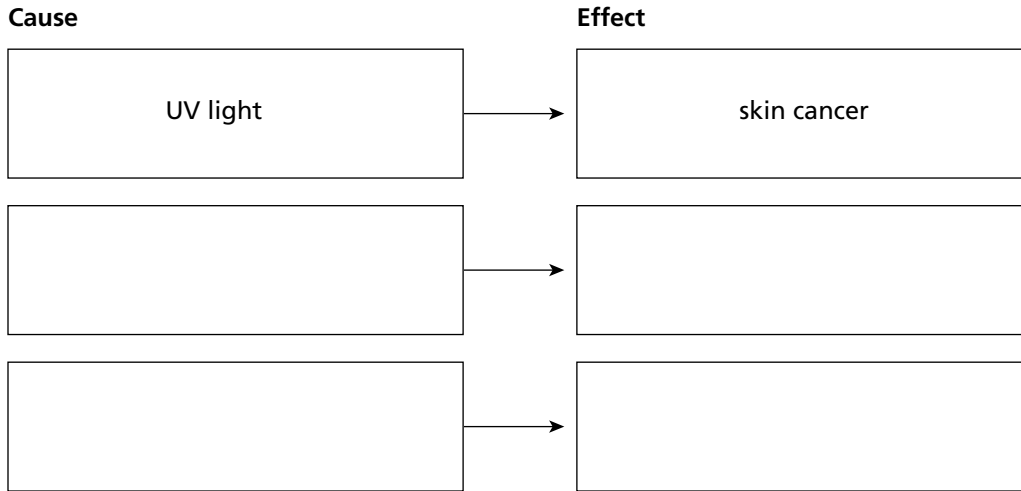
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Cancer and the Environment

This section tells about different things in the environment that can cause cancer.

Use Target Reading Skills

As you read, identify environmental carcinogens and the types of cancer they cause. Write the information in the graphic organizer below.



Linking Cancer to the Environment

1. What did Percivall Pott observe about chimney sweeps?

2. Is the following sentence true or false? The environment has no effect on people's health. _____
3. How can the risk of cancer caused by substances in the environment be reduced?

4. What is the role of the Environmental Protection Agency, or EPA?

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Cancer and the Environment *(continued)*

Environmental Carcinogens Today

5. Complete the table to compare two kinds of carcinogens found in the environment.

Environmental Carcinogens		
Questions	Vinyl Chloride	Ultraviolet Light
What is it?		
What kind of cancer does it cause?		
How does it cause cancer?		

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Cancer and the Environment

Understanding Main Ideas

Complete the table below.

Carcinogen	One Place Where Found	Can Cause What Type of Cancer?
Soot	Chimneys	Skin
Arsenic	1.	2.
3.	Sunlight	4.

Answer the following questions in the spaces provided.

5. Why did Percivall Pott suspect that something in soot caused cancer? What did he suggest should be done to prevent it?

6. What organization is in charge of enforcing environmental laws in the United States? What else does this organization do?

7. What action has been taken to protect people in the United States from the carcinogen arsenic?

8. What does ozone in Earth's upper atmosphere do to ultraviolet light in sunlight? Why do some scientists suspect a link between the amount of ozone in the upper atmosphere and skin cancer?
