## CHAPTER 18
### Communicable Diseases

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### PACING THE CHAPTER
| Lesson 1 | 45 min | Lesson 4 | 45 min | Chapter Review | 45 min |
| Lesson 2 | 45 min | Lesson 5 | 45 min | Hands-on Health | 30 min |
| Lesson 3 | 45 min | Building Health Skills | 45 min |

### BLOCK SCHEDULING
For block scheduling, assign students Building Health Skills feature *Protect Yourself from Pathogens*, pages 500–501, and Guided Reading and Writing.
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The *Teen Health* resources are designed for differentiated learning abilities. You may want to use the coded items in this way:

- **Review** — activities to review or reinforce content
- **Teach** — activities to teach basic concepts
- **Extend** — activities to extend or enrich lesson content

Use Health Skills Activity *Keep Your Hands Clean!*, page 481, or Health Skills Activity *Keeping a Healthy Immune System*, page 485.
A recent study of bacteria in schools yielded some surprising results. Scientists collected and analyzed samples on surfaces in elementary schools. They discovered that some surfaces where bacteria were expected to be present in large numbers tested as relatively clean. For example, the scientists found that toilets and door handles—expected to teem with bacteria—were fairly clean. These surfaces, of course, were routinely wiped and disinfected by staff. But other surfaces in the schools were loaded with bacteria. In fact, drinking-water spigots had the highest amount of bacteria on the tested surfaces. Computer keyboards and earphones also tested as very infected. A cafeteria tray had more than 10 times the number of bacteria as a toilet seat. Even a student’s hand tested as quite infected with bacterial cells.

With teens at school exposed to so many germs in such unexpected places, routine hand washing becomes even more important. According to the Centers for Disease Control and Prevention (CDC), hand washing is the most important action a person can take to avoid getting sick. The CDC estimates that about 164 million days of school are missed each year because of illness, and half of these days could be prevented by hand washing. The reason hand washing is so effective is that about 80 percent of communicable diseases are spread by hand contact.

In one school, a hand-washing study was carried out. Students were required to wash their hands four times each day. They washed their hands when they first came to school, they washed before lunch, they washed after going to the restroom, and they washed just before leaving school. The result of all this hand washing was that absenteeism decreased sharply.

There are more cases of genital warts in the United States than any other type of STD. Genital warts are caused by human papillomavirus (HPV). There are more than 100 types of HPV, most of which cause common warts seen on hands and feet. About 30 types of HPV can cause genital warts.

About 20 million Americans today are infected with HPV. At least 50 percent of people who are sexually active contract the virus during their lives. According to the CDC, about 6.2 million Americans are infected with HPV each year.

HPV infection is usually a “silent” disease—most people who are infected do not know they have HPV. Some HPV infections can cause genital warts. These are soft and moist warts in the genital area that can be flesh colored or white. They usually do not hurt or itch. In females, genital warts can appear on the vulva, in or around the vagina or anus, on the cervix, or on the upper thigh. In males, genital warts can appear on the penis, scrotum, anus, or upper thigh. Some infected people have only one incidence of genital warts, while others may have many occurrences.

People get HPV infections through direct contact of genital areas during sexual activity. People cannot get genital warts by touching warts on the feet or hands. Genital warts are very contagious. An HPV infection can be transmitted both when warts are present and when they are not, though when warts are present there is more chance of spreading the disease. The only completely effective way to prevent getting genital warts is abstinence from sexual activity.

There is no cure for genital warts. In rare cases, genital warts can lead to cervical cancer in females. Most children born to mothers with genital warts are healthy, but very rarely babies exposed to genital warts develop growths in the throat. Most genital warts go away without treatment. In persistent cases, doctors can remove warts.
Support for Teaching Reading

Reading Preview

**Activating Background Vocabulary** Ask students what they think the word *communicable* means. Then ask what comes to mind when they hear the term *disease*. Guide students in a discussion of what a *communicable disease* might encompass—causes, types, and prevention.

*Foldables* Study Organizer Dinah Zike’s *Reading and Study Skills for Teen Health* provides interactive graphic organizers that help students comprehend and retain health concepts as they read. Use the Foldable® on page 477 or find more Foldables® activities for the chapter on *Communicable Diseases* in the separate booklet, available in the TCR.

**Lesson 1  Preventing the Spread of Disease**

**Guided Reading** 1) Activate prior knowledge. Ask students what they know about pathogens. 2) Introduce new key terms. 3) Give students a purpose for reading. Ask: “What are the types of pathogens?” 4) Have students read silently to find the answers. 5) Stop and discuss. 6) Repeat with a new purpose. Ask: “How do pathogens spread?”

**Lesson 2  The Body’s Defenses Against Infection**

**Listen-Read-Discuss** Present the lesson concepts in a brief lecture. Direct students to read the text silently, making a list of questions as they read. Stop reading and discuss: “What do you understand most about the immune system? What do you understand least? What questions do you still have about the nonspecific immune response or the lymphatic system?”

**Lesson 3  Common Communicable Diseases**

**Restructuring** Stop during reading and ask students to think of all the symptoms of communicable diseases they have read about. List all responses on the board. Identify three categories—colds, the flu, and other. Have students state orally why one type of symptom should be in one category or another. Create a new category if necessary.

**Lesson 4  Sexually Transmitted Diseases**

**Active Silent Reading** Have students stop reading and close their books. Ask them what they have read about STDs and abstinence. Record responses on the board. Guide students in a discussion about the main concepts. Encourage them to refer back to the text to clarify any remaining questions.

**Lesson 5  HIV/AIDS**

**Summarizing** Have students silently read the text. Then have student pairs take turns stating the main ideas of the selection in their own words. In a classroom discussion, clarify any misconceptions students may have about AIDS or HIV. Finally, have each student independently write a brief summary of the selection.

**Post Reading**

**Multimedia Presentations** Guide students in the use of multiple media tools such as computers, graphics, animation, and music to enhance communication. Have students work in pairs to develop a presentation for the class that incorporates audiovisual aids and addresses what they learned about pathogens and communicable diseases.

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**Key for Using the Teacher Wraparound Edition**

Use this key to help you identify the different types of prompts found in the Teacher Wraparound Edition.

- **R** Reading Strategies activities help you teach reading skills and vocabulary.
- **C** Critical Thinking strategies help students apply and extend what they have learned.
- **U** Universal Access activities provide differentiated instruction for students learning to speak English, along with suggestions for teaching various types of learners.
- **HS** Health Skills Practice activities reinforce Health Skills concepts and help students apply these skills in their everyday lives.
- **W** Writing Support activities provide writing opportunities to help students comprehend the text.
- **AL** Active Learning strategies provide a variety of activities for presenting lesson content, including Quick Demos and engaging classroom projects that get students actively involved.

**Key to Ability Levels**

Teaching Strategies and activities have been coded for ability level and appropriateness.

- **AL** Activities for students working above grade level
- **OL** Activities for students working on grade level
- **BL** Activities for students working below grade level
- **EL** Activities for English Learners

**Symbols**

- Transparencies
- CD-ROM
- [Glencoe.com](http://glencoe.com)
- Print Resources
Communicable Diseases

Chapter at a Glance

Lesson 1 lists some causes of communicable diseases, explains how germs are spread, and describes how to protect yourself against pathogens.

Lesson 2 identifies the main line of defense against pathogens, describes how the immune system functions, and explains how antibodies protect the body.

Lesson 3 explains the causes of colds and their treatments and identifies some common communicable diseases and their symptoms.

Lesson 4 identifies common STDs and the problems they cause, describes how to protect against STDs, and explains why abstinence is the best way to avoid getting an STD.

Lesson 5 explains how people become infected with HIV and develop AIDS and describes how to avoid getting HIV and AIDS.

Reading Strategy

Interpreting the Photo Have students look at the photo of the scientist studying diseases in her laboratory and ask: What precautions is this scientist taking to protect herself from the disease that she is studying? Answer: The scientist is wearing glasses to protect her eyes and gloves to protect her hands.

Universal Access

Differentiated Learning Glencoe provides teacher support and student materials for all learners in the health classroom.

- Spanish Glosario and chapter summaries assist English Language Learners.
- Reading Tutor and related worksheets support reluctant readers.

- Universal Access strategies throughout the Teacher Wraparound Edition and Fast Files help you present materials for gifted students, at-risk students, physically impaired students, and those with behavior disorders or learning disabilities.
Dinah Zike Foldables®

Organizing Data Students should use the Foldable® as they read Lesson 1, Preventing the Spread of Disease. Model the construction of the Foldable® if students are having trouble. If students are having difficulty working with the Foldable®, have them work with a partner. Remind students to use the Foldable® for review before they complete the chapter assessment.

Health eSpotlight

The Truth About STDs

Learning the facts about sexually transmitted diseases (STDs) can help you avoid them. What is the best way for teens to avoid getting STDs?

Go to glencoe.com and watch the health video for Chapter 18. Then complete the activity provided with the online video.

Foldables® Study Organizer

As You Read Make this Foldable® to help you record main ideas about the causes of communicable diseases. Begin with a plain sheet of 11” × 17” paper.

1. Hold the paper like a placemat. Fold the short sides inward so they meet in the middle.
2. Fold the top to the bottom.
3. Open and cut along the inside fold lines. This makes four tabs.
4. Label the tabs as shown.

Under the appropriate tab, summarize what you learn about pathogens and how to prevent communicable diseases from spreading.

No Child Left Behind

Accommodating Special Needs Students

For many teachers, accommodating special needs students in a regular educational setting is a challenge. Use the following tips to help in educating these students.

- Make directions specific and brief. When you give directions aloud, ask volunteers to repeat them back. Use the chalkboard or overhead projector to present written directions, and have students copy them consistently into their notebooks.
- Have daily objectives readily available to students, either by writing them on the board or on a transparency.
- Alter task requirements to allow for success of students with different learning needs.
- Break larger tasks into smaller steps.

Go Online Visit glencoe.com and complete the Health Inventory for Chapter 18.
FOCUS

Activating Prior Knowledge
What I Know  Call on volunteers to name diseases that can be spread from person to person. Ask students to describe the way each disease is spread.

Building Vocabulary
■ Explain to students that the word part patho- means “disease” and the word part -gen means “producer.” Ask students to determine the definition of pathogen given this information.
■ Use Vocabulary PuzzleMaker to reinforce vocabulary terms.

Reading Strategy
Organizing Information  Tell students they should use the table to record information about the spread of diseases and disease prevention as they read the lesson.

Quick Write
How do you think people catch colds? Explain your answer.

Focusing on the Main Ideas
In this lesson, you will learn to
■ name some causes of communicable diseases.
■ explain how germs are spread.
■ describe how to protect yourself against pathogens.

Reading Strategy
Organizing Information  Create a table like the one shown below. As you read, describe how pathogens spread in the first column. In the second column, describe ways you can prevent spreading pathogens.

<table>
<thead>
<tr>
<th>Pathogens</th>
<th>How Pathogens Spread</th>
<th>Preventing the Spread of Pathogens</th>
</tr>
</thead>
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</table>

Common Diseases
You wake up with a runny nose and your eyes itch. Your throat is sore, you sneeze and cough, and your head aches. You have a cold. A cold is one kind of disease. A disease is any condition that interferes with the proper functioning of the body or mind.

A cold is a communicable disease, a disease that can be passed to a person from another person, animal, or object. The agents that cause communicable diseases are called pathogens. Pathogens are disease-causing organisms that are so small they can only be seen through a microscope. Pathogens are also known as germs. When germs enter your body, you can develop an infection. An infection is a condition that occurs when pathogens enter the body, multiply, and cause harm. Figure 18.1 shows several kinds of pathogens and the diseases they cause.
Types of Pathogens

Not all pathogens are alike, yet they can all cause diseases. As shown in Figure 18.1, there are four common pathogens:

- **Viruses** (VY.ruh-suhz) are the smallest pathogens. Viruses cause common diseases, such as colds and the flu. Most viral infections cannot be treated and cured with antibiotics.

- **Bacteria** are tiny one-celled organisms. Certain bacteria can be helpful. Bacteria that live in your digestive tract help you digest food. Other bacteria are harmful. They can cause diseases, such as strep throat and pneumonia. Most bacterial infections can be treated and cured by antibiotics.

- **Fungi** (FUHN-juh) are organisms that are more complex than bacteria but cannot make their own food. They are primitive life-forms that feed on organic materials. They thrive in warm, moist environments. Fungi cause ringworm and athlete's foot.

- **Protozoa** (proh-tuh-ZOH-uh) are one-celled organisms that are more complex than bacteria. Malaria is a disease caused by a protozoa that can live in mosquitoes. If an infected mosquito bites a person, the protozoa transfers into the body through the skin.

**Compare** How are bacterial infections different from viral infections?

### Types of Pathogens

<table>
<thead>
<tr>
<th>Pathogens</th>
<th>Diseases</th>
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</thead>
<tbody>
<tr>
<td>Bacteria</td>
<td>Pink eye, pertussis (whooping cough), strep throat, tuberculosis, Lyme disease, most foodborne illnesses, diphtheria, bacterial pneumonia, cholera</td>
</tr>
<tr>
<td>Viruses</td>
<td>Colds, influenza, hepatitis, chicken pox, measles, mumps, mononucleosis, herpes, HIV/AIDS, fever, polio, rabies, viral pneumonia</td>
</tr>
<tr>
<td>Fungi</td>
<td>Athlete's foot, ringworm</td>
</tr>
<tr>
<td>Protozoa</td>
<td>Dysentery, malaria</td>
</tr>
</tbody>
</table>

One way in which communicable diseases can be spread is through touch. What is another way in which communicable diseases are spread from person to person?

- **Reading Strategy**
  - **Analyzing a Chart** After students have examined Figure 18.1, ask: What kind of pathogen causes colds? **viruses** Explain that food-borne illnesses are often called food poisoning. Ask: What kind of pathogen causes foodborne illnesses? **bacteria**

  **Answer** Most bacterial infections can be treated with antibiotics. Viral infections cannot. Bacterial infections come from bacteria, viral infections from viruses.

**Caption Answer**

Sample answer: Communicable diseases are spread through indirect contact, contact with contaminated food or water, and contact with animals and insects.
HS Health Skills Practice

Accessing Information  Divide the class into small groups, and encourage each group to use print and online resources to find out about drinking water in their community, including the source of fresh water, the local water treatment plant, and the system of pipes that distribute water throughout the community. Ask each group to make a flow diagram that shows water’s journey from the source to the school. Invite a representative from the water treatment plant to make a brief presentation to the class. AL

Reading Check

Answer  direct contact, indirect contact, contaminated food and water, insects and animals

How Do Pathogens Spread?

Disease can occur when pathogens enter the body. Here are common ways pathogens are spread:

- **Direct contact with others.** Pathogens can spread directly from one person to another. For example, you can pick up a virus or bacteria by shaking hands with or kissing an infected person. Some pathogens are spread through sexual contact.

- **Indirect contact with others.** Pathogens can enter your body by sharing drinking glasses or eating utensils with an infected person. Pathogens can also be spread by contaminated needles used for tattoos, body piercings, and drug injection.

- **Contact with contaminated food and water.** Some pathogens infect people through contaminated food or water. Food that is improperly stored or undercooked provides an environment where pathogens can multiply. Illnesses people get from pathogens in food are called *foodborne illnesses*.

- **Contact with animals or insects.** Animals and insects can spread pathogens. An *organism, such as an insect, that transmits pathogens* is called a *vector*. For example, the bite of a tick can spread the virus that causes Lyme disease. Mosquitoes infected with the West Nile virus can spread that virus to birds, horses, and humans through their saliva.

Recall  What are four ways that pathogens are spread?

How to Keep Pathogens from Spreading

There is no way to completely avoid pathogens. However, you can help protect yourself from them by practicing good personal hygiene, or *cleanliness*. Here are some other actions you can take to help prevent the spread of pathogens:

- Eat nutritious foods. Get enough physical activity and rest.
- Avoid close contact with people infected with a communicable disease, especially if they are still contagious.

Caption Answer

Photo Caption  Sample answer: It is important because warm, soapy water washes away or kills pathogens.

In the Community  The Safe Drinking Water Act is a federal law passed by Congress in 1974 that requires all localities to protect drinking water. These standards require that local water systems test for and cut down on contaminants in the drinking water. These contaminants include industrial chemicals, pesticides, human wastes, animal wastes, and various naturally occurring substances. Ask students to find out how this law affects the local water supply. AL
Keep Your Hands Clean!
One of the best ways of stopping pathogens from entering your body or spreading to others is to wash your hands frequently. Practice washing your hands thoroughly using the following steps:

1. Use warm water to wet your hands, and then apply soap.
2. Vigorously rub your hands together, scrubbing your whole hand for 30 seconds or more.
3. Rinse your hands thoroughly. Use a paper towel to turn off the water in public restrooms.
4. Use a clean towel or paper towel to dry your hands. In a public restroom, use a paper towel to open the door when you leave.

With a Group
Create a poster encouraging students to wash their hands regularly. Include the handwashing steps listed above. With permission from school administrators, hang your poster in a school restroom or hallway.

What Washing Does
When you wash your hands with soap and water, the rubbing of the hands scrapes off dirt, and other particles, including pathogens. Some soaps contain antibacterial agents designed to kill bacteria, but such chemicals do nothing to eliminate viruses. Studies have shown that a vigorous washing with soap and water washes away many viruses, including cold viruses. The amount of rubbing you do is the key to washing thoroughly, and that is why rubbing the hands for 30 seconds or more is essential.
CHAPTER 18
Lesson 1
ASSESS

Assessment Resources
Lesson Review Quiz
ExamView
Fast Files Activities
Online Quizzes and Activities

Reteaching

• Assign Concept Map 18-1 or Reteaching Activity 18-1 in the Fast Files.
• Have students expand the table they made for the lesson-opening Reading Strategy by adding to the table the diseases that each kind of pathogen causes.

Enrichment

• Assign Enrichment Activity 18-1 in the Fast Files.
• Ask students to choose one of the diseases listed in Figure 18.1 and investigate that disease in terms of how it is spread and how to prevent it. Ask that each student prepare a presentation to the class about his or her findings.

CLOSE

Call on volunteers to describe one way to protect yourself from germs and one way to protect others from your germs.

Lesson 1 Review

Helping Others Stay Healthy

You may be carrying pathogens and not even know it. When you come in contact with other people, these pathogens can easily spread. You can help protect the people around you from the spread of pathogens. Here are some healthful behaviors to practice:

• If you are ill, stay home from school and other public places. Avoid close contact with others.
• When you sneeze, cover your mouth and nose, and turn your head away from others. Wash your hands immediately.
• Do not share eating utensils, drinking glasses, toothbrushes, or other personal items.
• If a health care professional prescribes medicine for you, follow the directions exactly. Take all medicine that is prescribed.
• Again, prepare and store food safely. Wash vegetables and fruits and cook meat thoroughly. Always wash your hands before handling food.

Explain Give three suggestions for protecting others from the pathogens you could spread.

Lesson 1 Review Answers

1. An infection is when pathogens enter the body, multiply, and cause harm. Sentences will vary.
2. A communicable disease is a disease that can be passed to a person from another person, animal, or object.
3. viruses, colds; bacteria, strep throat; fungi, athlete’s foot; protozoa, malaria
4. Sharing drinking glasses, eating utensils, and contaminated needles can spread diseases.
5. Sample answer: Practicing good personal hygiene helps prevent the spread of diseases.
6. Sample answer: Good advice for Brendan would be to cover his nose and mouth when he coughs and sneezes because that prevents the spread of the cold.
7. Plans should include four behaviors that would help stop the spread of pathogens and specific ways to carry out the behaviors.

Visit glencoe.com and complete the Interactive Study Guide for Lesson 1.
Building Vocabulary

As you read this lesson, write each new term and its definition in a list. Then draw three or four circles. Within each circle, group related terms together.

- immune system (p. 483)
- immunity (p. 483)
- inflammation (p. 484)
- lymphatic system (p. 485)
- lymphocytes (p. 485)
- antigen (p. 486)
- antibodies (p. 486)
- vaccine (p. 486)

Focusing on the Main Ideas

In this lesson, you will learn to:

- name the body’s first line of defense against pathogens.
- describe how the immune system functions.
- explain how antibodies protect the body.
- practice behaviors that keep your immune system healthy.

Reading Strategy

Sequencing

Draw a concept map that shows different ways your body works to defend itself from pathogens entering your body. Use Figure 18.2 on p. 484 as a guide.

Your Body Defends Itself

Pathogens are everywhere. They are in the air you breathe, the water you drink, and on objects you touch. Most bacteria, viruses, and other pathogens never get the chance to make you sick. Your body has natural barriers between you and pathogens. Your body’s five major barriers to pathogens are shown in Figure 18.2.

These barriers are your body’s first line of defense. If a pathogen gets past them, your body’s immune system responds. Your immune (i-MYOON) system is a combination of body defenses made up of the cells, tissues, and organs that fight off pathogens and disease. Your immune system has two main responses—the nonspecific response and the specific response. Together these responses provide immunity—your body’s ability to resist the germs that cause a particular disease.

Explain What is the function of the immune system?

Lesson 2 Resources

Chapter Fast File Resources

Guided Reading and Writing 18-2
Concept Mapping Activity 18-2
Cross-Curriculum Activity 18-2
Reteaching Activity 18-2
Enrichment Activity 18-2
Lesson Quiz 18-2

Technology

- Transparency 18-2
- Audio Summaries
- ExamView® Assessment Suite
- Vocabulary PuzzleMaker

Reading Check

Have students write a short paragraph that describes how they felt when they had a fever. Have them conclude the paragraph by explaining how a fever helps the body fight infection.

Answer

The immune system functions to fight off pathogens and disease.
**Reading Strategy**

Analyzing a Graphic  After students have examined Figure 18.2, ask: How do tears fight off pathogens? Tears contain chemicals that kill some pathogens. What other body fluids kill some pathogens? Saliva and stomach acid What is mucus, and how does it help the body fight off pathogens? Mucus is a sticky material that coats mucous membranes. Mucus traps pathogens. 

**Critical Thinking**

Analyzing  Point out that tattoos and piercings are popular among some teens. Explain that sometimes getting such body ornaments can be dangerous. Ask: Which of the body’s five major barriers is broken down when a person gets a tattoo or a piercing? The skin If the needle used for tattooing or piercing is not clean, what could get through this barrier to the inside of the body? Pathogens Explain that there is a risk of infection any time the skin is pierced, and people who do tattoos or piercings may not properly sterilize their instruments.

**Answer** The body first responds with inflammation of the affected area.

**Caption Answer**

Figure Caption  Mucous membranes and saliva both protect you from pathogens in your mouth.

**HEALTH LITERACY**

**Stress Affects the Immune System**  Studies have shown that in a dangerous situation, the body naturally gears up to deal with cuts and scrapes, or even worse. Studies have also shown, though, that long-term, chronic stress suppresses and breaks down the immune system. A person under constant stress becomes less able to fight off the pathogens that cause disease. Handling stress in a healthy way, then, is good for the immune system. Techniques that involve relaxation and positive thinking are ways to meet the challenges of stress.
CHAPTER 18
Lesson 2
Keeping a Healthy Immune System

Use the following strategies to help students complete the activity:

• Read the introductory paragraph, and then call on students to read each item in the bulleted list of habits that keep the immune system in top condition. Lead a discussion about which of these habits students think is most important.

• Divide the class into small groups, and have each group use print and online resources to research good health habits.

• Set a deadline for completion of the research. Invite each group to present its findings to the class.

Practicing Healthful Behaviors

Keeping a Healthy Immune System

Good health habits can keep your immune system healthy. A healthy immune system means your body is better able to fight off infection. Commit to these habits to keep your immune system in top condition!

• Follow a healthful eating plan. Eat plenty of vitamin-rich fruits, vegetables, and whole grains.
• Participate in regular physical activity.
• Learn to manage stress in healthy ways.
• Get plenty of sleep. Rest strengthens your body’s defenses.
• Avoid tobacco, alcohol, and other drugs.
• Drink plenty of water.
• Bathe and shower regularly.
• Get regular checkups from a health care professional.

On Your Own
Using print or online resources, research other good health habits that can help you look and feel your best.

Specific Immune Response

Some pathogens can survive the body’s nonspecific response. When this happens, the body sets in motion a specific immune response. Each specific response is customized to attack a particular pathogen and its toxins. Our immune system can “recognize” pathogens it has already battled. Once our immune system creates a specific response, cells from that response are ready to attack when the pathogen reappears. As a result, the second response is much quicker than the first.

The Lymphatic System

The lymphatic system is a secondary circulatory system that helps the body fight pathogens and maintains its fluid balance. The fluid circulating in the lymphatic system is called lymph. The white blood cells in the lymphatic system are called lymphocytes. There are two main kinds of lymphocytes: B cells and T cells. B cells form in the bone marrow. T cells develop in the thymus gland.

Exercise and Immunity

According to the President’s Council on Physical Fitness and Sports, moderate physical activity results in positive changes in the immune system. For example, people who exercise regularly have fewer colds than people who don’t exercise regularly. Researchers have found that positive changes actually occur in the immune system during moderate exercise. Recent studies show that near-daily physical activity reduces the number of days with sickness.

Academic Vocabulary

Maintains Have students read the definition and example sentence. Let several volunteers restate the example sentence or the sentence in the text, replacing maintains with a word or phrase that has the same (or nearly the same) meaning.

You will find academic vocabulary activities in the Student Activities Workbook.
A vaccine causes an immune response to occur. The immune system prepares memory cells for a disease without making the person ill. If the targeted pathogens enter the body, antibodies destroy the harmful pathogens.

**Universal Access**

**English Learners** Have students create a skit that takes place in a doctor’s office, in which the doctor tells the patient about a particular vaccination they need to get and why.

**Reading Strategy**

**Analyzing a Chart** After students have examined Figure 18.3 on the next page, ask: According to the vaccination schedule, when should a person receive the first vaccination? The hepatitis B vaccine should be given at birth. Which vaccines are given at two months? DTaP, Hib, and polio Explain that students will learn in Lesson 3 about many of the diseases listed in the chart.

**Concerns About Vaccines** Fear that vaccinations carry risks have caused some people to refuse to have their children immunized. For example, in recent years some outspoken doctors and parents have charged that the vaccine for measles, mumps, and rubella (MMR) can cause autism in children. As a result of these charges, the Centers for Disease and Prevention (CDC) conducted research and found no evidence of a link between the vaccine and autism. Have interested students investigate this issue.

**Antibodies and Antigens**

Lymphocytes react to antigens. An antigen is any substance released by invading pathogens. The immune system responds to these antigens by producing antibodies. Antibodies are proteins that attach to antigens, keeping them from harming the body. If the same type of pathogen invades the body again, these antibodies are ready to attack.

T cells either stimulate the production of B cells or attack pathogens directly. There are two main types of T cells: helper cells and killer cells. Helper cells activate the production of B cells. Killer cells attach to invading pathogens and destroy them.

**Immunity**

Everyone is born with a natural immunity. Even before a baby is born, the mother’s antibodies pass from her body to her developing fetus. After a baby is born, antibodies are passed on to the baby through the mother’s milk. However, these immunities last for only a few months. Then the baby’s immune system becomes active, and produces antibodies on its own to fight pathogens.

Immunity also develops when a vaccine is used. A vaccine (vak-SEEN) is a preparation of dead or weakened pathogens that causes the immune system to produce antibodies. They help the immune system make antibodies for certain diseases. This process is called immunization.

Vaccines have been developed for many diseases, such as polio, measles, and chicken pox. Some vaccinations, such as those for hepatitis B, must be given in a series over a span of a few months. Others, such as the tetanus shot, must be given repeatedly during your lifetime. To keep your body healthy, it is important to keep vaccinations current. Figure 18.3 provides the vaccination schedule for many common vaccines. Remember that vaccinations protect not only you but also those around you!

**Caption Answer**

Photo Caption: A vaccine causes an immune response to occur. The immune system prepares memory cells for a disease without making the person ill. If the targeted pathogens enter the body, antibodies destroy the harmful pathogens.

Macrophages (MA-kruh-fay-juhz) are also found in the lymph. Their purpose is to attach themselves to invading pathogens and destroy them. Macrophages surround foreign substances and destroy them. Macrophages help the lymphocytes recognize the invader and prepare for future attacks.

Visit glencoe.com and complete the Interactive Study Guide for Lesson 2.
CHAPTER 18

Lesson 2

Assessment Resources
Lesson Review Quiz
ExamView
Fast Files Activities
Online Quizzes and Activities
Reteaching

• Assign Concept Map 18-2 or Reteaching Activity 18-2 in the Fast Files.
• Ask each student to write ten questions using terms and concepts learned in Lesson 2. Then have partners quiz each other with their questions.

Enrichment

• Assign Enrichment Activity 18-2 in the Fast Files.
• Have students create comic strips that show how lymphocytes react to invading pathogens.

CLOSE

Call on students to distinguish between a specific or nonspecific immune response.

Lesson 2 Review

After You Read

Review this lesson for new terms, major headings, and Reading Checks.

What I Learned
1. Vocabulary Define the term antigen.
   Name two types of white blood cells your immune system produces to fight antigens.
2. Recall What is the lymphatic system?
   How does it protect your body against disease?
3. Explain What is the body’s first line of defense against pathogens?

Thinking Critically
4. Analyze How does fever help fight an infection?
5. Evaluate How do vaccines help protect the health of the community?

Applying Health Skills
6. Decision Making A teen wakes up with a cold yet wants to go to school to take final exams. Use the decision-making process to help the teen make a healthy decision.

Lesson 2 Review Answers

1. An antigen is any substance released by invading pathogens. B cells and T cells.
2. a secondary circulatory system that fights pathogens and maintains fluid balance.
3. Circulation to the area slows down. The body produces a protein called interferon that stimulates the immune system. Body temperature may rise, making it harder for pathogens to reproduce.
4. Pathogens reproduce at the body’s normal temperature. When your body temperature rises even a little, it is harder for pathogens to reproduce. A fever also signals the body to produce more white blood cells.
5. Vaccines help protect individuals from getting certain communicable diseases, thereby reducing the spread of disease to the greater community.
6. Students should use six steps of decision making and demonstrate an understanding of how diseases spread.
Common Communicable Diseases

Colds

The common cold occurs more frequently than any other communicable disease. Colds are caused by hundreds of different viruses, and can be spread by direct or indirect contact.

You can help treat a cold by getting plenty of rest and drinking lots of fluids. Some over-the-counter (OTC) medicines can help relieve your symptoms. You should stay at home for at least 24 hours after your cold symptoms appear. This is when your cold is most contagious, meaning it is easily spread to others. Anyone who comes in contact with cold viruses can become infected. That is why it is so important to take an active role in preventing the common cold.

Recall Why is it important to stay home at least the first 24 hours after becoming infected with a cold virus?

Answer A cold is most contagious during the first 24 hours.

Caption Answer

Photo Caption Minimize contact with others.
The Flu

Influenza, or “the flu,” is another common communicable disease. Flu symptoms include fever, chills, fatigue, headache, muscle aches, and respiratory problems. Like the cold, the flu can be spread through both direct and indirect contact.

The flu is caused by one of three main types of influenza viruses, each with several different strains. Every year, certain strains of the flu virus spread more quickly than others. Scientists try to anticipate which strains will spread fastest so that they create enough flu vaccines for the following year. Most strains of the flu are relatively harmless, but some can be serious.

Other Common Communicable Diseases

Every communicable disease has a contagious period. The **contagious period** is the length of time that a particular disease can be spread from person to person. Quite often, the contagious period includes a length of time before the infected person starts to show symptoms. Chicken pox, measles, and mumps all have specific contagious periods. Several communicable diseases and their contagious periods are listed in Figure 18.4 on the next page. Other common communicable diseases are described below.

Mononucleosis

**Mononucleosis** (MAH-noh-nook-klee-OH-sis), or “mono,” is a viral disease characterized by a severe sore throat and swelling of the lymph glands in the neck and around the throat area. Mono most commonly infects teens and young adults. Known as “the kissing disease,” it is spread through contact with the saliva of an infected person. Mono is also spread through sharing contaminated eating utensils and drinking glasses.

Eating healthy foods can help your body fight off communicable diseases such as the flu. **What other choices can you make that will help keep you healthy?**

**Compare** How are the flu and the common cold similar?

**Define** What is a contagious period?

**Reading Check**

**Answer, top** Both diseases are caused by viruses and can be spread by direct and indirect contact. Each year a flu vaccine helps mitigate its impact, whereas there is no vaccine for a cold.

**Answer, bottom** The contagious period is the time during which a disease can be spread to others.

**Fighting Disease**

Explain that polio is a crippling communicable disease caused by a virus that has largely been eliminated in the United States because of polio immunization. Roosevelt contracted polio as a young man and could not walk without help for the rest of his life. Then call on volunteers to suggest famous athletes or historical figures who have had to fight disease.

**Research the life of a famous person who had to fight disease. Write a brief report. Tell about the disease and how this person prevailed.**

**Caption Answer**

get enough rest, stay away from others who may be infected

**The Threat of Bird Flu** Since 1997, there have been numerous cases of a flu infection found in Asian birds spreading to people in China, Vietnam, and other Asian countries. This bird flu virus is extremely deadly in birds, and it has also caused death in humans. Scientists are worried that a small change in the virus might allow it to spread easily throughout a human population. That might result in a flu pandemic that could kill 100 million people or more.

**Photo Caption**

get enough rest, stay away from others who may be infected
Some infections that involve pathogens are not contagious. For example, in most cases a type of pneumonia caused by a virus is not contagious. Here are the contagious periods of common diseases not listed in the chart in the text:

- **Colds**: contagious from the onset of a runny nose until the fever is gone.
- **The flu**: contagious from the onset of any symptoms until the fever is gone.
- **Strep throat**: contagious from the onset of a sore throat until 24 hours after first use of an antibiotic.

**Hepatitis**

Hepatitis (hep-uh-TY-tis) is a viral disease of the liver characterized by yellowing of the skin and the whites of the eyes. Other symptoms might include loss of appetite, weakness, lack of energy, fever, headaches, and a sore throat. Hepatitis A, B, and C are three different virus types.

Hepatitis A is common in areas with poor sanitation. It is spread through food or water that has been contaminated by human waste. People can also become infected if the virus enters the body through an open wound.

Hepatitis B and C are most commonly spread through contact with contaminated blood or other body fluids. Vaccines can protect people from contracting hepatitis A and B. Medications can help treat people infected with hepatitis C.
Tuberculosis

Tuberculosis (too-ber-kyuh-LOH-sis), or TB, is a bacterial disease that usually affects the lungs. Since TB can spread easily through the air, people are tested periodically to see if they have the disease. Sometimes people who test positive for TB show no symptoms. Even without symptoms, they can still spread the disease to others.

Pneumonia

Pneumonia is a serious inflammation of the lungs. Symptoms include fever, chills, and difficulty breathing. People infected with other diseases are especially vulnerable to pneumonia. This infection can be spread through direct or indirect contact. A virus or bacteria can cause pneumonia. Pneumonia caused by a bacteria can be treated with antibiotics.

Strep Throat

Strep throat is a sore throat caused by streptococcal bacteria. Strep throat produces a red and painful throat, fever, and swollen lymph nodes in the neck. It might also cause headaches, nausea, and vomiting. It is spread through direct or indirect contact with an infected person. Left untreated, strep infections can spread to other areas of the body. Fortunately, strep throat is caused by a bacteria and can be treated with antibiotics.

Lesson 3 Review Answers

1. Mononucleosis is a viral disease characterized by a severe sore throat and swelling of the lymph glands in the neck and around the throat area.
2. by eating or drinking contaminated food or water and by being exposed to contaminated blood or body fluids
3. Any two: painful throat, swollen lymph nodes, headaches, nausea, vomiting
4. People who are sick with other illnesses are especially vulnerable to pneumonia.
5. Sample answer: Someone should seek help if the symptoms are long lasting or get worse over time.
6. Articles will vary. A good article should include descriptions of prevention methods such as washing hands and covering the mouth and nose when sneezing or coughing. Students should explain why each method described is effective in preventing the spread of disease.
Activating Prior Knowledge

What I Know

Ask students to name sexually transmitted diseases. For each STD named, ask volunteers to explain how it is treated.

Building Vocabulary

■ Have students read the definition of STDs in the first paragraph. Ask for volunteers to name an STD they may have learned about in another health class.
■ Use Vocabulary PuzzleMaker to reinforce vocabulary terms.

Reading Strategy

Organizing Information

Create a chart listing each STD described in this lesson, its symptoms, and treatment.

Sexually Transmitted Diseases

What Are STDs?

Sexually transmitted diseases (STDs) are infections that are spread from person to person through sexual contact. They are sometimes called sexually transmitted infections (STIs). In the United States, STDs are a major health problem for teens. Each year, one-quarter of all new cases of STDs appear among 15- to 19-year-olds. One in four sexually active teens has an STD, although many do not even know it. However, STDs are completely preventable. This lesson will help you learn more about STDs, their causes, and how to avoid them. Figure 18.5 lists some important facts about STDs.

Common STDs

STDs can cause serious health problems if left untreated. Anyone who suspects he or she may have an STD should see a doctor right away. Some common STDs are described below:

• **Chlamydia** (kluh-MI-dee-uh) is a bacterial STD that may affect the reproductive organs, urethra, and anus. Chlamydia can be treated with antibiotics. It is a “silent” disease because in many cases there are no symptoms. Symptoms can include genital discharge and pain when urinating. If left untreated, chlamydia can seriously damage the reproductive organs in both males and females, leading to infertility.
**What You Should Know About STDs**

Learning the facts about STDs can help you avoid them. **What is the best way for teens to avoid getting STDs?**

- Most STDs are spread only through sexual contact.
- You cannot tell if someone has an STD by his or her appearance.
- Most STDs have either very mild or no symptoms.
- Many STDs can be treated and cured, but early diagnosis is important.
- Because treatments for STDs vary, they must be accurately identified.
- STDs can recur because the body does not build up an immunity to them.
- STDs can cause sterility, blindness, deafness, and birth defects.

**Genital herpes** (HER-peez) is a viral STD that produces painful blisters on the genital area. This STD is transmitted by skin-to-skin contact that can occur without having sexual intercourse. It results in periodic outbreaks of painful blisters or sores on the genitals. Herpes can be passed on to another person even when the blisters are not present. Although there is no cure, medicines are available to lessen the outbreaks.

**Genital warts** are growths or bumps in the genital area caused by certain types of the human papillomavirus (HPV). This STD is also transmitted by skin-to-skin contact. Genital warts can be treated, but there is no cure for HPV infection. These infections are the most common type of STD in the United States. Like genital herpes and chlamydia, HPV is often a silent disease. Some strains of HPV are linked to the cause of cervical and skin cancers. A vaccine has recently been developed to protect females against these strains of the HPV virus.

**Trichomoniasis** (TREE-koh-moh-NI-ah-sis) is an STD caused by the protozoan *Trichomonas vaginalis*. Trichomoniasis can be treated and cured with medications. The disease may be silent, but symptoms can include discomfort during urination, genital discharge, and irritation or itching in the genital area.

**Herpes** Some people believe that there is a “good” herpes virus and a “bad” herpes virus, but research shows this is not true. There are two viruses that cause herpes, HSV-1 and HSV-2. The virus called HSV-1 generally causes fever blisters on the mouth, lips, and nose. The virus called HSV-2 generally causes sores on the vagina, buttocks, penis, and elsewhere. In reality, both HSV-1 and HSV-2 can cause either genital or oral infections. Both viruses can be spread when there are no symptoms.
HS Health Skills Practice

Good Communication Divide the class into small groups, and ask each group to create a role-play that demonstrates effective refusal skills when a date is pressuring you to engage in sexual activity. Have each group perform its role-play for the class. After all groups have performed, lead a class discussion about which communication strategies would likely prove most effective on a real date.

OL

Answer examples include chlamydia, gonorrhea, and syphilis

Caption Answer

Photo Caption, this page

Sample answers: play basketball, go to the movies, shop at the mall

What Teens Think

What are some fun activities teens can do with their friends? Have students read and discuss the question and their responses. Divide students into cooperative groups, and have the members of each group list at least ten activities that are both fun and healthful for groups of teens.

Teacher to Teacher

Ivy Kurland

STD Presentations “I divide students into groups of four and have them create oral presentations on a specific STD, including the disease’s symptoms and treatments. The students learn from each other and enjoy doing the work together. This instills collaboration and as teacher, I can work closely with my students.”

Everglades School, Florida

Practicing Abstinence

The best way to avoid getting an STD is to abstain from sexual activity until marriage. As a teen, deciding to say no to sexual activity is one of the most important health choices that you can make.

• Gonorrhea (gah-nuh-REE-uh) is a bacterial STD that affects the mucous membranes of the body, particularly in the genital area. Symptoms include a thick yellowish discharge from the genitals and a burning sensation when urinating. The infection can be treated with antibiotics. Untreated, it can infect other parts of the body, such as the heart, and cause fertility problems for both women and men.

• Syphilis (SIH-fuh-leez) is a bacterial STD that can affect many parts of the body. It can damage body organs, such as the brain. During the advanced stage, the disease can cause mental disorders, blindness, heart problems, paralysis, and even death. If diagnosed early, syphilis can be treated and cured with antibiotics.

• Pelvic inflammatory disease (PID) is a general infection of the female reproductive organs. Most females become infected with PID as a result of contracting another STD, such as chlamydia or gonorrhea. When PID is untreated, the infection may worsen over time and cause sterility.

• HIV/AIDS is a serious STD covered in the next lesson.

Give Examples Name three STDs that are caused by bacteria.
Make a commitment to practice abstinence and demonstrate your commitment through words and actions. Choose friends who share your values and support your decisions.

Avoid being alone on a date. By participating in group activities, you can avoid the pressures of sexual activity. If you do go on a one-on-one date, communicate your limits to your date before you go out. Practice how to respond to a date who tries to pressure you into sexual activity. For example, if your date says, “If you really care for me, you would have sex with me,” you can say, “If you really care for me, you would respect my decision.”

Describe What are some ways to avoid being pressured to engage in sexual activity?

5. Evaluate Why is it important to immediately seek help from a health care professional if you suspect you have an STD?

Thinking Critically
4. Apply Why is abstinence until marriage the best choice for teens?

What I Learned
1. Vocabulary Define sexually transmitted disease.
2. Give Examples What are three examples of STDs that are considered “silent diseases”?
3. List Name three consequences of untreated chlamydia.

Applying Health Skills
6. Advocacy Create a booklet that tells teens about the dangers of STDs. It should highlight the most common STDs, how they are spread, and their symptoms. Also include how teens can avoid getting STDs.

Enrichment
- Assign Enrichment Activity 18-4 in the Fast Files.
- Ask students to write a script for a favorite TV show that shows teens struggling with abstinence when faced with peer pressure that promotes sexual activity.

CLOSE
Call on students to describe a misconception that they had about STDs before reading Lesson 4 and to explain what changed their thinking.
What Is HIV? What Is AIDS?

HIV (human immunodeficiency virus) is the virus that causes AIDS. AIDS (acquired immunodeficiency syndrome) is a deadly disease that interferes with the body’s natural ability to fight infection. HIV attacks the body’s T cells. As mentioned in Lesson 2, T cells are a type of lymphocyte that help the body fight off pathogens. When the HIV virus attacks a T cell, it replaces the cell’s genetic information with its own and then multiplies. As more T cells are taken over, the immune system becomes weaker.

Eventually, the body can no longer fight the pathogens that a healthy immune system would destroy. When this happens, AIDS develops. One symptom that signals the onset of AIDS is the presence of opportunistic infections. An opportunistic infection is an infection that rarely occurs in a healthy person. For example, many AIDS patients develop a type of pneumonia that can cause death.

A person can be a carrier of HIV, without having AIDS. A carrier is a person who appears healthy but is infected with HIV and can pass it to others. A person may be infected with HIV for ten years or more before starting to show symptoms of AIDS. A blood test is the only way of knowing if a person is infected with HIV. AIDS can affect men, women, and children of all ages. Figure 18.6 shows the number of new AIDS cases diagnosed by age group in
2005. The table also shows how many total AIDS cases have been diagnosed by age group through the end of 2005. How do you think this information is used to help reduce the spread of HIV?

**How Does HIV Spread?**

HIV is spread from person to person through contact with specific body fluids. These fluids are sperm, fluid from the vagina, blood, and breast milk.

One of the ways HIV spreads is through sexual contact with an infected person. Just one incident of sexual activity with an infected person can spread the virus. People who have more than one sex partner are at greatest risk.

Another way HIV is spread is through sharing needles. Many injection drug users have contracted HIV. Tattoos and body piercings can also spread HIV if performed with contaminated needles.

HIV can also be spread from mother to child. This can occur either before or after delivery, or through breast-feeding. In recent years, new drug therapies have reduced the rate of transmission of HIV to the fetus during pregnancy.

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### Figure 18.6

**U.S. AIDS Cases at Age of Diagnosis, 2005**

AIDS can develop months or even years after infection with HIV. Why would this long span of time make the spread of the disease harder to control?

<table>
<thead>
<tr>
<th>Age</th>
<th>Estimated # of AIDS Cases in 2005</th>
<th>Cumulative Estimated # of AIDS Cases, Through 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 13</td>
<td>58</td>
<td>9,089</td>
</tr>
<tr>
<td>Ages 13 to 14</td>
<td>66</td>
<td>1,015</td>
</tr>
<tr>
<td>Ages 15 to 24</td>
<td>2,480</td>
<td>40,296</td>
</tr>
<tr>
<td>Ages 25 to 34</td>
<td>9,374</td>
<td>309,048</td>
</tr>
<tr>
<td>Ages 35 to 44</td>
<td>16,792</td>
<td>374,707</td>
</tr>
<tr>
<td>Ages 45 to 54</td>
<td>11,230</td>
<td>160,662</td>
</tr>
<tr>
<td>Ages 55 to 64</td>
<td>3,308</td>
<td>47,242</td>
</tr>
<tr>
<td>Ages 65 to older</td>
<td>899</td>
<td>14,606</td>
</tr>
</tbody>
</table>

Source: CDC—Division of HIV/AIDS Prevention.

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**AIDS Treatment** When the first people were diagnosed with AIDS in the United States, there was no effective treatment. Since then, researchers have developed many medicines to treat AIDS infections. These drugs have changed the disease from one that carried a death sentence to one that can be managed over many years. HIV is a virus that can become resistant to the drugs used against it. As a result, most people infected with HIV and people that have AIDS are treated with a combination of drugs. The multiple drugs people take daily have sometimes been called an “AIDS cocktail.”
Can I get AIDS by kissing someone infected with HIV? Remind students that saliva is one of the body’s five major barriers to pathogens. Saliva contains proteins that reduce the ability of HIV to infect a person. According to the Centers for Disease Control and Prevention (CDC), there is no risk of transmission for a close-mouthed kiss. Because HIV can spread by contact with blood, there is a very low risk of transmission through a prolonged kiss when the infected person has mouth sores.
Preventing HIV/AIDS

HIV infection and AIDS can be prevented. There are three main ways to avoid these diseases:

- **Practice abstinence.** Abstinence is the conscious, active choice not to participate in high-risk behaviors. This includes avoiding sexual activity until marriage.
- **Avoid drugs and alcohol.** Using drugs and alcohol can impair your ability to make healthful decisions. This can lead to participation in other risky behaviors, such as sexual activity.
- **Avoid sharing needles.** Needles can carry HIV into your bloodstream. This includes needles that are used for tattoos or body piercings.

**Lesson 5 Review**

**Review this lesson for new terms, major headings, and Reading Checks.**

**What I Learned**

1. **Vocabulary** Define HIV and carrier.
2. **Give Examples** What are two ways teens can get infected with HIV?
3. **Recall** How does HIV weaken the body’s immune system?

**Thinking Critically**

4. **Analyze** Why is HIV an extremely dangerous virus?
5. **Apply** Jasmine doesn’t want to share tennis rackets with Mei, who has HIV.

Jasmine is afraid of getting infected with HIV. What could you tell Jasmine?

**Applying Health Skills**

6. **Goal Setting** Think of how you want to avoid exposure to HIV infection, AIDS, or other STDs. Set a goal to protect yourself from these diseases. Develop a plan to help you reach your goal. Be clear and specific about the steps you will take to reach your goal.

**Lesson 5 Review Answers**

1. HIV is the virus that causes AIDS. A carrier is a person who appears healthy but is infected with HIV and can pass it to others.
2. **Sample answer:** by having sexual contact with an infected person or by using a contaminated needle
3. It attacks and kills T cells so that the immune system cannot attack HIV or any other infection.
4. **Sample answer:** There is no vaccine to prevent infection with HIV. There is no cure for AIDS. AIDS can eventually cause death.
5. **Sample answer:** HIV cannot be spread by casual contact, and so sharing a tennis racket with Mei will not spread the disease to Jasmine.
6. Goals will vary. A goal for most students will be to practice abstinence. Students should be specific about their goals and how they will implement those goals.
Skill
Goal Setting

Activating Prior Knowledge
Have students review the material in Lesson 1 about how to keep pathogens from spreading, including the lists of how to protect yourself from germs and how to protect others from pathogens.

- **Objective** After completing the activity, students will be able to set and achieve a personal health goal.
- **Time** 45 minutes
- **Materials** pencil, paper

Teacher Classroom Resources
- Building Health Skills
- Transparency 18-1

Model
- Call on volunteers to read aloud the introductory paragraphs in the Model section and the five steps of Jennifer’s plan to meet her goal.
- Ask: How did Jennifer’s parents help her? *They gave her advice on the best way to clean.*

What Is Goal Setting?
Goal setting is a five-step plan for improving and maintaining your personal health. Some goals are easy to reach while others may be more challenging.

The 5 Steps of the Goal-Setting Plan
- **Step 1:** Choose a realistic goal and write it down.
- **Step 2:** List the steps that you need to take to reach the goal.
- **Step 3:** Find others, like family, friends, and teachers who can help and support you.
- **Step 4:** Set checkpoints along the way to evaluate your progress.
- **Step 5:** Reward yourself once you have reached your goal.

Protect Yourself from Pathogens

Follow the Model, Practice, and Apply steps to help you master this important health skill.

1. **Model**

   *Read how Jennifer uses the skill of goal setting to improve her health.*

   Jennifer noticed that she was sick a lot during the school year. She thought that it had to do with her messy room. Jennifer used the skill of goal setting to clean her room and get healthy.

   1. Jennifer wanted to keep her room clean for a month. *(Identify a specific goal.)*
   2. Jennifer put her dirty clothes in the hamper. She threw out her trash and took her dirty plates to the kitchen. She vacuumed and dusted her furniture. *(List the steps you will take.)*
   3. Jennifer asked her mom and dad for advice on the best way to clean. *(Ask for help and support from others.)*
   4. After two weeks, Jennifer felt better and her room looked good. *(Evaluate your progress.)*
   5. At the end of the month, Jennifer bought a new CD. *(Reward yourself.)*

Planning for Obstacles
In the practice section, point out that unexpected obstacles can interfere with achieving one’s goals. This is why all steps of the goal-setting process must be used.

Reviewing Students’ Health Goals
Check each student’s health goal for appropriateness at the beginning of the Apply section. Be ready with specific suggestions (proper hand washing, not sharing utensils, seeking medical care, etc.). Near the end of this activity, identify exemplary papers and have students read these aloud.
Practice

Help Paul use goal setting to achieve his goal of reducing the number of colds he gets each year.

Paul likes having a clean, uncluttered room. He also likes how achieving a goal builds his self-confidence. Now Paul wants to reduce the number of colds he gets every school year. He believes that he could achieve this if he washed his hands more frequently.

1. What is Paul's goal?
2. What steps can help Paul reach his goal?
3. Who can Paul get to help him?
4. How can Paul evaluate his progress?
5. How can he reward himself for following his plan?

Apply

Use what you have learned about goal setting to complete the activity below.

Think of how you can better protect yourself from disease. How would you accomplish this goal? Take a piece of paper and make a reminder to post in your room. On your reminder include a plan that will help you reach your goal. Use art to illustrate how achieving your goal will improve your physical, mental/emotional, and social health.

Self-Check

- Does my reminder contain the steps for achieving my goal?
- Did I show how my goal will improve my health?
CHAPTER 18

Healthy Habits

Introducing Hands-on Health
• Have a class discussion about healthy habits, with a focus on what students have learned about how to keep pathogens from spreading. Ask: Is anything wrong if students playing soccer drink water from the same water bottle? Sample answer: Water-bottle sharing can spread pathogens and should be avoided. Have students respond to similar questions about common actions that may or may not be healthy.

Teaching the Activity
• Have students respond yes or no to each statement.
• Lead a class discussion about the students’ responses. Read each question aloud, then ask volunteers to share their responses.
• Ask students to suggest other healthy habits that every person should adopt to prevent the spread of pathogens.

Healthy Habits
How healthy are your habits? This activity will help you find out.

What You Will Need
■ pencil and paper

What You Will Do
Write yes or no for each statement.

1. I avoid sharing eating utensils or drinking glasses with others.
2. I avoid drinking water from streams and lakes.
3. I cover my nose and mouth when I cough or sneeze.
4. I make sure leftover food is properly stored.
5. I wash my hands after using the bathroom and before preparing or serving food.
6. When I am sick, I get medical care.
7. When I am sick, I avoid others during the contagious period.
8. I avoid sharing combs, brushes, and towels with others.
9. I avoid contact with people who have a cold or other communicable diseases.
10. I have received all the recommended vaccinations.

Wrapping It Up
Give yourself 1 point for each yes. A score of 8–10 is very good. A score of 6–7 is good. A score of 4–5 is fair. If you score below 4, you need to work on improving your health behaviors.

Discussion After students have completed the inventory and reviewed their answers, open a discussion about effective ways to prevent the spread of pathogens. Have students share their suggestions for healthy habits and record suggestions on the board. Ask for a show of hands to determine which habit students think should rank first in importance in their daily routines.
Lesson 1  Preventing the Spread of Disease

Main Idea You can help protect yourself and others from pathogens by practicing good hygiene.
- A communicable disease is a disease that can be passed to a person from another person, animal, or object.
- The four common pathogens are viruses, bacteria, fungi, and protozoa.

Lesson 2  The Body’s Defenses Against Infection

Main Idea The five major barriers that protect you from infection are tears, mucous membranes, saliva, skin, and stomach acid.
- Your immune system responds when a pathogen gets past the five major barriers of protection.
- The immune system has two main responses: the nonspecific response and the specific response.
- Vaccines help the immune system make antibodies for certain diseases.

Lesson 3  Common Communicable Diseases

Main Idea Common communicable diseases include colds, the flu, mononucleosis, hepatitis, tuberculosis, pneumonia, and strep throat.
- The contagious period is the length of time that a particular disease can be spread from person to person.

Lesson 4  Sexually Transmitted Diseases

Main Idea Chlamydia, genital warts, genital herpes, trichomoniasis, gonorrhea, syphilis, and hepatitis B are common STDs.
- STDs are diseases that are spread from person to person through sexual contact.
- The best way to avoid getting an STD is to abstain from sexual activity until marriage.

Lesson 5  HIV/AIDS

Main Idea HIV is the virus that causes AIDS.
- HIV is spread through contact with sperm, vaginal fluid, blood, or breast milk.
- HIV is not spread through casual touching, breathing the air, mosquito bites, swimming in a pool, sharing utensils, donating blood, hugging or shaking hands, or using the same shower, bathtub, or toilet as an infected person.
- Abstinence until marriage is the only sure way to protect yourself against HIV infection, AIDS, and other STDs.

Reading Review

Review Strategies for Reading The ability to read is important to the success of any student. Yet many students experience difficulty in mastering this necessary skill. To improve students’ comprehension and retention, have them preview required reading selections. Before students begin reading, make sure they read any introductions. Another good idea is to have them organize all the headings and subheadings in an outline form, leaving spaces for supporting details as they read through the selection.

Vocabulary Review

- Vocabulary Notebook Have students define the chapter’s vocabulary terms in their own words.

Visit glencoe.com to download quizzes and eFlashcards for Chapter 18.
Assessment

Reviewing Vocabulary and Main Ideas

1. disease
2. infection
3. Viruses
4. Inflammation
5. immune system
6. Antibodies
7. Influenza
8. contagious period
9. Tuberculosis
10. False, sexual
11. True
12. True
13. True
14. False, cannot
15. False, help manage

Thinking Critically

16. Sample answer: AIDS interferes with the body’s immune system and its ability to fight infections. As a result, a serious infection can cause death.
17. Sample answer: Some vaccinations must be given repeatedly during a person’s lifetime because a vaccination may protect the person for only several years.

Reviewing Vocabulary and Main Ideas

On a sheet of paper, write the numbers 1–9. After each number, write the term from the list that best completes each statement.

- disease
- immune system
- infection
- viruses
- antibodies
- vaccine
- influenza
- contagious period
- tuberculosis
- inflammation

Lesson 1 Preventing the Spread of Disease

1. A(n) ________ is any condition that interferes with the proper functioning of the body or mind.
2. A(n) ________ is a condition that occurs when pathogens enter the body, multiply, and cause harm.
3. ________ are the smallest kinds of pathogens.

Lesson 2 The Body’s Defenses Against Infection

4. ________ is the body’s response to injury or disease, resulting in a condition of swelling, pain, heat, and redness.

Lesson 3 Common Communicable Diseases

7. ________ is a communicable disease characterized by fever, chills, fatigue, headache, muscle aches, and respiratory symptoms.
8. The ________ is the length of time that a particular disease can be spread from person to person.
9. ________ is a bacterial disease that usually affects the lungs.

Lesson 4 Sexually Transmitted Diseases

10. Sexually transmitted diseases are infections that spread from person to person through casual contact.
11. Syphilis is a bacterial STD that can affect many parts of the body.
12. Genital herpes can be transmitted when symptoms are not present.

Lesson 5 HIV/AIDS

13. HIV is the virus that causes AIDS.
14. You can become infected with HIV by shaking hands with an infected person.

The Truth About STDs

Have students reread the Health eSpotlight question at the beginning of the chapter (page 477) and look at their original answer. Ask: Now that you have read the chapter and watched the video presentation, what role can abstinence play in reducing the new cases of STDs in teens?
15. Scientists have developed powerful new drugs to cure HIV infections.

**Thinking Critically**

*Using complete sentences, answer the following questions on a sheet of paper.*

16. **Explain** Why do people who have AIDS actually die from other diseases?

17. **Interpret** Sometimes after you get a vaccination, years later you have to get more of the same vaccine. Why do you think you might need this “booster shot”?

**Write About It**

18. **Personal Writing** Write a journal entry describing what factors can influence a teen’s attitude toward sexual activity. Are these influences positive or negative?

**Standardized Test Practice**

**Reading**

Read the passage and then answer the questions.

During the Middle Ages, hundreds of people were killed by the bubonic plague in a very short time. The pathogen for the bubonic plague is a bacterium called *Yersinia pestis*. It lived inside fleas, which lived on rats. The rats became infected when the fleas bit them. Even uninfected fleas that bit infected rats could become infected. When the fleas jumped from rat to rat, the plague spread quickly. As the disease moved through the cities’ rat populations, the rats died off. As the number of rats decreased, more and more infected fleas started living on and biting humans. People became hosts for the bacterium. During 1347 to 1350, the bubonic plague killed one-third of Europe’s population.

**TEST-TAKING TIP**

When a question asks for the main point of the passage, reread the first and last sentences. This is where the authors often place the most important information.

1. The main point of this passage is to explain how
   A. fleas can live on rats and humans.
   B. the plague killed so many people so quickly.
   C. to prevent the plague from killing humans.
   D. Europe’s population became so low.

2. Read this sentence from the passage. The pathogen for the bubonic plague is a bacterium called *Yersinia pestis*. What does *pathogen* mean?
   A. path  
   B. antigen  
   C. name  
   D. germ

**Write About It**

18. **Personal Writing**

Students’ journal entries, which will vary, should describe factors that can influence a teen’s attitudes about sexual activity. For example, a student might describe a family’s value of not having sexual contact before marriage as influencing a teen. Ask teens to identify which influences are positive and which are negative.