



Communicable Diseases



Chapter Preview

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▲ Working with the Photo

Staying home and getting rest when you are sick helps you limit the number of people who are exposed to your illness. **What are some other ways to prevent the spread of disease?**

Start-Up Activities

Before You Read

What do you already know about how some diseases spread? Take the short quiz below. Keep a record of your answers.

HEALTH QUIZ Choose the best answer for each of the following:

- Covering your mouth when you cough
 - is dangerous for your lungs.
 - prevents pathogens from spreading.
 - kills germs.
- Strep throat is caused by
 - a virus.
 - a bacterium.
 - eating the wrong food.
- A good way to avoid getting sick is
 - washing your hands often.
 - shaking hands with someone who is sick.
 - sharing other people's food.

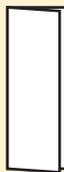
ANSWERS: 1. b; 2. b; 3. a.

FOLDABLES® Study Organizer

As You Read

Make this Foldable® to help you record the main ideas about the causes of communicable diseases. Begin with a plain sheet of $8\frac{1}{2}'' \times 11''$ paper.

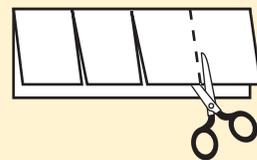
- 1** Fold the sheet of paper along the long axis, leaving a $\frac{1}{2}''$ tab along the side.



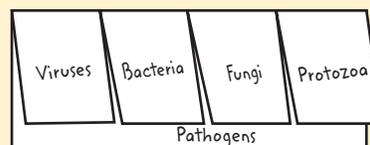
- 2** Turn the paper. Fold in half, then fold in half again.



- 3** Unfold and cut the top layer along the three fold lines. This makes four tabs.



- 4** Label as shown.



Under the appropriate tab, summarize what you learn about each type of pathogen.

Go Online

Visit glencoe.com and complete the Chapter 13 crossword puzzle.

Lesson 1

What Are Communicable Diseases?

Guide to Reading

Building Vocabulary

As you read this lesson, write each new term on one side of an index card and the definition on the other. Use the cards to quiz yourself on the definitions.

- disease (p. 402)
- communicable disease (p. 402)
- germs (p. 402)
- pathogens (p. 402)
- infection (p. 402)
- viruses (p. 403)
- bacteria (p. 403)
- fungi (p. 403)
- protozoa (p. 404)

Focusing on the Main Ideas

In this lesson, you will be able to

- **identify** types of germs that can cause disease.
- **describe** what an infection is.
- **explain** how germs are spread.
- **access** information on safe drinking water.

Reading Strategy

Organizing Information As you read this lesson, make a list of different ways that pathogens are spread.

FOLDABLES Study Organizer Use the Foldable® on p. 401 as you read this lesson.

Quick Write

How do people catch colds? Write down one or two sentences that explain your answer.

Germs and Disease

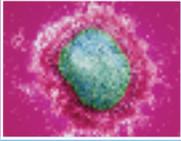
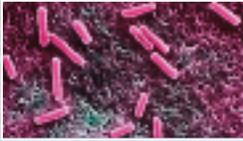
You wake up feeling tired. Your nose is stuffy. Your throat is sore. You have a cold. A cold is one kind of disease. A **disease** is *any condition that interferes with the normal or proper functioning of the body or mind*. Diseases such as colds are called communicable diseases. A **communicable disease** is *a disease that can be spread to a person from another person, an animal, or an object*.

Communicable diseases are caused by germs. **Germs** are *organisms that are so small they can only be seen through a microscope*. The environment is filled with many types of germs. *Germs that cause diseases* are called **pathogens**. An **infection** is *a condition that happens when pathogens enter the body, multiply, and cause harm*. When the body cannot fight off an infection, a disease develops. **Figure 13.1** shows some kinds of pathogens and lists the diseases they cause.



FIGURE 13.1 PATHOGENS AND THE DISEASES THEY CAUSE

Communicable diseases are all caused by pathogens. **According to the chart, what common diseases do fungi cause?**

Pathogens	Diseases
Viruses 	Colds, chicken pox, influenza, measles, mononucleosis, mumps, hepatitis, herpes, HPV, HIV, yellow fever, polio, rabies, viral pneumonia
Bacteria 	Pinkeye, whooping cough, strep throat, tuberculosis, Lyme disease, most foodborne illnesses, diphtheria, bacterial pneumonia, cholera, gonorrhea
Fungi 	Athlete's foot, ringworm
Protozoa 	Dysentery, malaria, trichomoniasis

Kinds of Pathogens

There are four basic kinds of pathogens: viruses, bacteria, fungi, and protozoa. **Viruses** (VY-ruh-suhz) are *the smallest and simplest pathogens*. Viruses are not alive. They are usually made of genetic material and protein. Viruses cause upper respiratory infections and many other types of diseases.

Bacteria are *simple one-celled organisms*. Bacteria exist in every environment on earth. Most kinds of bacteria are not only harmless but actually helpful. Helpful bacteria live in your digestive system and help break down food. Other bacteria live on your skin and prevent harmful bacteria from infecting you. Harmful bacteria cause diseases such as strep throat and pneumonia.

Fungi (FUHN-jy) are *organisms that are more complex than bacteria but cannot make their own food*. Molds, yeast, and mushrooms are examples of fungi. Fungi thrive in warm, moist environments. Most fungi are harmless, but some can cause disease. For instance, a fungus causes athlete's foot.



What Teens THINK



If you had to give advice to someone on how to stay healthy, what would you tell them?

If I were to give advice to stay healthy it would depend on how old you are. If you are 10-15 years old, just go out and play. Stay active and don't worry about going to the gym everyday. Play hard and eat healthy, but have some unhealthy snacks every once in a while. If you are between 15 and 30, eat right and make sure you don't over eat. Don't starve yourself; just make sure you eat the right portions and stay active.

Katie S.
Sandy, UT



Protozoa (proh-tuh-ZOH-uh) are *one-celled organisms that are more complex than bacteria*. Although many protozoa are harmless, some can cause serious diseases. For example, one type of protozoa causes malaria. This disease can be transferred to people through mosquito bites.

How Pathogens Spread

Communicable diseases spread when a person gets infected by pathogens from another person, an animal, or an object. Most pathogens are spread in one of the following ways.

Direct contact with others

Some pathogens spread directly from one person to another. For example, a person with pinkeye might wipe his or her eye with a hand. If that hand touches your hand, and you touch your eye, you could get pinkeye. Washing your hands often with soap helps stop the spread of these pathogens.

Indirect contact with others

Some pathogens can spread from person to person without direct contact. When you have a cold or sore throat and you sneeze or cough, you can send pathogens into the air. Anyone breathing this air can become infected with the pathogen. Using tissues to cover your mouth and nose when you sneeze or cough can keep these pathogens from spreading.

Pathogens can also spread when people share drinking glasses, eating utensils, and other personal items. Always wash glasses, cups, and eating utensils with warm, soapy water before using them. Never share eating utensils, cups, drinking glasses, or personal items, such as toothbrushes or razors, with others.

Contact with someone else's blood

Some pathogens, such as the human immunodeficiency virus (HIV), which causes Acquired Immunodeficiency Syndrome (AIDS), can spread when blood from an infected person comes in contact with someone else's blood. This can happen when someone injects drugs using a needle that someone else has used. Unclean needles and tools used for tattooing and piercing can also spread pathogens. In some cases, pathogens can spread when the blood





Health Skills Activity

Accessing Information

Safe Drinking Water?

You turn on the faucet and water comes out of the tap into your glass. How does water get to your sink? Typically, it takes a long trip with several stops, where it's made safe for you to drink. The Environmental Protection Agency sets safe drinking water standards for the whole country. It enforces these standards through the Safe Drinking Water Act. State and local governments make sure cities and towns meet these standards. They must make sure the water you have in your home is safe to drink.

With a Group

In a group, research the journey water makes before it comes out of your tap. Where is drinking water stored in your community? Who makes sure that the water is safe? How is the water treated to make it clean? If possible, visit a water treatment plant. Present your findings in an oral report.

from an infected person touches the broken skin of a noninfected person. When a person donates blood, it is carefully screened for all pathogens before it is given to a person who needs it.

Sexual contact

Some pathogens are spread through sexual contact. You will learn more about these pathogens and the diseases they cause in Lessons 5 and 6.

Contact with contaminated food and water

Rare meat may taste good, but it may not be healthy for you. Undercooked meat may still contain bacteria that can make you sick. Illnesses people get from pathogens in food are called *foodborne illnesses*. To prevent foodborne illnesses, you must carefully prepare food before you eat it. You should properly store food that can spoil, such as dairy products and meat. Always wash fruits and vegetables. Handle meat, poultry, eggs, and fish carefully, and cook these foods thoroughly. Cleaning up is also very important. First, wash all knives and surfaces that meat, poultry, and fish have touched. Then mix one tablespoon of bleach into one gallon of warm water. Use it to wipe down all knives and cutting boards to kill germs. Even tap water can become contaminated in times of emergency.



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



Some pathogens are spread through contaminated water. Never drink water directly from lakes and rivers. Most towns and cities must purify their water to make it safe to drink.

Contact with animals or insects

Animals and insects can spread pathogens. For example, animals that carry the rabies virus can infect other animals and humans if they bite them. A deer tick's bite can spread the virus that causes Lyme disease. Mosquitoes infected with the West Nile virus can spread that virus to birds, horses, and humans.

Reading Check **Explain** What are six ways that communicable diseases can be spread?

- ◀ Mosquitoes can infect humans with the West Nile virus. Controlling mosquito populations is one way to help control the spread of the West Nile virus. **What other ways can communities help prevent the spread of diseases spread by animals?**

Lesson 1 Review

After You Read

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

What I Learned

1. **Vocabulary** Define *communicable disease* and *pathogen*. Write a sentence using both terms.
2. **Identify** What is an infection?
3. **Give Examples** What are three kinds of pathogens? Give an example of a disease caused by each kind.
4. **Explain** Why is it important to clean kitchen cutting boards carefully?

Thinking Critically

5. **Analyze** How does keeping insect populations down help keep people healthy?
6. **Apply** Aaron wants a drink of water. He finds a plastic cup on the table but does not know if it has been used or not. Should Aaron use the cup? Explain your answer.

Applying Health Skills

7. **Goal Setting** List three ways that you can prevent the spread of pathogens. Use the goal-setting steps on page 45 to create a plan, and write a paragraph describing the results.

Lesson 2

The Immune System

Guide to Reading

Building Vocabulary

As you read this lesson, write each new term and its definition in a list. Write a second list that groups related terms together. For example, you might group “lymphatic system” and “lymphocytes.” Compare your groups with the groups that other classmates made.

- immune system (p. 407)
- inflammation (p. 408)
- lymphatic system (p. 409)
- lymphocytes (p. 409)
- antigens (p. 410)
- antibodies (p. 410)
- immunity (p. 412)
- vaccine (p. 412)

Focusing on the Main Ideas

In this lesson, you will be able to

- **describe** the function of the immune system.
- **explain** how antibodies protect the body.
- **describe** how you can develop immunity to a disease.
- **practice** behaviors to keep your immune system healthy.

Reading Strategy

Sequencing As you read this lesson, create an outline that shows the steps of the immune system’s response to an infection.

Keeping Pathogens Out

You can’t escape pathogens; they are everywhere! Pathogens are in the air you breathe, in the water you drink, and on every surface you touch. You can pick them up on your skin when you come in contact with a person who has an infection. You can even catch them from insects. And yet, there is nothing to be afraid of. After all, you aren’t sick all of the time, are you? This is because your body protects you. It can block, trap, or break down most pathogens before they make you sick. Your body uses five major barriers to block pathogens. These barriers are shown in **Figure 13.2**. They are: tears, saliva, skin, mucous membranes, and stomach acid.

These five barriers are your body’s first line of defense. If a pathogen gets past the barriers, your body’s immune system goes to work. Your **immune** (ih·MYOON) **system** is a combination of body defenses made up of the cells, tissues, and organs that fight pathogens in the body. Your immune system has two responses: the nonspecific **response** and the specific response.

Quick Write

What are some functions of your skin? Write your ideas in a sentence or two.

Academic Vocabulary

response (ree SPONS) (*noun*) the act of responding or reacting to a change in the environment. *Greg’s family couldn’t wait to see his response to winning the art contest.*

Reading Check

List What are the five barriers that keep pathogens out of your body?



FIGURE 13.2 THE FIVE MAJOR BARRIERS

Your body has barriers that keep pathogens out. **Which barrier protects your body from pathogens that might land on your arm?**

Tears

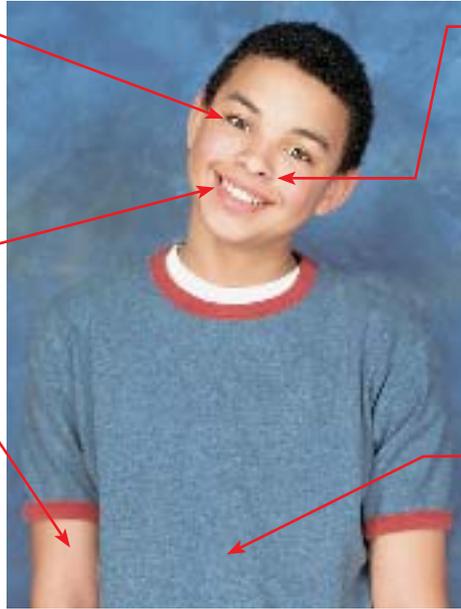
Tears cover and protect the eye from dust and pathogens. As tears flow, they carry foreign material away from the eye.

Saliva

Saliva contains chemicals that kill pathogens in your mouth.

Skin

Skin provides a protective surface that keeps pathogens from entering your blood. If you get a cut or scrape, pathogens might get through this barrier.



Mucous Membranes

Mucous membranes are the soft skin that line the nose, mouth, eyes, and other body openings. They are coated in a fluid called mucus (MYOO-kuhs). Mucus traps pathogens. When you cough, sneeze, or clear your throat, your body rids itself of mucus.

Stomach Acid

Stomach acid kills many of the pathogens that make it past the saliva and mucous membranes of your mouth.

The Immune System's Nonspecific Response

When you get a splinter in your finger, dirt and pathogens on the splinter also enter your system. Your body responds with a nonspecific immune response. This is called nonspecific because it is the same no matter what foreign matter enters the body.

You may have noticed that the skin around a splinter soon becomes swollen and red. This is known as inflammation. **Inflammation** is the body's response to injury or disease, resulting in a condition of swelling, pain, heat, and redness.

Why does the area become inflamed? After the splinter breaks the skin, circulation to the area slows down. Fluids trapped in the area leak into the surrounding tissues. White blood cells called phagocytes (FAY-guh-sytes) surround the pathogens and destroy them. **Figure 13.3** shows how a phagocyte works.

Your body has other nonspecific immune responses as well. When you have an infection, the body begins producing a protein called interferon (in-ter-FEER-ahn). Interferon boosts the body's immune system to help stop viruses from multiplying. A fever is another nonspecific immune response. When your body temperature rises, it's harder for pathogens to reproduce.



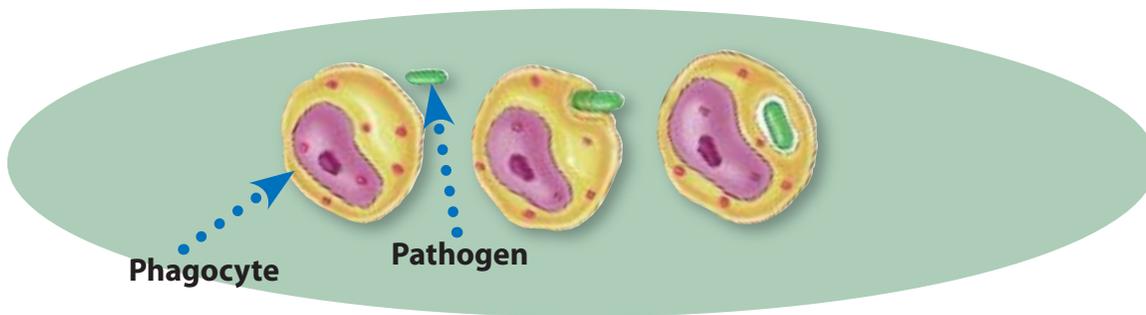
Reading Check

Explain How does your immune system react when a splinter gets under your skin?

▼ FIGURE 13.3

HOW A PHAGOCYTE DESTROYS A PATHOGEN

A phagocyte destroys a pathogen by surrounding it and breaking it down.
What other responses does the body have to pathogens?



The Immune System's Specific Response

Sometimes pathogens get past the body's nonspecific immune response. When this happens, the immune system's second response takes action. This is called the *specific response*. Each specific response attacks a particular pathogen and its poisons. Your immune system can recognize pathogens it has dealt with before. Once your immune system has created a specific response, those response cells remain in your body. When the pathogen attacks again, the cells recognize it. They go to work right away to fight it. So the second response is much faster than the first.

- ▼ When you were born, you could already resist some diseases because of immunity passed to you from your mother. Now, the vaccines you receive help protect you from many communicable diseases. **If you've had a chicken pox vaccine, why is it likely you will not get that disease?**

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 (LIMF). Macrophages (MA·kruh·fay·juh·z) are also found in the lymph. Like phagocytes, macrophages surround and destroy foreign substances in the body. After they have destroyed the foreign substance, they help the lymphocytes identify it. **Lymphocytes** (LIM·fuh·sytes) are special white blood cells in the blood and lymphatic system.

There are three main kinds of lymphocytes: B cells, T cells, and NK cells. B cells and T cells are named for where the body makes them. B cells form in the bone marrow, and T cells form in the thymus gland. NK stands for "natural killer" cells. NK cells attack cancers and viruses.





Health Skills Activity

Practicing Healthful Behaviors

Keeping Your Immune System Healthy

You can play an active role in keeping your immune system healthy. A healthy immune system means that your body will be better able to fight off infection. Follow these tips to help keep your immune system in top condition.

- Get regular exercise.
- Eat plenty of vitamin-rich fruits, vegetables, and whole grains. Make sure that you get enough calcium-rich foods. Go easy on high-fat and sugary snacks. Eating healthy is one of the best ways to keep from getting sick.
- Learn strategies for managing stress. Reducing stress in your life can help your immune system fight off pathogens more successfully.
- Get enough sleep. Teens need about nine hours a night. Rest strengthens the body's defenses and reduces your chances of becoming ill.

With a Group

Use library or online resources to find articles that explain how vitamins and minerals can affect the immune system. Create a chart that describes at least five vitamins and minerals that strengthen the immune system. List foods that are rich in these vitamins and minerals.

Antigens and Antibodies

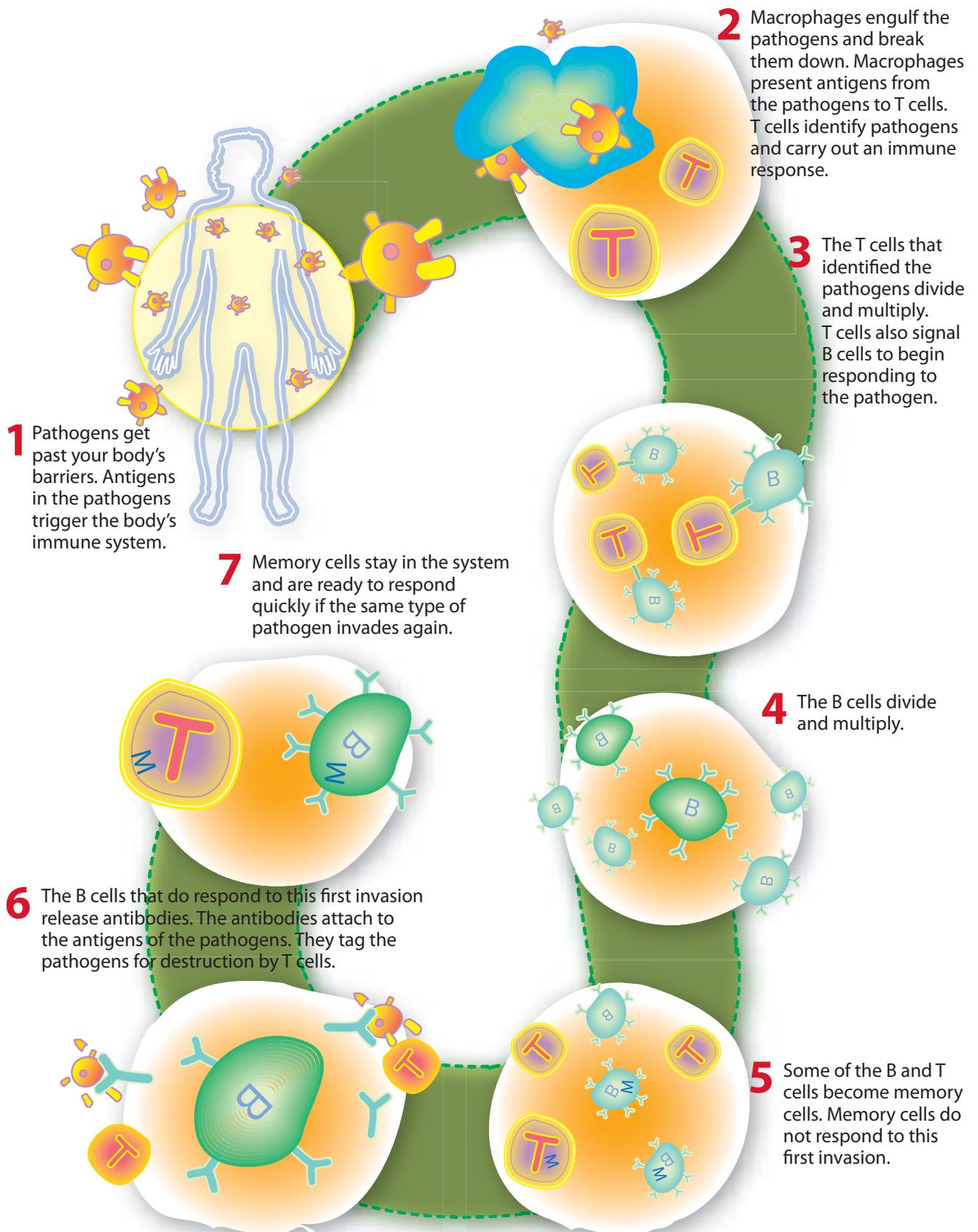
All three types of lymphocytes are activated when the body recognizes a part of a pathogen known as an antigen. **Antigens** (AN·ti·genz) are *substances that send the immune system into action*. For example, substances on the surface of a bacterium can be antigens. Blood cells of a different blood type than your own have different antigens on their surfaces.

Your body reacts to antigens by making more B cells and T cells. Some of the B cells make antibodies. **Antibodies** are *specific proteins that attach to antigens, keeping them from harming the body*. B cells produce specific antibodies to fight a particular type of antigen. Some of the new B cells and T cells don't react to the first encounter with a pathogen. They wait to react if the same kind of pathogen invades the body again. These cells are called memory B cells and memory T cells. A complete explanation of the immune response is found in **Figure 13.4**.

▼ **FIGURE 13.4**

THE IMMUNE SYSTEM'S SPECIFIC RESPONSE TO INFECTION

Many different kinds of cells in your immune system work together to fight invading pathogens. **What is the purpose of memory B and T cells?**





Immunity

Immunity is the ability to resist the pathogens that cause a particular disease. Healthy mothers pass immunity to their babies during pregnancy and through breastfeeding after birth. These immunities last for a few months. At that time, the baby's immune system can begin fighting pathogens on its own.

Your body also builds immunity when it responds to pathogens and when you get certain diseases. When your body encounters an antigen, it produces memory B cells and T cells. Scientists learned many years ago how to help the immune system prepare memory cells for specific diseases without making a person sick. A **vaccine** (vak-SEEN) is a preparation of dead or weakened pathogens that is introduced into the body to cause an immune response. This process is called immunization.

Immunization works because dead or weakened pathogens have the same antigens as live or active pathogens. However, they can't make you sick. Your immune system "learns" what a harmless pathogen looks like. It creates memory cells in response to the vaccine. If your body should meet the harmful version of the pathogen, the memory cells attack it. There are vaccines for many diseases, such as polio, measles, chicken pox, and tetanus.

Go Online

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



Reading Check

Explain How do babies fight pathogens before they can respond to pathogens on their own?



Lesson 2 Review



After You Read

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

What I Learned

- Vocabulary** Define *immune system*. Name three kinds of blood cells that are part of the immune system.
- Restate** What is immunity?
- Describe** Briefly explain the steps of the immune system's specific response to infection.
- Apply** How can a fever help fight infection?

Thinking Critically

- Explain** How are antigens and antibodies like a lock and key?
- Analyze** Why is stomach acid considered a barrier to foreign objects?

Applying Health Skills

- Accessing Information** Research the two kinds of polio vaccines. Find out who developed each kind, when each became available, and how they differ.

Lesson 3

Common Communicable Diseases

Guide to Reading

Building Vocabulary

Write each term and its definition on a sheet of paper. Then write a paragraph that uses all the new terms.

- influenza (p. 414)
- contagious period (p. 414)
- mononucleosis (p. 415)
- hepatitis (p. 415)
- tuberculosis (p. 416)
- pneumonia (p. 416)
- strep throat (p. 416)

Focusing on the Main Ideas

In this lesson, you will be able to

- **distinguish** the differences between a cold and the flu.
- **identify** some common communicable diseases.

Reading Strategy

Predicting Look at the headings in each lesson, and predict what will be covered in the lesson. List your predictions on a sheet of paper. After you have read the lesson, look back at your list to see if your predictions were correct.

Quick Write

Write down the names of three common diseases. What are the symptoms of each disease?

Colds

A communicable disease that strikes just about everyone is the common cold. You've probably had one and know the symptoms: a runny nose, a sore throat, and sneezing. Colds spread by both direct and indirect contact.

Why can't your doctor give you a vaccine to protect you against a cold? There are too many viruses, hundreds of them, that cause colds. In fact, every cold you have had was probably caused by a different strain of virus. Developing vaccines for that many different viruses is very difficult. Besides, scientists believe that almost half of the viruses that cause colds have not yet even been identified. So it looks like the common cold will be common for years to come!

Reading Check

Explain Why is it difficult to create a vaccine against the common cold?

- ▶ In Japan, people who are ill wear masks to prevent spreading germs. **How can you help prevent spreading cold viruses to other people?**





▲ Some people should get flu shots before each flu season including people 65 and older and anyone with a weakened immune system. **Why does the flu vaccine change every year?**

The Flu

Another common communicable disease is influenza, or the flu. **Influenza** is a *communicable disease characterized by fever, chills, fatigue, headache, muscle aches, and respiratory symptoms*. Flu symptoms usually affect you more quickly and more seriously than cold symptoms do. The flu can be spread through both direct and indirect contact. Most cases of the flu are reported from December through March, which is why that time is called “the flu season.”

Flu viruses differ from the ones that cause colds. Each year, certain strains of the flu virus spread faster and are stronger than previous years. Scientists meet every year to figure out which strains will spread fastest during the next flu season. This planning allows them to make vaccines for the upcoming flu season. Some types of flu can be dangerous. Just after World War I, an outbreak of the flu killed about 20 million people throughout the world, including over 600,000 people in the United States. Scientists today worry that new strains of the flu virus, such as the avian flu, could also be deadly to large numbers of people.



Reading Check

Define What is influenza?



Connect To... Social Studies

Diseases and History

Many diseases have shaped the course of history. For example, when early explorers arrived in North and South America, they brought European diseases such as smallpox and measles. The native people had no resistance to these new diseases. The pathogens spread quickly and killed many of them.

Research a disease that changed the course of history. Write a brief report on your findings.

Chicken Pox, Measles, and Mumps

Chicken pox, measles, and mumps are all contagious diseases caused by viruses. Every contagious disease has a contagious period. The **contagious period** is *the length of time that a particular disease can be spread from person to person*. Often, the contagious period includes a length of time before the infected person begins to show symptoms. Chicken pox, measles, and mumps all have well-defined contagious periods.

- **Chicken pox** is contagious for about a week before symptoms appear. Common symptoms of chicken pox include a rash, fever, and aching muscles. The rash shows up as small, red, itchy bumps on the skin. It may even appear inside the mouth and throat. The bumps develop into blisters. When the blisters dry up, chicken pox is not contagious anymore. The vaccine for chicken pox became available in 1995. Before then, almost all children got chicken pox. Now, about 80 percent of all U.S. children are vaccinated against chicken pox. The disease is much less common.
- **Measles** involves a rash, fever, and head and body aches. The contagious period starts a few days before symptoms



begin. It lasts until about five days after that. Measles is a very dangerous disease. Around the world, over 1 million children die each year from measles. Over 90 percent of the children in the United States are vaccinated against measles, so fewer people get the disease now.

- **Mumps** causes a fever, headache, and swollen salivary glands. The contagious period for mumps starts about a week before symptoms begin. It lasts for about nine days after that point. Over 90 percent of the children in the United States are vaccinated against mumps. As a result, mumps is much less common than it used to be.

Fortunately, chicken pox, measles, and mumps are under control in the United States. Children routinely get vaccinated for each of these diseases. This protects them against these diseases.



Reading Check

Explain Why are measles, mumps, and chicken pox much less common in the United States than they used to be?



Other Communicable Diseases

Many other communicable diseases are common around the world. The United States has good medical care and clean living conditions. As a result, people here are better protected from many of these diseases. However, some communicable diseases are still quite common here. Mononucleosis, hepatitis, tuberculosis, pneumonia, and strep throat are some of the communicable diseases that are common in the United States.

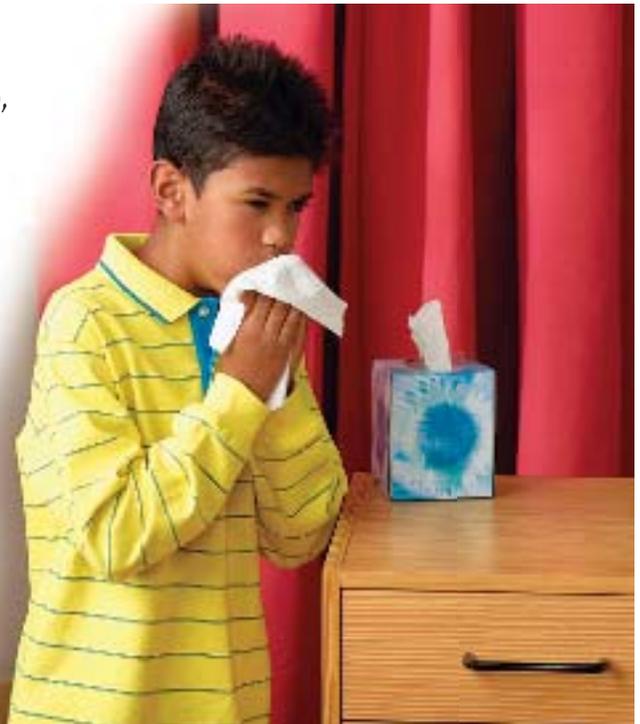
Mononucleosis

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. Symptoms may also include fatigue, loss of appetite, fever, and headache. Often called “the kissing disease,” mono is spread when a person comes in contact with the saliva of an infected person. Contaminated eating utensils and drinking glasses can also spread the disease.

Hepatitis

Hepatitis (hep·uh·TY·tis) is a viral disease characterized by an inflammation of the liver and yellowing of the skin and the whites of the eyes. Other symptoms include

- ▼ When you cough, cover your mouth to prevent your saliva from escaping into the air. Saliva can carry pathogens that cause diseases such as pneumonia and strep throat. **What are two other ways that pathogens spread?**





Epidemiologist



Epidemiologists are scientists who do “detective work” about diseases. They study what causes diseases, how they are spread, and how they can be stopped. They also look at what risk factors people have that make them more likely to get a disease, such as cancer. To prepare for a career as an epidemiologist, take classes in math, biology, and chemistry.



Where would an epidemiologist work? To find out, go to *Career Corner* at glencoe.com.

weakness, fatigue, loss of appetite, fever, headaches, and sore throat. There are three common strains of hepatitis: A, B, and C. A different virus causes each strain.

Hepatitis A is common in areas with poor sanitation. It spreads among people when infected human wastes contaminate the food or water. When someone eats or drinks food or water that is contaminated, that person can become infected. People can also become infected if they have open wounds exposed to contaminated water.

Hepatitis B and C can permanently damage the liver and can lead to cirrhosis and liver cancer. They are most commonly spread through contact with contaminated blood or other contaminated body fluids. For example, hepatitis B and C can be spread when drug users share needles or through sexual contact. There are vaccines for hepatitis A and B. There are medications that can help treat hepatitis C.

Tuberculosis

Tuberculosis (too-ber-kyuh-LOH-sis), or TB, is a bacterial disease that usually affects the lungs. Symptoms include cough, fatigue, night sweats, fever, and weight loss. TB is spread through the air. When a person with TB coughs or sneezes, he or she sends infected droplets into the air. Another person then breathes them in. It is possible for a person to carry the bacteria that cause TB without showing symptoms. Even though these infected people do not get sick, they can spread the disease. Because of this, health care providers often test people to be sure they do not carry TB.



Reading Check

Describe Why are healthy people tested for TB?

Pneumonia

Pneumonia is a serious inflammation of the lungs. Symptoms include fever, cough, chills, and difficulty breathing. Either a virus or bacterium can cause pneumonia. Pneumonia can be spread through direct or indirect contact with an infected person. Bacterial pneumonia can be treated with antibiotics. People with pneumonia need rest and plenty of fluids. People who already have other diseases or who have weakened immune systems are at greater risk of getting pneumonia.

Strep Throat

Strep throat is a sore throat caused by streptococcal bacteria. Symptoms of strep throat include a red and painful throat, fever, and swollen lymph nodes in the neck. People who have strep

throat may also experience headache, nausea, and vomiting. Strep throat is spread through direct or indirect contact with an infected person. Like many other diseases, strep throat is commonly spread through direct contact or when infected people breathe or cough droplets into the air. Medical professionals can diagnose strep throat by testing bacteria taken from an infected person's throat.

If you have a sore throat, tell a parent or guardian. The same goes for if you have a fever. You may have strep throat, and you will need to be treated. Since bacteria cause strep throat, you can take antibiotics for it. All cases of strep throat need medical attention. Left untreated, a person with strep throat can develop more serious problems. One example is rheumatic fever, a condition that can damage the heart. Another example, called nephritis, can damage the kidneys.

Reading Check

Name What are two symptoms of strep throat?

Go Online

Visit glencoe.com and complete the Interactive Study Guide for Lesson 3.

Lesson 3 Review

After You Read

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

What I Learned

1. **Vocabulary** Define *contagious period*.
2. **Give Examples** Name three childhood diseases that used to be common but are now under control in the United States.
3. **List** What are the symptoms of influenza?
4. **Explain** How is tuberculosis spread?
5. **Analyze** Why is it important to get treatment for communicable diseases like strep throat?

Thinking Critically

6. **Analyze** A study by the Aviation Health Institute shows that people who ride in a plane are seven times more likely to catch a cold than people who do not ride in an

airplane during the same period. Suggest a reason for the difference. How might someone lower this risk?

7. **Evaluate** You see an ad on the Internet for a product that claims to cure the common cold. How can you analyze whether the ad is valid?

Applying Health Skills

8. **Practicing Healthful Behaviors** Write a short article about the importance of covering your mouth when you sneeze or cough and washing your hands frequently with soap. How can positive health behaviors like these help control the spread of disease?

Lesson 4

Preventing the Spread of Disease

Guide to Reading

Building Vocabulary

In your own words, write a definition of *hygiene*.

- hygiene (p. 418)

Focusing on the Main Ideas

In this lesson, you will be able to

- **describe** how to protect yourself against pathogens.
- **explain** how to avoid spreading pathogens to others when you are sick.
- **identify** habits that can help you stay healthy.
- **practice** a positive health behavior to prevent the spread of disease.

Reading Strategy

Finding the Main Idea Look at the main headings in this lesson. For each heading, write one sentence that explains the main idea.

Quick Write

Write two ways that washing your hands with soap helps keep you and others healthy.

Keeping Pathogens from Spreading

By now, you understand that you can't avoid pathogens. However, you can develop good habits to protect yourself from them. Good personal **hygiene**, or *cleanliness*, helps limit the number of pathogens you encounter. Eating foods that are good for you, getting exercise, and sleeping well all help your body fight pathogens. Keeping your environment clean keeps the number of pathogens down, too.



- ▶ Wash dishes right after use to keep pathogens from growing on plates and eating utensils. **Why is it important to use warm, soapy water?**



Protecting Yourself from Pathogens

To keep yourself from getting sick, follow these guidelines:

- Avoid close contact with people who have a communicable disease, especially if they are still contagious.
- Never share eating utensils, cups, glasses, toothbrushes, or any other personal items.
- Wash your hands thoroughly and often, especially before you prepare and eat food. Use plenty of warm, soapy water. Remember to wash your hands after you use the bathroom, play with pets, visit a sick person, or touch garbage or any other source of pathogens.
- Keep your fingers and hands away from your mouth, nose, and eyes. Don't bite your nails.
- Handle and prepare food safely. This is especially important for meat, poultry, and fish. Wash vegetables and fruits and cook meat thoroughly.
- Wipe counters thoroughly. Use paper towels and spray disinfectants. Using sponges and cloths repeatedly can actually spread more germs than it removes.
- Empty the trash often. Keep trash cans clean.
- Keep pets clean and healthy. Clean up after your pet.

▼ Keeping yourself and your environment clean is one way to stay safe and healthy. **How might emptying out the trash often help keep you healthy?**



Reading Check

Identify When should you remember to wash your hands?

Protecting Others from Pathogens

When you're sick, help protect the people around you. Think ahead, and take these safety measures.

- If you feel sick, tell a parent or guardian. This person can help you get the medical help you need as soon as possible. If you are sick at school, tell a teacher or the school nurse as soon as you can. Early treatment helps keep your condition from getting worse. It also limits the number of people who are exposed to whatever is making you sick.
- If you are ill, stay home from school and other public places. You don't want to expose others to your illness. Avoid close contact with others, too. Wash your hands often.





Health Skills Activity

Practicing Healthful Behaviors

Wash Your Hands!

Every time you rub your eyes, touch your face, or cut your finger, you risk exposing your body to pathogens. One of the best ways to block pathogens from entering your body is to keep your hands clean. You may think you do a good job of this. However, if you just splash water on your hands and wipe them on a towel, you aren't doing enough. This simple action isn't enough to kill pathogens.

Here's how to wash your hands the right way.

1. Wet your hands with warm water and apply soap.
2. Rub your hands together vigorously. Scrub all parts of your hands for 30 seconds or more.
3. Rinse your hands well. If you are using a public restroom, use a paper towel to turn the water off.
4. Dry your hands using a clean towel or a paper towel. If you are using a public restroom, use the paper towel you dried your hands with to open the door when you leave. (This will help you avoid getting any pathogens from the doorknob on your clean hands.)

With a Group

Without looking at a clock, pretend to wash your hands for what you think is at least 30 seconds. Have another member of the group time you. Create a graph showing how well each member of the group estimated the time.

- Cover your mouth and nose when you sneeze. Turn your head away from others when you cough and sneeze, too. Use a tissue only once, and throw it away in a proper place. What if you don't have a tissue? Sneeze or cough into the crook of your elbow rather than your hand. You'll be less likely to spread germs to items you touch.
- If a medical professional has told you to take medicine, follow the directions on the label exactly. Take all the medicine you are supposed to take. Don't stop taking a medicine because you feel better. If you do, it might be too soon. You could get sick again.

Go Online

Visit glencoe.com and complete the Interactive Study Guide for Lesson 4.



Reading Check

Explain When you are sick, why should you tell your parents or guardians right away?

A Healthful Lifestyle

The more healthful choices you make, the more likely that you will stay well. Here are some positive health practices that you can develop.

- Eat a balanced diet.
- Bathe or shower regularly using soap and shampoo.
- Avoid all tobacco products, alcohol, and other drugs.
- Get 8–9 hours of sleep every day.
- Rest when you are sick.
- Ask a parent or guardian to make sure that your immunizations are up to date.
- Learn to manage stress. Too much stress can weaken your immune system.
- Visit the doctor regularly for routine checkups. Follow any advice your doctor gives you.



- ▲ You make choices every day that affect your health. Choosing a healthful diet can help keep your immune system strong. **What other choices can you make that will help keep you healthy?**



Reading Check

Identify Name five healthful habits that can help you stay well.

Lesson 4 Review



After You Read

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

What I Learned

1. **Vocabulary** Define *hygiene*, and use the term in a sentence.
2. **Describe** How can staying home when you are sick help keep others healthy?
3. **Identify** What are three strategies for protecting yourself from pathogens?

Thinking Critically

4. **Explain** Why do you think you should keep your trash can clean?

5. **Apply** Turtles and other reptiles carry salmonella. This bacteria often makes people sick if they ingest it. What would be a good way to make sure you don't get sick from your friend's pet turtle?

Applying Health Skills

6. **Practicing Healthful Behaviors** Carlos wakes up with a scratchy throat and a stuffy nose. His friends are expecting him to play in the soccer game after school, and Carlos doesn't want to let them down. What should Carlos do?

Lesson 5

Sexually Transmitted Diseases

Guide to Reading

Building Vocabulary

Write down each term below. As you come across it in your reading, write the definition.

- sexually transmitted diseases (p. 422)
- chlamydia (p. 423)
- genital warts (p. 423)
- genital herpes (p. 423)
- trichomoniasis (p. 424)
- gonorrhea (p. 424)
- syphilis (p. 424)
- hepatitis B (p. 425)

Focusing on the Main Ideas

In this lesson, you will be able to

- **identify** common sexually transmitted diseases.
- **explain** how to protect yourself from sexually transmitted diseases.
- **access** valid information about sexually transmitted diseases.

Reading Strategy

Organizing Information Create a three-column table like the one shown below. As you read the lesson, write the names of the sexually transmitted diseases that you read about in the first column. In the next column, write down the symptoms and effects of the diseases. In the last column, write down how to prevent the sexually transmitted diseases.

STD	Symptoms and Effects	Prevention

Quick Write

Write down one or two facts you know about sexually transmitted diseases.

What Are Sexually Transmitted Diseases?

Sexually transmitted diseases (STDs) are *infections that are spread from person to person through sexual contact*. STDs are also called sexually transmitted infections (STIs). In this lesson, you will learn more about STDs, their causes, and how to prevent them. **Figure 13.5** tells you some important facts about STDs.

Common STDs

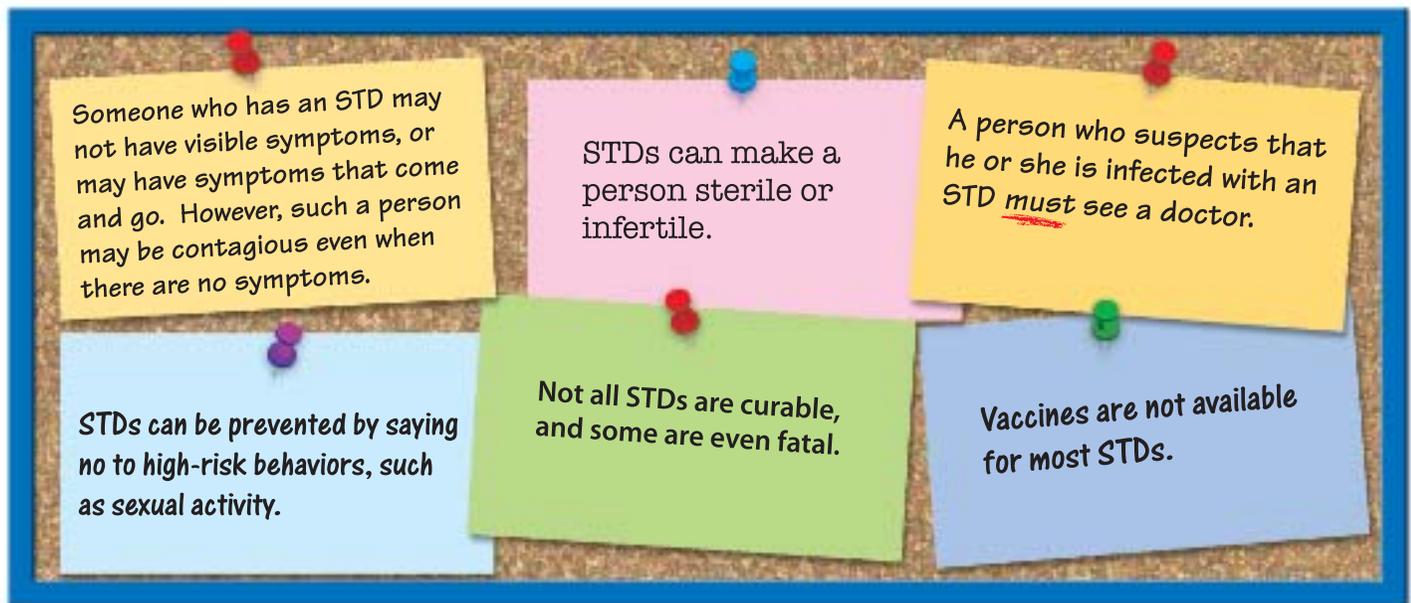
STDs include a wide range of diseases. All these are passed on to partners who engage in sexual activity. All affect both men and women. The good news about STDs is that they are completely preventable. The bad news is that most STDs are found in young people, ages 15-24. Some common STDs are described on the next pages.

▼ FIGURE 13.5

THE STD FACT FILE

When you know the facts about STDs, you have the power to avoid them.

What is the best way to avoid getting STDs?



Chlamydia (kluh·MI·dee·uh) is a bacterial STD that may affect the reproductive organs, urethra, and anus. Chlamydia is often referred to as a “silent” disease because in many cases there are no symptoms; a person can have it and not know that he or she does. When symptoms do occur, they can include genital discharge and pain when urinating. Left untreated, chlamydia can cause other infections in the body and infertility. Chlamydia can be treated with antibiotics.

Genital warts are growths or bumps in the genital area caused by certain types of human papillomavirus (HPV). HPV infections are the most common type of STD in the United States. Like chlamydia, HPV is often a silent disease, causing no obvious symptoms until many years after the **initial** infection. The warts can be treated, but there is no cure for the HPV infection itself. Some strains of HPV are linked to the development of cervical cancer. A vaccine has been developed to protect females against these strains of the HPV virus.

Genital herpes (HER·pee·z) is a viral STD that produces painful blisters on the genital area. Herpes often does not cause any obvious symptoms for many years. Some people have periodic outbreaks of painful blisters or sores. Even when the symptoms go away, the virus remains in the body. Other symptoms include pain in the lower genital area and genital discharge. There is no known cure for genital herpes, but medication can reduce the frequency of outbreaks.

Academic Vocabulary

initial (in ISH ul) (*adjective*) the beginning or first. Sometimes there are no symptoms in the initial stages of certain diseases.



Go Online

Topic: Getting the Facts on STDs

Visit glencoe.com for Student Web Activities where you will find answers to teens' questions about STDs.

Activity: Using the information provided at the link above, create a peer-counseling Web page that includes three questions from a teen about STDs and how you would answer each one.

▼ Millions of cases of STDs occur each year in the United States. **What can be done to stop the spread of these diseases?**

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

Pubic lice are insects that infect a person's genital area. People sometimes call pubic lice "crabs." Symptoms include itching around the genitals and crawling insects that are visible to the naked eye. Pubic lice are highly contagious. They can be treated effectively with medicated shampoo or prescription lotion.

Gonorrhea (gahn-uh-REE-uh) is a bacterial STD that affects the mucous membranes of the body, particularly in the genital area. Gonorrhea symptoms often include a thick yellowish discharge from the genitals and a burning sensation when urinating. Gonorrhea can be treated with antibiotics. Left untreated, gonorrhea can infect other parts of the body, including the joints and heart. It can also cause fertility problems.

Syphilis (SIH-fuh-luhs) is a bacterial STD that can affect many parts of the body. The symptoms of syphilis change as the disease progresses. Symptoms of the first stage include painless sores at the place of infection and swollen lymph glands. In the second stage, the bacteria can cause a severe rash. During late stages of syphilis, the bacteria move throughout the body. They can cause damage to many body organs, including the brain. Untreated disease can eventually cause mental disorders, heart problems, blindness, and death. If diagnosed and treated in the first or second stage, syphilis can be cured with antibiotics.





Health Skills Activity

Accessing Information

Finding Information About STDs

How can you find valid information about diseases or medical conditions? First, talk to your parents, guardians, or family doctor about any medical concerns you have. You can also learn more about a disease by doing your own research. Medical journals and scientific publications have strict rules about the information they publish. They are valid sources of information.

Finding valid health information on the Internet is a little trickier. Be sure that the source of any information you find online is an expert on the subject you are reading about. A good place to start is the information found at the Centers for Disease Control and Prevention and the National Institutes of Health.

On Your Own

Research one of the STDs from this lesson. Find out more about the symptoms, effects, and any treatments for the disease. Prepare a short report on your findings.

Hepatitis B is a disease caused by the hepatitis B virus that affects the liver. It can be transmitted by sexual contact or through contaminated needles. There is a vaccine available for hepatitis B.

Human immunodeficiency virus (HIV) infection is an STD covered in Lesson 6. There is no cure for HIV infection.

Anyone who has had sexual contact with another person may have an STD and not know it. The only sure way to avoid getting an STD is to practice abstinence from sexual activity.

Abstinence from Sexual Activity

You cannot tell by looking at people if they have an STD. The only 100 percent effective way to avoid STDs is to abstain from sexual activity. Often, the media send the message that sexual activity is exciting, yet there is no mention of the risks. Engaging in sexual activity before marriage puts teens at risk for STDs and unplanned pregnancy. It can lead to social and emotional problems. Refusal skills can help teens avoid being pressured to take part in sexual activity.

It's normal to have sexual feelings when you are a teen. Talking about these feelings with a parent, guardian, or other trusted adult can help you deal with them. It also helps you understand your family's values and what your parents expect of you.



- ▶ Being a responsible teen involves upholding the values of your family. **How does abstinence from sexual activity show that you are responsible?**



This doesn't mean you have to hide feelings of affection for others. You can share these feelings in ways that don't risk your health or compromise values. Appropriate ways for teens to show affection include holding hands and giving small gifts. Practicing abstinence pays off in many ways. You can be sure that your relationships are built on shared interests and trust, rather than on sexual attraction.

By practicing abstinence from sexual activity until marriage, you protect yourself against unplanned pregnancy and STDs. You get to know someone in a way that goes beyond physical attraction. You show respect for the wishes of your family. You can remain committed to your long-term goals, such as education, career, and family.

Go Online

Visit glencoe.com and complete the Interactive Study Guide for Lesson 5.



Lesson 5 Review

After You Read

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

What I Learned

1. **Vocabulary** Define *sexually transmitted disease*.
2. **Explain** Why are some STDs referred to as “silent” diseases?
3. **List** What are two consequences of untreated chlamydia?
4. **Apply** What is the best way to avoid STDs?
5. **Explain** What are some appropriate ways for teens to show affection?

Thinking Critically

6. **Analyze** How do values influence a person's decision to practice sexual abstinence until marriage?

Applying Health Skills

7. **Advocacy** Create a pamphlet that warns teens of the dangers of STDs. In your pamphlet, explain that many STDs cause harm without showing symptoms for a long time. Also discuss how sexual abstinence keeps teens safe and healthy.

Lesson 6

HIV/AIDS

Guide to Reading

Building Vocabulary

Explain the relationship between the two vocabulary terms below.

- HIV (human immunodeficiency virus) (p. 427)
- AIDS (acquired immunodeficiency syndrome) (p. 427)

Focusing on the Main Ideas

In this lesson, you will be able to

- **explain** how people become infected with HIV and develop AIDS.
- **explain** what is being done to fight AIDS.
- **analyze** how media messages about sexual activity might influence teens.
- **describe** how to protect yourself from HIV/AIDS.

Reading Strategy

Identifying Problems and Solutions After reading this lesson, identify how HIV is transmitted and what can be done to prevent the spread of HIV.

Quick Write

Write a response to this question: What would happen if the cells that control your immune responses began to be destroyed?

What Are HIV and AIDS?

HIV (human immunodeficiency virus) is the virus that causes AIDS. **AIDS (acquired immunodeficiency syndrome)** is a disease that interferes with the body's ability to fight infection. In Lesson 2, you learned how the immune system fights disease. You learned that T cells coordinate the body's response to infections. HIV is especially dangerous because it attacks and kills T cells. As a result, the immune system cannot fight HIV or any other infection. HIV does not kill all the T cells immediately. An infected person can have the virus for years without showing any signs or symptoms. Nevertheless, once a person is infected with HIV, the virus begins damaging the person's immune system. Infected people can also spread the disease to others. **Figure 13.6** details how HIV attacks the immune system.

The Spread of HIV

HIV is not transmitted through casual contact. It is transmitted in one of the following ways:

- **Having any form of sexual intercourse with an infected person.** The most common way that HIV spreads from one person to another is through sexual intercourse. HIV circulates in the bloodstream and in other body fluids, such as semen and vaginal fluid. When people have sexual



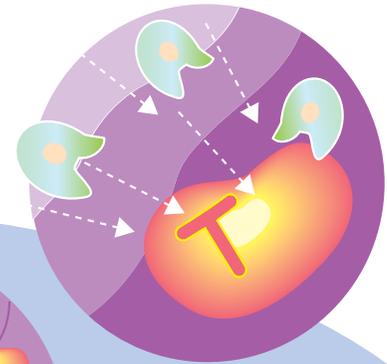
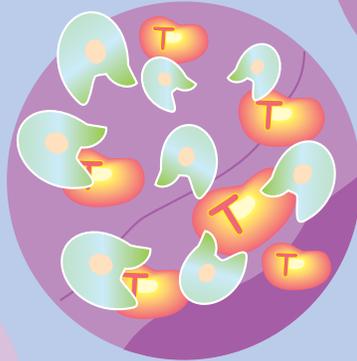
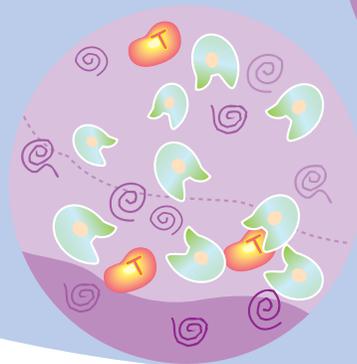
FIGURE 13.6

How HIV ATTACKS THE BODY

HIV cripples the immune system by killing the T cells that control immune responses. **What kinds of diseases eventually harm people who have AIDS?**

1 The virus enters the body through the mucous membranes or a break in the skin. HIV invades a host cell, a T cell, using the cell's resources to make copies of itself. When that T cell is activated, it will start producing more of the virus instead of performing T cell functions. Eventually, the host cells are destroyed.

KEY	
	HIV
	T cell
	Pathogens



2 These viruses infect other T cells and multiply. These infected T cells are destroyed, and more copies of the virus are released.

3 More and more T cells are infected and destroyed. Without T cells to control the immune response, the body loses its ability to fight diseases and infections.

intercourse, the virus can be transmitted from one person to the other. The virus circulates in a person's body even before it destroys the immune system. Many people who are infected with HIV do not know they have the virus. Even so, they can still infect other people. *Abstinence from sexual activity is the only sure way to protect yourself against this method of transmission.*

Academic Vocabulary

transmit (TRANS mit)
(verb) to spread or transfer from one person or place to another.
Sneezing or coughing without covering your mouth can transmit germs to people nearby.

- **Using a contaminated needle.** A single drop of blood left on a needle can contain enough HIV to infect someone. Never inject yourself with any illegal drugs. Contaminated needles used for tattooing and body piercing can also **transmit** the virus. People with diabetes and others who need to use needles should do so strictly under the care of a medical professional.
- **Other modes of transmission.** A pregnant female can transmit HIV to her child during delivery or through breast milk. Expectant mothers with HIV can take medicine to help reduce the chances of transmission during pregnancy and delivery. Before HIV was known to be the cause of AIDS, people sometimes became infected with HIV during blood transfusions. Since 1985, all blood is carefully screened for HIV. The United States blood supply is considered to be extremely safe.



How HIV Is NOT Spread

HIV is a dangerous virus, but it is NOT spread through casual contact. You cannot get HIV or AIDS in any of the following ways.

- swimming in a pool with an infected person
- sharing utensils with an infected person
- breathing the air near an infected person
- donating blood
- being bitten by a mosquito that has bitten an infected person
- hugging or shaking hands with an infected person
- using the same shower, bathtub, or toilet as an infected person
- sharing sports equipment with an infected person

You don't have to avoid people with HIV and AIDS. In fact, people with HIV and AIDS deserve the same respect, kindness, and consideration you give to everyone you meet.



Reading Check

List What are some ways that HIV cannot be transmitted?

Fighting AIDS

Around the world, HIV infection and AIDS remain a huge problem. In Africa, for example, millions of adults have died from AIDS. As a result, millions of children do not have parents. In the United States, more than 14,000 people die every year from AIDS. In many countries around the world, scientists and educators work to prevent HIV infection by teaching as many people as they can about the disease.

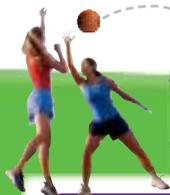
- ▼ The AIDS quilt is a memorial to people who have died of AIDS. Each square represents one person who died from the disease. **What can you learn from seeing the AIDS quilt?**



Caring

Practicing abstinence from sexual activity until marriage and avoiding illegal drug use, especially the use of injectable drugs, will help protect you from HIV infection.

How does avoiding these risk behaviors show that you care about yourself and others? Write your answer in a brief paragraph.



Health Skills Activity

Analyzing Influences

Media Messages About Sexual Activity

Teens have many influences in their lives. Families, friends, movies, music, books, magazines, and the Internet all influence what teens think and how they act. Popular cultural messages often glamorize sexual activity. They may lead teens to believe that sexual activity is an acceptable way to express affection. However, sexual activity also exposes teens to STDs, including HIV. Try to recognize the messages aimed at you so that you can make positive health choices for yourself.

In a Group

Review some magazines aimed at teens. Find ads that show teens together. What kinds of behaviors are the ads suggesting? Are the suggested behaviors healthful ones? Do the ads seem to encourage sexual activity for teens? Make a list of the messages you find in ads. Then make a list of messages that would be more positive and healthful for teens.

With the development of safe and effective drugs, people with HIV are now able to live longer and healthier lives. These drugs are not a cure for HIV. They work together to slow the progress of the disease by preventing HIV from reproducing. However, many of these drugs have side effects and are very expensive. There is also some evidence that some drugs are losing their ability to treat HIV. As HIV is exposed to the new drugs, the virus is changing in ways that make the drugs ineffective.

Scientists are also working on a vaccine against HIV. However, their progress has been very slow. Because there are several forms of HIV, vaccines that work on one form might not work on another. A single vaccine that protects people against HIV is possible, but it will likely take many more years to develop.

Battling HIV infection is difficult and expensive. That's why scientists and educators work very hard to help people keep from becoming infected in the first place. The best weapon in the fight against HIV and AIDS so far has been knowledge. When people learn how HIV is spread, they can take steps to avoid getting it.



Visit glencoe.com and complete the Interactive Study Guide for Lesson 6.



Explain Why has progress on developing an HIV vaccine been slow?

Abstinence and HIV

AIDS is a disease that still has no cure. You are protecting yourself against HIV infection when you abstain from sexual activity until marriage and avoid sharing needles.

People who inject illegal drugs face many risks. They risk the dangers of the drugs they inject. Also, they risk exposing themselves to diseases. People who share needles expose themselves to any diseases that the other people who have used that needle may have.

Similarly, when people engage in sexual activity, they are exposing themselves to any STDs that their partner may have. The more sexual partners a person has, the more likely it is that the person will become infected with an STD such as HIV.

The only 100 percent sure way to avoid getting HIV is to avoid contact with sources of this virus. This means abstaining from sexual activity until marriage and avoiding injecting drugs and sharing needles. If you are pressured to use injectable drugs or engage in sexual activity, talk to your parents, guardians, or a trusted adult. Use your refusal skills. Stay away from people who encourage you to make dangerous choices. Abstinence from sexual activity is the responsible choice for teens. It could save your life.



▲ Abstinence from sexual activity helps protect you from HIV and other STDs, as well as many other problems. It also lets you spend more enjoyable and safe times with friends. **What are three activities that are fun and safe for you?**

Lesson 6 Review

After You Read

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

What I Learned

1. **Vocabulary** Define *HIV* and *AIDS*.
2. **Identify** How is AIDS related to HIV?
3. **Give Examples** People are often mistaken about how HIV is transmitted. Name four ways HIV is not transmitted.
4. **Describe** What happens to T cells that are infected with HIV?

Thinking Critically

5. **Analyze** Why is HIV an especially dangerous virus?
6. **Apply** Many people who have HIV do not know that they are infected with the virus. How can this be?

Applying Health Skills

7. **Advocacy** Create a pamphlet that shows teens how to protect themselves against HIV infection.



Building Health Skills

Accessing Information

- Practicing Healthful Behaviors
- Stress Management
- Analyzing Influences
- Communication Skills
- Refusal Skills
- Conflict Resolution
- Decision Making
- Goal Setting
- Advocacy

What Does Accessing Information Involve?

Accessing information involves finding reliable information to make healthy choices. When looking at a source of information, ask yourself these questions:

- Is it scientific?
- Does it give more than one point of view?
- Does it agree with other sources?
- Is it trying to sell something?

Finding the Facts About Disease

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

1 Model

Read how Eric uses the skill of accessing information to prepare for a camping trip.

Eric's family planned to rent a cottage in one of the national parks for vacation. A week before they left, Eric saw a news program about flooding in the area. The program explained that water supplies had become contaminated. It did not say whether or not people needed to take special safety measures.

Eric went to the park's Web site and learned about the pathogens found in the water. Next, he checked out a medical site and two government sites that gave information about the pathogens. He learned that boiling the water for three minutes would kill the pathogens. When his family left for the park, they felt confident that they would be safe on their trip.



2 Practice

Trevor wants to find reliable information about colds. Read the passage below and then practice the skill of accessing information by answering the questions that follow.

When Trevor's sister caught a cold, the entire family was careful about not spreading germs. Trevor told his friend Randy not to come over until his sister was better. However, Randy told him not to worry. A cold was not contagious after the first three days. Trevor wondered if Randy was a reliable source of information.

1. Do you think Randy's information was accurate? Why or why not?
2. What is Randy trying to accomplish by what he told Trevor?
3. Locate three sources that Trevor can use to find reliable information about colds.



3 Apply

Apply what you have learned about accessing reliable information by completing the activity below.

Find out how flu vaccines are created and how well they work. Use at least three different sources of information to research this topic. These sources might include magazines, newspapers, books, printed materials, the Internet, and trusted adults. Analyze whether each source is valid. Then write a one-page report on your findings. In your report, explain what you found out about flu vaccines. Also, tell why you think your sources are accurate.

Self-Check

- Did I use at least three different sources of information?
- Did I write a one-page report on my findings?
- Did I explain why I believe each source is accurate?

The good news: Few germs actually cause great harm. The bad news: The ones that do can be really dangerous—even deadly. Here’s how to stay healthy.



GERM SURVIVAL GUIDE

The word *germs* refers to a wide range of organisms, including bacteria, viruses, and fungi. Luckily, the helpful germs in your body outnumber the bad ones. They perform many important tasks, such as helping your intestines to digest food. However, there are also germs that can cause stomachaches, colds, or more serious diseases. The tips below can help protect you from those microscopic bad guys.

Wash your hands—often. Be sure to suds up before preparing food or eating it, after using the bathroom, and after sneezing or coughing into your hands. Wash for a full 30 seconds—about as long as it takes to sing “Happy Birthday” twice.



Cover up cuts with a bandage. Dab on a little antibacterial ointment while you’re at it, or use a bandage that has antibiotic ointment built in. This will help protect and heal an open wound, another place germs can enter the body.



Take good care of yourself. The healthier you are, the better chance you have of fighting off bad germs. Get enough sleep, drink plenty of water, eat a variety of fruits and vegetables, and exercise regularly. In addition, stay away from tobacco use: It weakens the body’s natural defenses.



Carry alcohol-based hand sanitizers in your school bag. They work faster than soap and kill bacteria more efficiently, without encouraging antibacterial-resistant germ strains.



Avoid touching your nose and eyes. Most people tend to do so more than 20 times a day, but the nose and eyes are the spots where cold viruses and other germs usually enter the body.



Keep pets healthy. Cats and dogs can carry germs that are easily transmitted to humans. Make sure your pets’ immunizations are



up-to-date and that the animals are groomed regularly. Wash your hands after touching pets.



Visit glencoe.com to download quizzes and eFlashcards for Chapter 13.

FOLDABLES® Study Organizer

Foldables® and Other Study Aids Take out the Foldable® you created for Lesson 1 and any graphic organizers that you created for Lessons 1–6. Find a partner and quiz each other using these study aids.

Lesson 1 What Are Communicable Diseases?

Main Idea Communicable diseases are diseases that can spread from one person to another.

- Communicable diseases are caused by pathogens, such as viruses, bacteria, fungi, and protozoa.

Lesson 2 The Immune System

Main Idea The immune system has two responses to pathogens that invade the body: the nonspecific response and the specific response.

- Tears, saliva, skin, mucous membranes, and stomach acid are barriers that help keep pathogens out of your body.

Lesson 3 Common Communicable Diseases

Main Idea Common communicable diseases include colds, the flu, chicken pox, measles, mumps, mononucleosis, hepatitis, tuberculosis, pneumonia, and strep throat.

- Viruses cause both colds and the flu. They have similar symptoms, but a case of the flu is more severe.

Lesson 4 Preventing the Spread of Disease

Main Idea Practicing good personal hygiene and other healthful behaviors can protect you from pathogens.

- Staying home and taking care of yourself when you have a communicable disease can help keep you from spreading pathogens to others.

Lesson 5 Sexually Transmitted Diseases

Main Idea Sexually transmitted diseases (STDs) are infections spread through sexual contact.

- Common STDs include chlamydia, genital warts, genital herpes, trichomoniasis, gonorrhea, syphilis, and hepatitis B.
- Abstinence from sexual activity until marriage is the best way to avoid STDs.

Lesson 6 HIV/AIDS

Main Idea HIV causes acquired immunodeficiency syndrome (AIDS), a deadly disease that interferes with the body's immune system.

- HIV is transmitted mostly through sexual intercourse and sharing needles. It is not transmitted through casual contact such as hugging or shaking hands.
- Treatments are available to help manage an HIV infection, but there is no cure.

After You Read

HEALTH QUIZ

Now that you have read the chapter, review your answers to the Health Quiz on the chapter opener. Have any of them changed? What are your answers now?

Reviewing Vocabulary and Main Ideas

On a sheet of paper, write the numbers 1–7. After each number, write the term from the list that best completes each statement.

- bacteria
- immune system
- lymphatic system
- influenza
- hepatitis
- viruses
- vaccine
- contagious period

Lesson 1 What Are Communicable Diseases?

1. The smallest and simplest pathogens are called _____.
2. _____ are simple one-celled organisms.

Lesson 2 The Immune System

3. The _____ is a combination of body defenses made up of the cells, tissues, and organs that fight pathogens.
4. The _____ is a second circulatory system that helps the body fight pathogens and maintain its fluid balance.
5. A preparation of dead or weakened pathogens that is introduced into the body to cause an immune response is called a _____.

Lesson 3 Common Communicable Diseases

6. Most cases of _____ are reported from December through March.
7. The _____ of a disease is the length of time that a particular disease can be spread from person to person.

Lesson 4 Preventing the Spread of Disease

On a sheet of paper, write the number 8 and write the letter of the answer that best completes the statement.

8. Hygiene is another word for _____.
 - a. cleanliness.
 - b. antibodies.
 - c. antigens.

On a sheet of paper, write the numbers 9–14. Write **True** or **False** for each statement below. If the statement is false, change the underlined word or phrase to make it true.

Lesson 5 Sexually Transmitted Diseases

9. Abstinence from sexual activity is the best way to avoid getting an STD.
10. Chlamydia cannot be treated.
11. If left untreated, syphilis is fatal.

Lesson 6 HIV/AIDS

12. HIV is the virus that causes hepatitis.
13. People can become infected with HIV from sharing eating utensils.
14. A vaccine for HIV is currently available.



Applying Technology

Thinking Critically

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

- 15. Inferring** Many people who have AIDS actually die of pneumonia. Why do other diseases kill people who have AIDS?
- 16. Interpret** Sometimes, after you get a vaccination, you also get a “booster shot” years later. A booster shot is another dose of the vaccine. Why do you think you might need a booster shot?

Write About It

- 17. Expository Writing** Write an article about STDs for the school paper. Explain how people become infected.

Communicable Diseases

Using PowerPoint®, create data cards that share your understanding of communicable diseases and how they are spread.

- Working in pairs or triads, open a new PowerPoint® project and name it.
- Create 14 slides using the following categories (2 slides per category): *Communicable Diseases, Pathogens, Colds/Flu, STDs, HIV/AIDS, Immune System, and Preventing the Spread of Disease.*
- Add short open-ended questions and answers to each slide.
- Include brief background information in the *notes* section of each slide.
- Use the game format to review the individual slides and test students’ knowledge of communicable diseases.

Standardized Test Practice

Reading

Read the passage to answer the questions.

During the Middle Ages, the bubonic plague killed many people in a short period of time. The pathogen for the plague is a bacterium called *Yersinia pestis*. The bacteria lived inside fleas. The fleas lived on rats. The fleas infected the rats by biting them. Uninfected fleas that bit infected rats could also become infected. Fleas jumped from rat to rat and spread the plague quickly. When a rat got the plague, it died. As the disease swept through the rat populations in cities, many rats died off. As rats became scarce, more and more infected fleas began living on and biting humans. People became hosts for the plague. From the years 1347 to 1350, the plague killed one-third of the population of Europe.

1. What is the main point of the passage?
 - A. to explain how bacteria kill fleas
 - B. to explain how the population of Europe became so low
 - C. to explain how to prevent the plague from killing people
 - D. to explain how the plague killed so many people so quickly
2. What does *pathogen* mean in this sentence from the passage?
The pathogen for the plague is a bacterium called *Yersinia pestis*.
 - A. disease-causing germ
 - B. disease symptom
 - C. name of disease
 - D. route of infection

TEST-TAKING TIP

When questions ask for the main point of the passage, reread the first and last sentences of the passage. Authors often put the most important information in the first and last sentences.