

# Lesson 3

## Protecting My Body from Disease

### Overview

In this lesson, students develop their understanding of how to prevent infectious and chronic disease. They identify the symptoms of illness and learn the differences between infectious and noninfectious disease. They examine how common infectious illnesses are transmitted, and discuss and practice ways to prevent them. They then learn about behavioral and environmental factors that can influence the development of chronic disease. They summarize their learning by making a simple plan they will follow to help prevent disease and promote lifelong health.

**Time:** 45–60 minutes

### Lesson Objectives

**Students will be able to:**

1. Summarize the symptoms of someone who is sick or getting sick.
2. Explain the differences between infectious and noninfectious diseases.
3. Summarize the ways that common infectious diseases are transmitted.
4. Describe the behavioral and environmental factors that contribute to the major chronic diseases.
5. Summarize health practices to prevent the spread of infectious illnesses.
6. Summarize health practices to help prevent chronic disease.

### National Health Education Standards

#### Standard 1: Comprehending Concepts

##### *Performance Indicator*

**1.8.1:** Analyze the relationship between healthy behaviors and personal health.

##### *Performance Indicator*

**1.8.3:** Analyze how the environment affects personal health.

##### *Performance Indicator*

**1.8.4:** Describe how family history can affect personal health.

#### Standard 7: Practicing Health-Enhancing Behaviors

##### *Performance Indicator*

**7.8.1:** Explain the importance of assuming responsibility for personal health behaviors.

##### *Performance Indicator*

**7.8.2:** Demonstrate healthy practices and behaviors that will maintain or improve the health of self and others.

##### *Performance Indicator*

**7.8.3:** Demonstrate behaviors to avoid or reduce health risks to self and others.

## Materials & Preparation

### Prepare

- Have dry bar of soap and a paper towel for the hand-washing demonstration. Provide these items for students as well, if you wish.
- Have **Infectious & Noninfectious Diseases** (Slide 3), or make a transparency, if needed.

### Review

- **Types of Diseases**, pages 41–42.
- **My Plan to Be Healthy & Disease Free for a Lifetime** (*Student Workbook* pages 7–8), and Scoring Rubric, page 193.

## Health Terms

Review the teaching steps, teacher page, slide and activity sheet for any terms or concepts your students may not know, and be prepared to explain them. Examples:

- bacteria
- chronic
- environment
- factor
- fungus
- genes
- germs
- heredity
- infectious
- lifestyle
- noninfectious
- parasites
- symptom
- toxins
- virus

## Support for Diverse Learners

*To ensure student success with comprehending concepts:*

- Pre-teach new concepts and terms. Write new terms on the board. Frequently use verbal checks for comprehension.
- Distribute copies of the **Infectious & Noninfectious Diseases** slide, discuss, and provide examples for students.
- Make a slide or transparency of the **My Plan to Be Healthy & Disease Free for a Lifetime** activity sheet and review, as needed.
- Explain how some infectious diseases can become chronic. For example, hepatitis is an infectious virus, but some types can become chronic. This means the virus can remain in the body for the rest of the person's life and can continue to damage body organs.

- Consider cultural and socioeconomic factors that may affect the ability of students' families to access appropriate health care.
- Consider cultural and social beliefs regarding health care when discussing how diseases are identified and treated, and by whom.
- Consider that cultures may have different interpretations of health risk behaviors.

*To ensure student success with writing:*

- Pair students with stronger writing skills with students who may need help reading and responding to the questions on the **My Plan to Be Healthy & Disease Free for a Lifetime** activity sheet.
- Allow students to complete the activity sheet as homework and to share it with a family member.

## Introduction

### ■ Get students ready for learning

#### Transition

You've been talking about all the things you can do to help keep your body healthy all through your life. On a piece of paper, list as many of these actions as you can in 1 minute.

*Allow students to focus and work quietly for a minute. Then go around the room and call on students to share one thing they wrote. Ask for a show of hands of those who also listed this way to keep the body healthy, and make a list on the board. Continue until all ideas have been shared. If students have mentioned things related to avoiding illness, circle those things. If students have not mentioned ways to avoid illness, prompt them to solicit a few ideas: What about keeping your body from getting sick? Can you think of some things you do to avoid getting sick? Add these ideas to the list and circle them.*

This list has many good ideas about how to stay healthy. Some of them have to do with avoiding illness and keeping your body from getting sick. Today you'll be learning more about that.

#### Motivate

How many of you have ever been sick with a cold, the flu or some other illness? How did you know you were ill? How did your body feel?

*Allow a few students to briefly share their experiences. Ask questions to engage the entire class as each student shares (e.g., How many of you have also been sick like this? Has anyone else felt this way when you were ill?).*

## Teaching Steps

### ■ Teach about symptoms of illness

#### Ask & Discuss

What are some signals your body sends to let you know you are sick or getting sick?

*Allow students to respond to the question, and make a list of their ideas on the board. Title the list "Symptoms."*

## Summarize

You've just described some of the symptoms of illness. *Symptoms* is another word for signs or signals. Understanding what happens to your body when it's sick or getting sick is part of knowing how to keep it healthy. When you can notice symptoms, or signals, of disease or illness, you can take steps to get help when you need to.

## ■ Categorize types of diseases

### Survey

What are some illnesses or diseases you have heard of?

List student responses on the board. Be sure the list includes both *infectious* (e.g., cold, flu, pneumonia, chicken pox) and *noninfectious*, or *chronic*, diseases (e.g., asthma, diabetes, heart disease, cancer).

### Explain

Some of these are illnesses you can catch or get from other people. Some of them are not. One way that experts understand diseases is to look at how people get the disease or illness.

### Prepare

Show the **Infectious & Noninfectious Diseases** slide.

### Explain

**Infectious diseases** are those that can be passed from person to person. These illnesses are caused by *germs*—organisms that cause disease, such as *bacteria*, *viruses*, *parasites* or *fungi*. When someone gets one of these types of germs in his or her body, we say that this person has been *infected* with the disease. Other people can then get the disease from direct contact with the infected person or from touching things the infected person has touched that have germs on them. Germs can also go into the air when someone who's infected coughs or sneezes. Then other people breathe in the germs and get sick too. Examples of infectious diseases include cold, flu, chicken pox and athlete's foot.

Slide 3

**Noninfectious diseases** are those that develop inside a person's body. These illnesses can't be "caught" or passed to other people. Some noninfectious diseases are caused by *heredity*—the *genes* from their families that people are born with. Others can develop due to unhealthy habits and lifestyle choices. Some can come from the environment around a person. Examples of noninfectious diseases include heart disease, diabetes, cancer and lung disease.

## Complete

Let's look at the list of illnesses and diseases you named earlier and decide which are infectious and which are not.

*Draw a 2-column chart on the board. Label one side "Infectious" and the other side "Noninfectious." Go through the list of illnesses/diseases on the board and have students categorize each one. Probe for student thinking by asking how they decided which category the disease belongs in. Rewrite the name of the disease in the appropriate column. Be prepared to clarify the definitions of infectious and noninfectious for students and correct any misinformation. Refer to the **Types of Diseases** teacher page as needed.*

## ■ Teach about how to prevent infectious disease

### Ask & Discuss

What are some ways infectious diseases can be passed from person to person?

*Allow students to respond to the question and discuss their ideas.*

### Summarize

Types of direct contact that can spread an infectious illness or disease include touching, hugging, holding hands with or kissing an infected person.

Types of indirect contact that can spread an infectious illness or disease include being around someone who is sneezing or coughing; sharing food; sharing eating utensils or grooming items, such as spoons, cups, straws, brushes, combs, make-up, or nail clippers; and touching hand rails, doorknobs, handles or tissues that have germs on them.

## Ask & Discuss

What are some actions you can take to help protect yourself from getting an infectious disease?

*Allow students to respond to the question and discuss their ideas.*

## Summarize

To avoid getting an infectious disease, you have to keep the germs that cause it from getting into your body. Some people wear a mask over the nose and mouth to avoid breathing in germs from the air when they're around others who are ill. You can also try to avoid touching objects or surfaces someone who's sick has touched.

But one of the best ways to avoid germs is to wash your hands often, especially before you eat, drink or touch food, and after you use the bathroom, have been in public places or have been around someone who's sick.

## Model

Washing your hands sounds simple, but you need to be sure you do it well and long enough to get rid of germs. Follow these steps:

- Wet your hands.
- Use plenty of soap and scrub your hands for at least 20 seconds.
- Be sure to wash between your fingers and under your nails and scrub both the front and back of your hands.
- Rinse well with clean, running water.
- Dry your hands with a towel. If you use a paper towel, throw it away after use.

*Demonstrate the proper way to wash hands using a dry bar of soap and paper towel, and miming the actions of turning on and off the water faucet.*

## Practice

Let's practice the right motions for washing hands.

*Allow students to practice the motions for properly washing hands. Observe as students practice and provide corrective feedback, as needed.*

## Ask & Discuss

What about when you're sick with an infectious disease? What can you do to protect others?

*Allow students to respond to the question and discuss their ideas.*

## Summarize

You can help avoid spreading an infectious disease by limiting the number of germs you put into the air or on surfaces. Cover your nose and mouth any time you cough or sneeze. Wash your hands often. Avoid touching doorknobs, counters, sinks or other surfaces that other people will touch. Stay away from public places and stay home from school or work if you can.

## Model

The best way to cover your nose and mouth when you cough or sneeze is to place your mouth and nose against your inner elbow or sleeve.

*Demonstrate the proper way to do this.*

You can also cough or sneeze into a tissue, and then be sure to throw the tissue in the trash right away.

## Practice

Let's practice covering coughs and sneezes.

*Allow students to practice the motions for properly covering a cough or sneeze. Observe as students practice and provide corrective feedback, as needed.*

## ■ Teach about how to prevent chronic disease

### Prepare

*Show the **Infectious & Noninfectious Diseases** slide again, and point to the *Noninfectious Diseases* section.*

### Explain

The other type of disease you learned about today are ones that are not passed from person to person, but can develop from inside a person's body.



Many of these noninfectious diseases are also *chronic* diseases. Chronic means that an illness or disease is ongoing or lasts a long time. Many chronic diseases develop slowly, over time. People may not know they have the disease, because it often doesn't cause symptoms right away. Chronic diseases can be mild and cause few problems for a person, or be serious enough to threaten someone's life.

Experts who study serious diseases, such as heart disease, diabetes and different types of cancers, have learned a lot about the kinds of things that can cause chronic diseases or make these diseases worse when they happen.

### **Ask & Discuss**

How can your family history, or genes, affect your chances of getting a chronic disease?

*Allow students to respond to the question and discuss their ideas.*

### **Summarize**

We all inherit certain traits from our families. Hair and eye color, a tendency toward a certain body size, or facial features that “run in the family” are all a result of the genes you inherit from your family. In the same way, heredity or genes may make a person somewhat more likely to develop certain chronic diseases.

### **Explain**

You can't change the genes you get from your family. But family history isn't the only thing, or even the main thing, that affects whether a person develops a chronic disease. The 2 biggest factors that can lead to chronic disease are the *environment* and the *lifestyle* or behavior choices people make each day.

### **Ask & Discuss**

What are some things in the environment that could affect a person's health and chances of developing a chronic disease?

*Allow students to respond to the question and discuss their ideas.*

## Summarize

Environmental *factors* that can contribute to chronic disease include:

- Secondhand tobacco smoke
- Pollution
- Dangerous chemicals or *toxins*
- Sun exposure
- Unclean water

## Explain

Just as people can't change their genes, they can't always change their environment. But your own personal health choices *are* up to you. The behaviors you choose each day can play a big role in your health. You are responsible for the choices you make and the actions you take to stay healthy and help yourself avoid chronic disease.

## Create

Find a partner. You'll have 2 minutes to work together to list unhealthy behavior choices that could negatively affect people's health and increase their chances of getting a chronic disease.

*Pair students or allow them to select partners and give them 2 minutes to brainstorm as many unhealthy behavior choices as they can. Go around the room and allow each pair to share one thing they wrote. List behaviors on the board as students name them, correcting any misinformation, as needed. Be sure the list includes the following:*

- *Eating a high-fat or high-sugar diet*
- *Eating too few fruits, vegetables and whole grains*
- *Not getting enough physical activity*
- *Not getting enough sleep and rest*
- *Not managing stress*
- *Using tobacco, alcohol or other drugs*
- *Not seeing a health care provider for check-ups*

### Community Connection

Invite a nurse or physician to discuss ways students can stay healthy and disease free.

## Assessment & Closure

### Students demonstrate learning

#### Complete

You've been learning about ways to keep your body healthy. Many of these things can also help you avoid infectious and noninfectious, chronic diseases. Now you're going to put it all together to make a plan stay healthy.

*Direct students to turn to **My Plan to Be Healthy & Disease Free for a Lifetime** on page 7 of the Student Workbook and allow time for them to complete the activity sheet.*

**My Plan to Be Healthy & Disease Free for a Lifetime**

**Directions:** Answer the questions under each step to complete your plan.

**Step 1: Know how and why people get sick.**

1. Describe at least 3 signals your body sends when it's getting sick:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

2. What is the difference between infectious and noninfectious disease?

3. Describe at least 3 ways a person could catch an infectious disease:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. Describe at least 2 things in the environment that could lead to chronic disease:

1. \_\_\_\_\_

2. \_\_\_\_\_

5. Describe at least 3 unhealthy behavior choices that could lead to chronic disease:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

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7

**Workbook pages 7–8**

### End the lesson

#### Close

What's the 1 action from your **Plan to Be Healthy & Disease Free for a Lifetime** that you will start doing right now to protect yourself from disease?

*Go around the room and allow students to share the healthy action they described on their activity sheets.*

All of these things are ways you can protect your body and keep it healthy. You've made the connection between practicing healthy behaviors today and staying healthy for a lifetime. The actions you take every day can help you have a healthy life both now and in the future.

#### Assess

*Collect students' **My Plan to Be Healthy & Disease Free for a Lifetime** activity sheets and evaluate their work for this lesson.*

## Assessment Evidence

### Objective 1

Students summarized the symptoms of someone who is sick or getting sick by:

- Completing the **My Plan to Be Healthy & Disease Free for a Lifetime** activity sheet.

### Objective 2

Students explained the differences between infectious and noninfectious diseases by:

- Completing the **My Plan to Be Healthy & Disease Free for a Lifetime** activity sheet.

### Objective 3

Students summarized the ways that common infectious diseases are transmitted by:

- Completing the **My Plan to Be Healthy & Disease Free for a Lifetime** activity sheet.

### Objective 4

Students described the behavioral and environmental factors that contribute to the major chronic diseases by:

- Completing the **My Plan to Be Healthy & Disease Free for a Lifetime** activity sheet.

### Objective 5

Students summarized health practices to prevent the spread of infectious illnesses by:

- Practicing the steps for proper hand washing and covering coughs and sneezes.
- Completing the **My Plan to Be Healthy & Disease Free for a Lifetime** activity sheet.

### Objective 6

Students summarized health practices to help prevent chronic disease by:

- Completing the **My Plan to Be Healthy & Disease Free for a Lifetime** activity sheet.

*(Scoring Rubric, page 193)*

# Types of Diseases

## Diseases are often categorized by how people get them:

- **Infectious diseases** can be passed from person to person. They are caused by germs—bacteria, viruses, parasites, fungi, etc. They can be passed by direct contact with an infected person, such as hugging, kissing or holding hands. They can also be passed by touching things an infected person has touched that have germs on them—such as doorknobs, handles, counters and other surfaces—or by sharing eating utensils or grooming items—such as brushes, combs, make-up or nail clippers. Some can be passed through the air when an infected person coughs or sneezes.
- **Noninfectious diseases** develop inside a person’s body and can’t be “caught” or passed to other people. Some noninfectious diseases are influenced by heredity; some can develop due to unhealthy habits or lifestyle choices; and some can be attributed to the environment around a person.

## Diseases can also be categorized by how long the disease or illness lasts.

- **Acute diseases** happen quickly and last a short time. People usually have symptoms right away and can tell they are sick. Acute diseases can be mild, or serious enough to be life threatening. Some go away on their own. Others can be treated with medicines to help the person recover or feel better. Most infectious diseases are acute.
- **Chronic diseases** are illnesses that are ongoing or last a long time. Many chronic diseases develop slowly. People may not know they have the disease, because it often doesn’t cause symptoms for a long time. Chronic diseases can be mild and cause few problems for a person, or be serious enough to threaten someone’s life. Chronic diseases usually need a doctor’s care and/or treatment with medicines to help the person feel better.

Most noninfectious diseases are chronic, although a few can be acute. For example, an allergic reaction to food or an insect bite, which cannot be passed to other people, usually causes symptoms right away. It’s also possible for an infectious disease to become chronic. For example, sometimes hepatitis—a virus that infects the liver—can remain in the body for the rest of the person’s life.

*(continued)*

**Teacher Page**

## **Types of Diseases** *(continued)*

### **Examples of infectious diseases:**

- cold
- flu
- chicken pox, measles and mumps
- whooping cough
- athlete's foot and nail fungus
- strep throat
- ear infections
- head lice
- pinkeye

### **Examples of noninfectious, chronic diseases:**

- heart disease
- diabetes
- cancer
- lung disease
- gum disease

### **Behaviors that contribute to chronic disease:**

- High-fat or high-sugar diet
- Eating too few fruits, whole grains and vegetables
- Not getting enough physical activity, leading a sedentary lifestyle
- Not getting enough sleep and rest
- Not managing stress
- Using tobacco, alcohol or other drugs
- Not getting regular medical or dental check-ups
- Poor personal hygiene

### **Environmental factors that contribute to chronic disease:**

- Secondhand tobacco smoke
- Excessive noise
- Pollution
- Dangerous chemicals, toxins
- Sun exposure