What Is This Module About?

We live in this planet together with a wide variety of living things. Many of these creatures are large enough for us to see, while others are very small and invisible to the naked eye. These small creatures are called **microorganisms** and they include bacteria and viruses that are in the air, soil and water. They are everywhere. Even the surface of our skin is home to millions of bacteria. Despite all this, our body has the power to defend us against harmful microorganisms that can cause diseases.

What do you think are ways to protect our body from these harmful microorganisms we cannot see? How does our body keep out disease-producing organisms or pathogens? How does it deal with germs that do get in it?

This module will answer all of these questions. It will also cover some of the infectious diseases, their symptoms and how we can easily avoid and treat them.

This module consists of two lessons:

Lesson 1 — *What Are Diseases? How Does Our Body Fight Them?*

Lesson 2 — *Communicable Diseases*

What Will You Learn From This Module?

After studying this module, you should be able to:

- explain how our body mechanism protects us from sickness;
- identify the different types of communicable diseases that can easily be prevented; and
- explain the different safety measures in protecting our body against diseases.

Let's See What You Already Know

Before you start studying this module, take this simple test first to find out what you already know about the topic.

A. Encircle the letter of the correct answer for each number.

1. The skin is _____.
   a. the outer covering of the body that protects us from illnesses
   b. not affected by bacteria or virus
   c. more resistant to germs when it is lighter in color
   d. not important in protecting our body against diseases

2. What will happen when dirt gets into your eyes?
   a. Your eyesight will become clearer.
   b. The dirt will irritate your eyes and they might get infected.
   c. Nothing will happen.
   d. You will become blind.

3. Why must wounds be covered with bandages?
   a. To prevent infection.
   b. To allow wounds to bleed.
   c. To look clean.
   d. To prevent wounds from smelling bad.

B. Write your answers in the blanks provided.

4–6. Give at least 3 types of illness that may be prevented through vaccination.

_____

_____

_____

C. In the blanks provided, write **True** if the statement is correct, and **False** if it is not.

_____ 7. Rabies is a contagious disease of animals, particularly dogs.

_____ 8. If you are immunized against measles, you will never acquire this disease.

_____ 9. The body cannot protect us against diseases.

_____ 10. It is safe to be near a person with chicken pox.

How was the test? Do you think you fared well? Compare your answers with those in the *Answer Key* on page 45.

If all your answers are correct, congratulations! This shows that you already know much about the topics in this module. You may still study the module to review what you already know. You might even learn a few more new things from it.

If you got a low score, don't feel bad. This means that this module is for you. It will help you understand some important concepts that you can apply in your daily life. If you study this module carefully, you will understand the answers to all the items in the test and learn a lot more! Are you ready?

You may go to the next page to begin Lesson 1.

LESSON 1

What Are Diseases? How Does Our Body Fight Them?

A **disease** is a harmful condition that can affect a person's physical, mental and social well-being. When we are sick, we stay in bed; we often don't like to eat and be with other people. We also become frustrated because we can't do our usual daily activities. Getting sick can also be expensive because we need to see a doctor and buy some medicines. So, we do what we can to avoid sickness by taking care of our body. In this lesson, you're going to find out how our body protects itself from harmful diseases.

After studying this lesson, you should be able to:

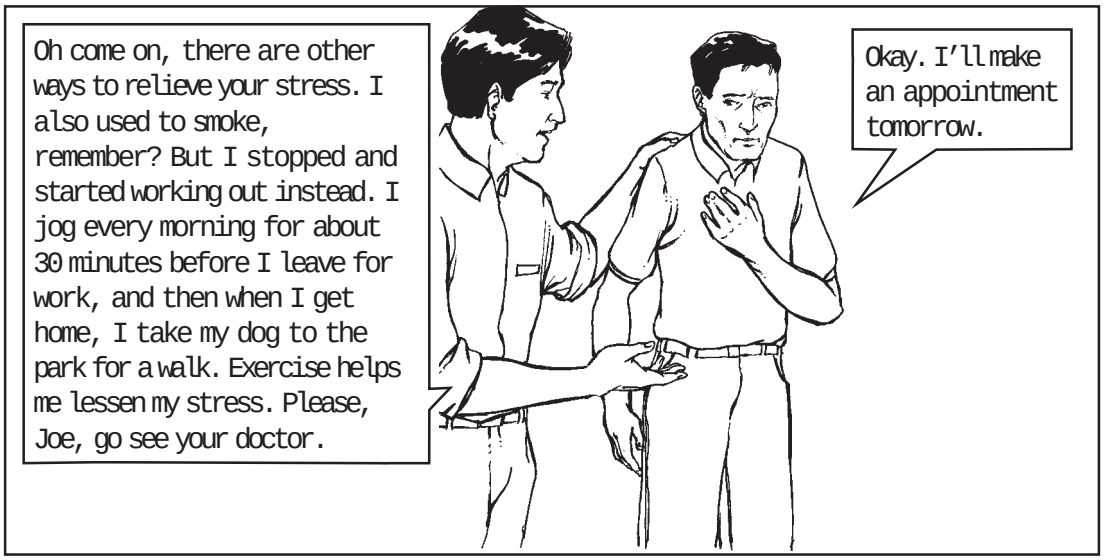
- state the importance of properly taking care of your body;
- identify situations when your body may be in contact with harmful organisms like bacteria or viruses;
- explain how the body protects and reacts to sickness; and
- differentiate communicable diseases from non-communicable diseases.

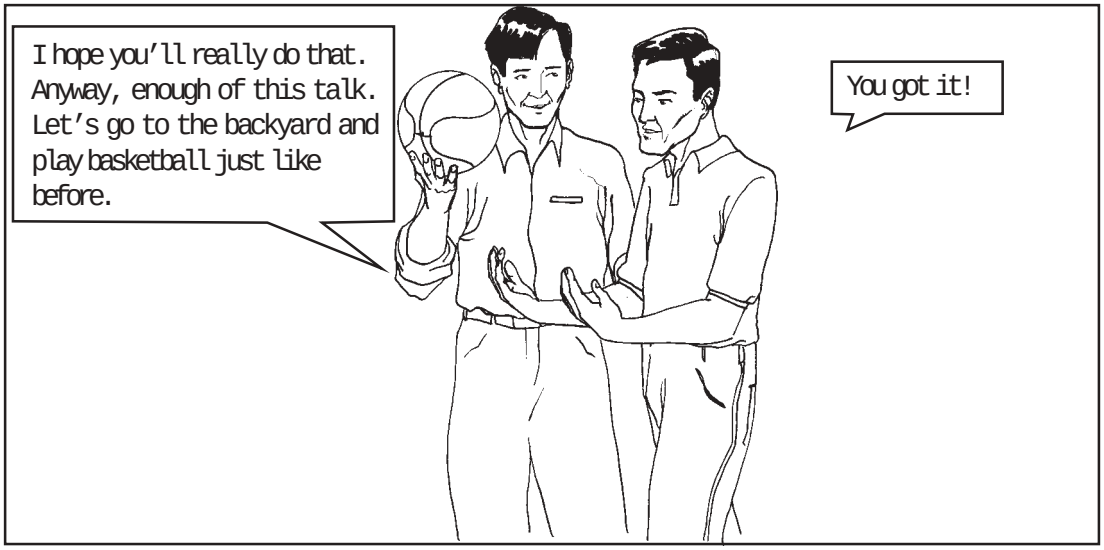
Let's Study and Analyze

A person with a disease is sick or unhealthy. Can you tell the difference between a sick person and a healthy person? Do they look the same? Who looks weaker? stronger? happy? sad?

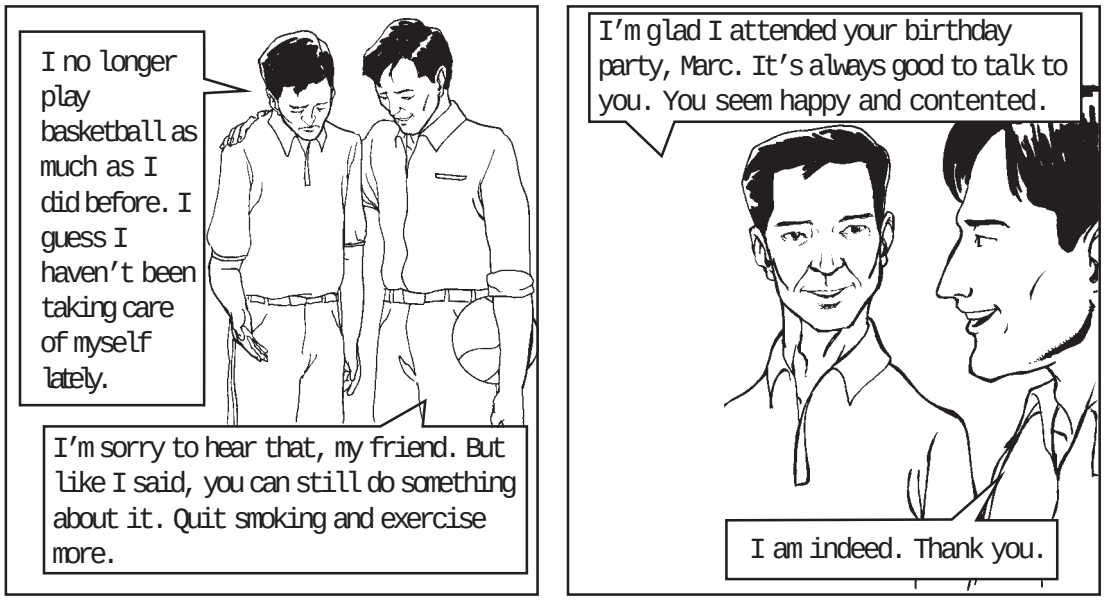
Let's study and analyze the story of two close friends. Joe and Marc are both highly educated. They went to the same school but took up different majors. Joe is now a successful businessman. Marc, on the other hand, is the vice president of a big and reputable company.

Because they are the closest of friends since their college days, they made a promise that they will see each other at least three times a year. One time Joe and his family were invited by Marc to his birthday party.





The old friends played their favorite sport . . . but after 5 minutes . . .



Let's Talk About This

What did you learn from the comic strip you just read? Were you able to tell the difference between the two best friends?

Sometimes, we seem to take advantage of our freedom to do anything we want. For example, Joe liked to smoke and did not exercise. He engaged in bad habits without considering that he might be harming himself.

It is true that the body works in its own way to protect itself from sickness, but our body cannot work alone. We have to see to it that our body receives the right nutrition and the proper care. We should eat nutritious food, get sufficient rest and sleep, and stay away from vices like smoking and drinking. If we do these, then our body will be able to defend us against diseases. Now, here are some questions for you to answer.

1. What does Marc do to keep himself healthy?

_____

_____

_____

2. How do you keep yourself healthy?

_____

_____

_____

3. What did Marc notice about Joe's physical health?

_____

_____

_____

4. What do you think caused this? And how does it affect Joe's life?

_____

_____

_____

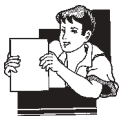
5. Marc gave Joe some advice. Do you also have a friend who probably needs your help? If you are in the same situation as Marc, what would you advise your friend to do?

_____

_____

_____

Compare your answers with those in the *Answer Key* on pages 45–46.



Let's Learn

What is the key to a longer and healthier life? Food alone isn't enough. An overall healthy lifestyle must also include regular exercise, avoiding vices, stress management, cleanliness, good nutrition and limiting exposures to environmental hazards and other factors.

A very important thing people can do to protect their health is to never start smoking and, if you do, motivate yourself to stop. This is an important protection against not just heart disease but cancer, stroke, and lung disease as well. Smoking can also cause dental problems, bad breath, wrinkled skin, bad-smelling hair, and stained fingernails.

Smoking does nothing to relieve stress. It is even harmful to health. One of the best ways to reduce stress is to exercise. The health benefits of exercise have been known for decades. It doesn't only help you relax, but it also reduces your risk for heart disease, improves your balance and coordination, relieves pain and stiffness, and helps you maintain proper weight.

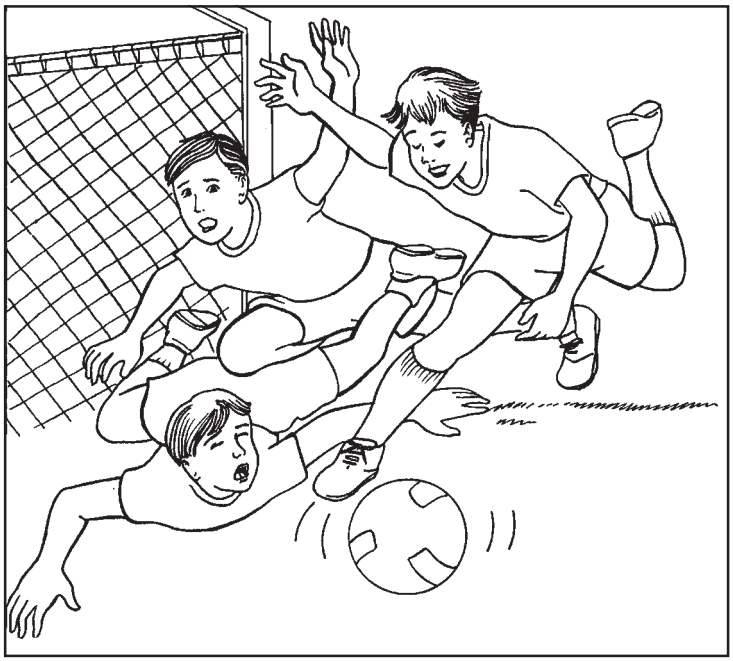
You can choose any exercise that you enjoy. Your everyday activities can be a part of your exercise, such as household chores and walking to the store. You don't have to be an athlete to become physically fit. Walking, bicycling, swimming, jogging and dancing are all types of exercise. You must include a variety of activities to help you stay physically active.

Now let's find out how our body fights diseases.

Let's Read

Manuel and his friends love to play football. They are members of their school's football team.

Every afternoon after school, they always practice football in the school's playground.



Football is an interesting sport. The object of the game is to run after the ball and strike it to the goal to score points. Playing football is very rough. The players tend to bump each other and fall flat on their backs on the ground. Manuel and his friends have hurt themselves in some occasions and sometimes dirt even get into their eyes. Mr. Diaz, their coach, never fails to remind them to treat even their slightest wounds. He would ask the players to go to the clinic and have their wounds treated by a doctor or nurse. Mr. Diaz also advises Manuel and his friends to eat the right kinds of food, stay healthy and maintain cleanliness by taking daily baths.

Let's Review

Fill in the blanks with the correct answers.

1. Mr. Diaz always reminds the players to _____ even their slightest wounds.

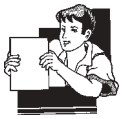
2. Sometimes _____ even get into their eyes.

3. Players who want their wounds to be treated usually go to the _____.

4. Mr. Diaz advises them to eat the _____ kinds of food.

5. He also reminds them to maintain _____ by taking a bath every day.

Compare your answers with those in the *Answer Key* on page 46.



Let's Learn

Do you know why Mr. Diaz insists on keeping the body healthy and strong? Do you know why Mr. Diaz advises the players to treat even their slightest wounds?

Read the following to know the answers.

The skin is the outermost covering of our body and it protects us from diseases. The skin prevents large numbers of microorganisms or germs from entering the body. However, if the skin surface is broken from a cut, germs can enter the body and make us sick.

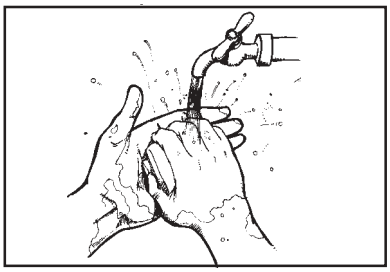
Therefore, we must keep our skin and body clean and healthy.

We should practice the following ways to keep our body free from germs.

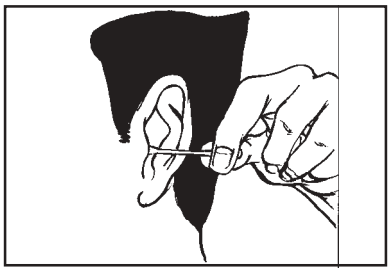
1. *Take a bath every day.*

   We have to maintain cleanliness to keep our skin free from germs.

2. *Wash hands regularly,* especially when they are dirty. Germs or bacteria that cling to the hands can cause sickness.

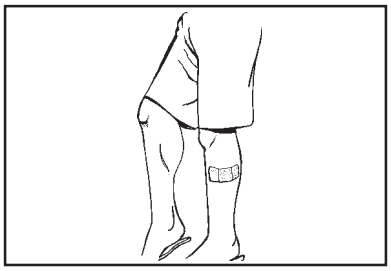


3. *Clean the ears* to remove dirt and germs.The ears have tiny hair strands called *cilia* that prevent germs from entering. These germs stick to the wax that is found in the ears.



4. *Always keep the face clean.* The eyes and nose help to protect us from bacteria. The tears cleanse away the dirt and germs from the eyes. The hair inside the nose serve as filter that blocks the dirt coming from outside.

5. *Cover wounds with bandages.* Covering the wounds with bandage helps prevent infection.

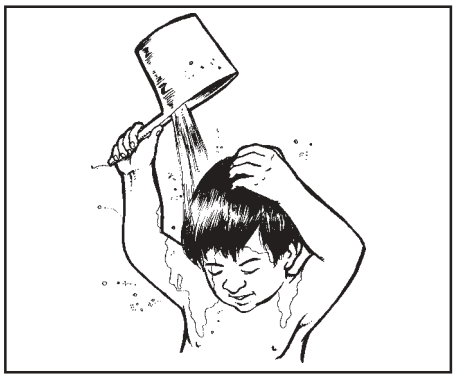


6. *Always wear slippers or shoes.* Worms and microbes can easily penetrate the body through the feet, especially those with wounds.

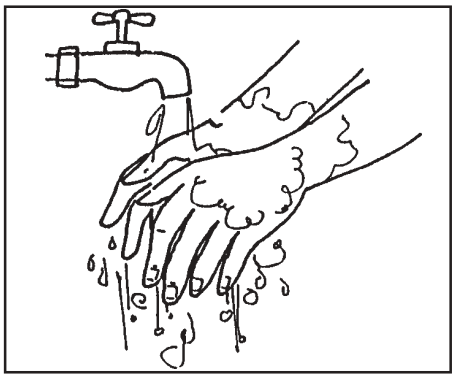
Some of the natural body defenses include the skin, tears, cilia and the thin layer of the skin inside the nose, mouth, throat, ears and other organs. We must do what we can to take care of our body so that our natural defenses can function well.

Let's Try This

Why do you think we have to practice the following? Encircle the letter of the correct or the best answer for each number.

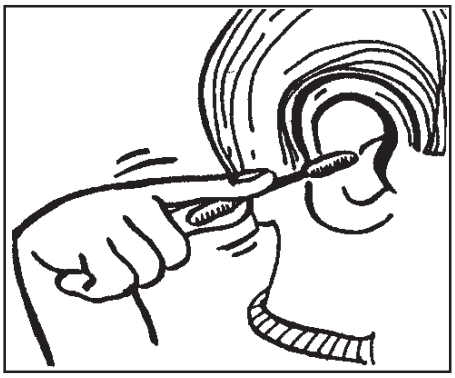


1. a. to smell fresh
   b. to prevent body odor
   c. to wash away germs and dirt



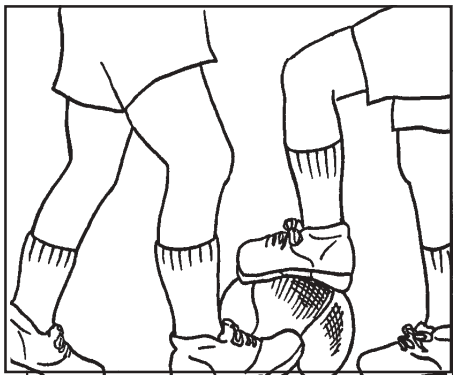
2. a. to make hands look pretty
   b. to get rid of germs
   c. to get ready for football

3. a. to wash away dirt
   b. to prevent the face from bleeding
   c. to smell good



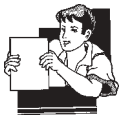
4. a. to block dirt and germs
   b. to damage the earwax
   c. to remove earwax and microbes

5. a. to prevent the leg from getting wounded
   b. to cover the wound and avoid infection
   c. to look clean



6. a. to prevent bacteria from entering the feet
   b. to be able to play
   c. to look cool

Compare your answers with those in the *Answer Key* on page 47.



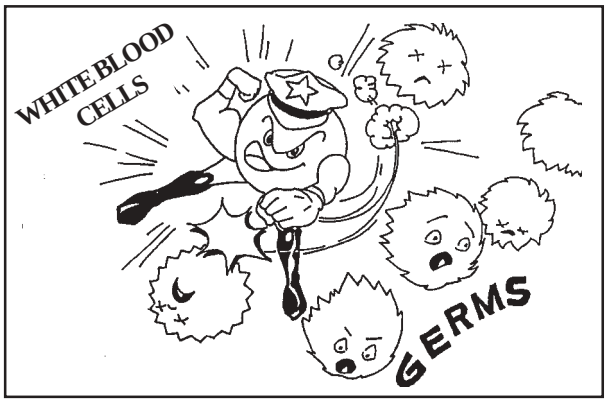
Let's Learn

What happens to a microbe or germ once it has penetrated the skin?

When we are wounded, the surface of the skin is cut. The first layer of protection against germs is damaged. However, our body protects us even when we get wounded.

Let me tell you how.

The blood plays an important role here. It has *white blood cells* (WBC) or **leukocytes** which are often called "soldiers of the body."



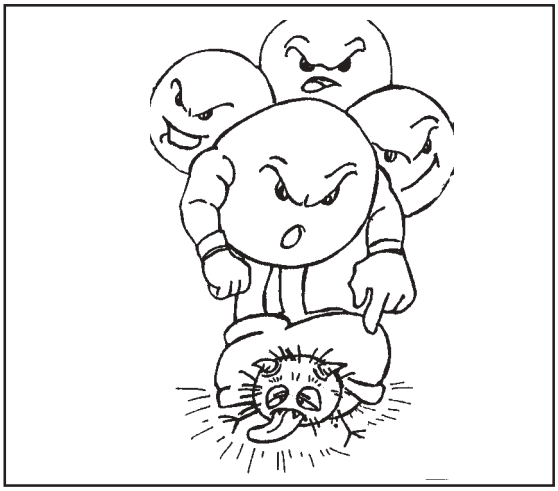
The white blood cells protect our body against infection by destroying the microbes attacking the blood cells. These “soldiers” can be divided into two major groups. The first group consists of **macrophages** that move and digest foreign materials. The second group is made up of **lymphocytes** that produce **antibodies** to combat germs.

Antibodies are produced in response to infection. For example, when a person has chicken pox, his/her body will produce antibodies to attack the virus. The antibodies prevent the body from getting weaker.

Antibodies are also produced through vaccination. An example is when a child receives an injection against measles. The vaccine contains antibodies that produce immunity to measles. The body then can fight the illness through the antibodies that attack the virus.

If the virus attacks the body again, the antibodies will fight this same virus.

People with a certain illness usually develop the capacity to fight that particular sickness if it strikes them for the second time. They will no longer suffer from the same illness because the body is already immune to it.



When our body is immune to a disease, this means that we are invulnerable or resistant to it. Immunity is a function of our body's **immune system.** This system is a collection of cells and tissues that defend the body against germs or pathogens. It has cells throughout the body ready to take on a pathogen at any point of entry.

Specific cells give immunity to recurrences of diseases such as chicken pox or mumps. **Immunity** is the ability to resist a particular disease. There are two kinds of immunity. **Congenital** or **inborn** immunity is the natural resistance to disease. **Acquired** immunity is obtained from antibodies not normally present in the blood.

Immunity can also be either active or passive. In many cases, **active** immunity is life-long such as in measles. In other instances, it can be short-lived, lasting not more than a few months. **Passive** immunity is produced by administration of antibodies to an unimmunized person to give temporary protection against a microbe. For example, antibodies are passed to a fetus through the placenta. Once the child is born, the continuing activity of these antibodies is made possible if the infant is breastfed. As a result, the infant will have passive immunity to some diseases. In addition, passive immunity is used in the treatment of certain illnesses such as diphtheria and tetanus, and in certain bites like those from snakes and spiders. You will learn more about these diseases in the next lesson.

Let's Review

Complete the following sentences. Write your answers in the blanks provided.

1. The blood has _____ or leukocytes that are often called "soldiers of the body."

2. The white blood cells protect the body against _____.

3. _____ is the ability to resist a particular disease.

4. _____ immunity is the natural resistance to disease, which the body has since birth.

5. _____ are produced in the body in response to infection or through vaccination.

Compare your answers with those in the *Answer Key* on page 47.

Let's Think About This

What do you think is the difference between an inherited disease and a communicable disease?

Do you know some examples of diseases that can be inherited? Write them down below.

_____

_____

_____

If your answers include diabetes, hypertension (high blood sugar), heart disease, mental disorders and arthritis, then you are correct.

Inherited diseases are those that can be passed on by parents to their children. For example, if your mother has diabetes, it is possible that you may also get the disease.

What about communicable diseases? Do you know some examples of these? Write them below.

_____

_____

_____

If your answers include chicken pox, measles, tetanus, diphtheria, mumps and rabies, then you are correct.

Communicable diseases are caused by microorganisms or viruses transmitted from one person to another. The term “communicable” also means infectious and contagious. These diseases may be prevented through vaccination.

The next lesson will further discuss some of the communicable diseases common in children and young adults.

Let’s Remember

- The body is protected from certain diseases because of its natural defenses.
- Some of the natural body defenses are the skin, tears, *cilia* and the thin layer of skin (mucous membrane) inside the nose, mouth, throat, ears and other organs.
    - — The skin covers the body and serves as a protection against germs.
    - — Tears cleanse away dirt from the eyes.
    - — The *cilia* are thin hairs found inside the nose and ears. They block dirt and microbes.
    - — The thin layer of skin found inside the nose, mouth, ears and throat is wet and sticky, enabling it to trap dirt.
- When a person is strong and healthy, the body helps the natural defenses to perform their functions well.
- White blood cells protect our body against infections.
- Immunity is the ability of the body to resist a particular disease.
- Children must be vaccinated against diseases.

- If a person has already suffered from certain diseases, he/she becomes immune to them.
- Inherited diseases can be passed on by parents to their children. Communicable diseases are transmitted through coughs and sneezes and through the use of contaminated items (used tissues, shared personal belongings, drinking glasses, food, silverware).

Let's See What You Have Learned

A. Complete the following sentences. Write your answers in the blanks provided.

1. Children must be _____ against communicable diseases such as measles, chicken pox, tetanus and diphtheria.
2. A person who has already suffered from measles will most likely not have it again because the body is already _____ to the disease.
3. We cover our wounds with bandages to prevent _____.
4. _____ is the collection of thin hairs found inside the nose and ears that trap dirt and germs.
5. White blood cells or leukocytes are often called the _____.

B. Encircle the letter of the correct or the best answer.

1. We wash our hands regularly especially when they are dirty because _____.
   a. it will make our hands look clean
   b. germs or bacteria that cling to our hands can cause sickness
   c. our mother tells us to do so
   d. it will make our hands look pretty

2. The two kinds of immunity are _____.

   a. natural and acquired

   b. natural and vaccine

   c. acquired and inherited

   d. natural and inherited

3. When a child receives vaccination before getting infected with measles, his body will _____.

   a. make antibodies that will allow the virus to invade it

   b. make antibodies that will attack the virus

   c. make a vaccine of its own to fight the virus

   d. not produce antibodies

4. Communicable diseases are those that can be transmitted from _____.

   a. non-infected to infected persons

   b. infected animals to infected persons

   c. infected to infected persons

   d. infected to non-infected persons

5. The natural defenses that our body has include the _____.

   a. skin, tears, cilia

   b. bone, muscle, throat

   c. mouth, nose, brain

   d. skin, nose, throat

Check your answers with those in the *Answer Key* on pages 47–48.

LESSON 2

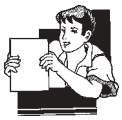
Communicable Diseases

Communicable diseases can be transmitted by direct or indirect contact with an infected person or by using his/her personal belongings. The organisms involved (bacteria, virus, fungi, protozoa or worms) in the infection are transmitted from an infected to a non-infected person. Any disease-causing organism is called a **pathogen.** When the disease caused by pathogens becomes widespread, an **epidemic** occurs. An example would be the influenza epidemics in 1918 and 1919, where much more people were killed than during the First World War.

In this lesson, we will study some infectious diseases such as *diphtheria, tetanus, chicken pox, measles, influenza, mumps* and *rabies.* We will discuss their signs and symptoms, how we can avoid and treat them, and where to go for help, especially for vaccinations or immunizations.

After studying this lesson, you should be able to:

- identify and describe the different types of communicable diseases;
- distinguish the signs and symptoms of these diseases;
- explain the different preventive and curative measures; and
- decide when and where to ask for medical assistance.



Let's Learn

Recall the last time you were sick. For instance, when was the last time you had colds? How did you get the disease? Were you infected by another person? Write down your answers below.

_____

_____

_____

_____

_____

_____

When we get sick with an infectious disease, say colds, the pathogens of that disease are passed on from one person to another. How do the pathogens get transmitted? There are several ways.

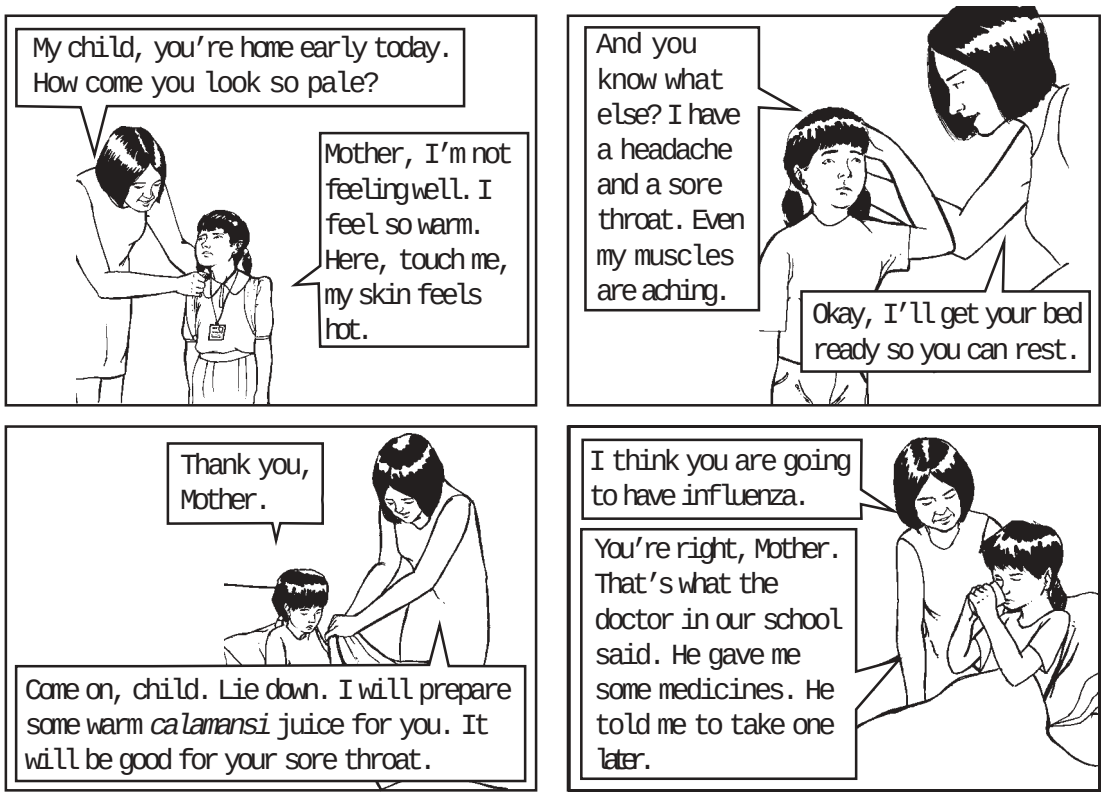
First, pathogens may be carried through the environment by air, water, or some objects such as food or silverware. Second, they can be transmitted by direct bodily contact between an infected and a non-infected person. Third, independent organisms like mosquitoes can carry pathogens from one person to another.

Pathogens are dispersed into the air when an infected person sneezes or coughs. Influenza or flu is transmitted in this way. Tetanus occurs when a wound is contaminated with soil carrying the bacteria called *tetanus bacilli*. Animals also act as reservoirs for microbes. The rabies virus can be contracted from the bite of a rabid animal.

In this lesson, we will also look at some of the medical advances that have helped cure these diseases. First, let's learn about influenza.

Let's Read

Read the following comic strip about Mary Ann.



Let's Review

1. What is Mary Ann's illness?

   _____

2. What are the different signs and symptoms she felt?

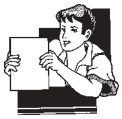
   _____

   _____

Compare your answers with those in the *Answer Key* on page 48.

What are the other symptoms of influenza that were not mentioned in Mary Ann's story?

To know the answer, read on.



Let's Learn

Influenza (Flu)

Description	A contagious disease caused by a virus that weakens the body's resistance against infection. The virus enters the body when a person inhales it in the air.
Signs and Symptoms	Fever Sore throat Severe cold Body weakness Aching muscles Headache Dry cough Loss of appetite
How to avoid contracting this disease	Take enough rest and sleep. Eat nutritious foods. Drink plenty of water and fruit juices.

Keep your surroundings clean and orderly.

Don’t go near a person with influenza.

Consult a doctor regularly.

Go to the health center to get vaccinated against influenza.

How to treat this disease

Drink plenty of fluids.

Rest in bed.

Eat nutritious foods.

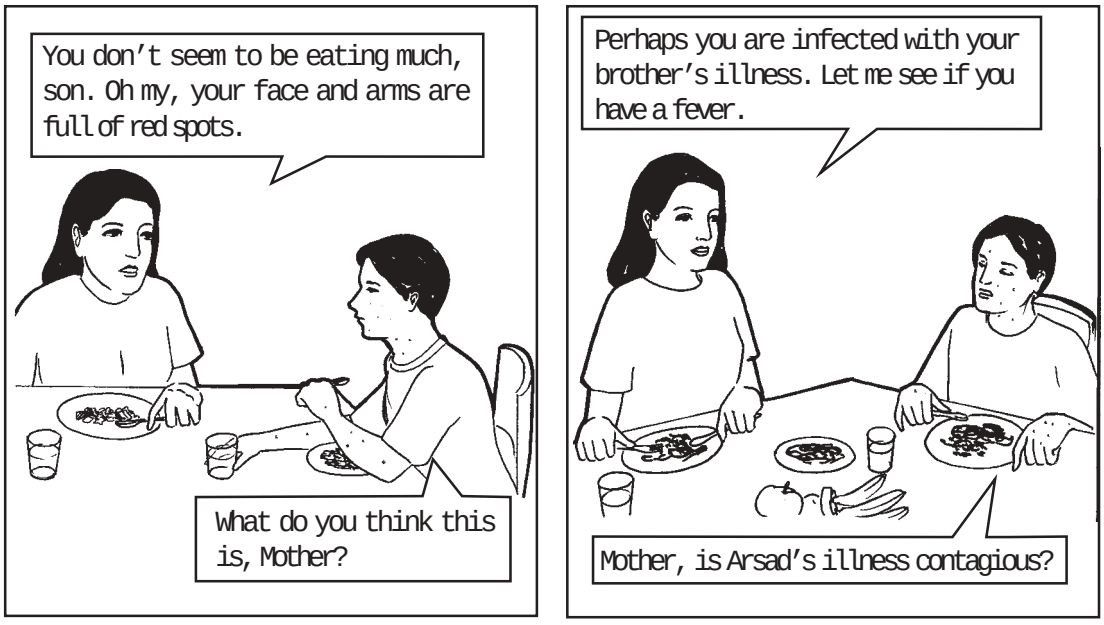
Take medicine for fever.

Drink warm *calamansi* juice to help get rid of the sore throat.

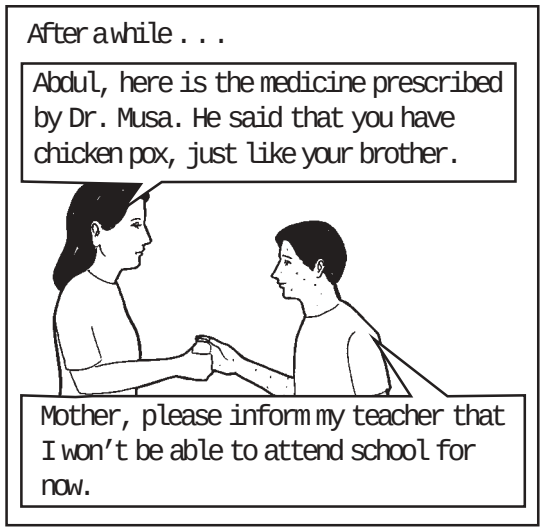
Go to the nearest health center if the fever persists.

Let’s Read

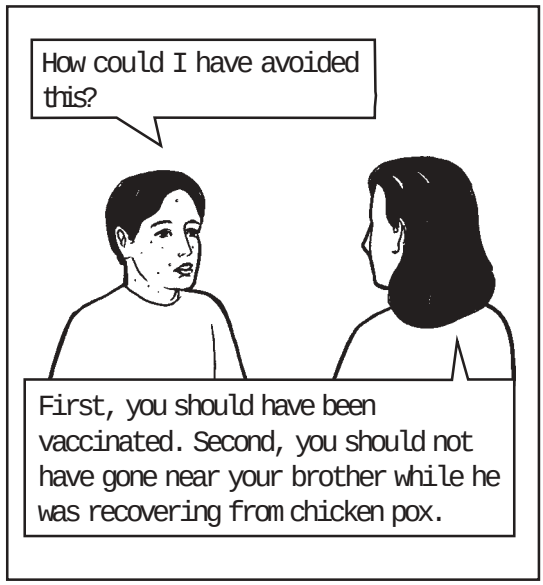
Now let us read another story. This is the story of Abdul.




Yes, but we'll talk about that later. Meanwhile, get some rest and I'll go to the doctor. Stay in the bedroom and keep away from your other siblings so they won't get infected.


After a while . . .
Abdul, here is the medicine prescribed by Dr. Musa. He said that you have chicken pox, just like your brother.
Mother, please inform my teacher that I won't be able to attend school for now.


Some time later . . .
Mother, how do you think I got infected with chicken pox?
Perhaps, you came near your brother and inhaled the microbes. That is why you got infected.


How could I have avoided this?
First, you should have been vaccinated. Second, you should not have gone near your brother while he was recovering from chicken pox.


What is the cure for this? It's so itchy.
Oh, don't scratch your skin or else you'll have scars for the rest of your life.


Just wait for the reddish spots to disappear. We'll just put some lotion on them so they won't itch.
Thank you, Mother.

Let's Talk About This

Based on the story you just read, answer the following questions.

1. What is Abdul's illness?

   _____

2. How did he get the disease?

   _____

   _____

3. What were the symptoms he felt?

   _____

   _____

4. What was the first thing his mother did when she found out that Abdul was infected with chicken pox?

   _____

   _____

5. How could he have avoided getting chicken pox?

   _____

   _____

6. What did his mother advise him to do while he had chicken pox?

   _____

   _____

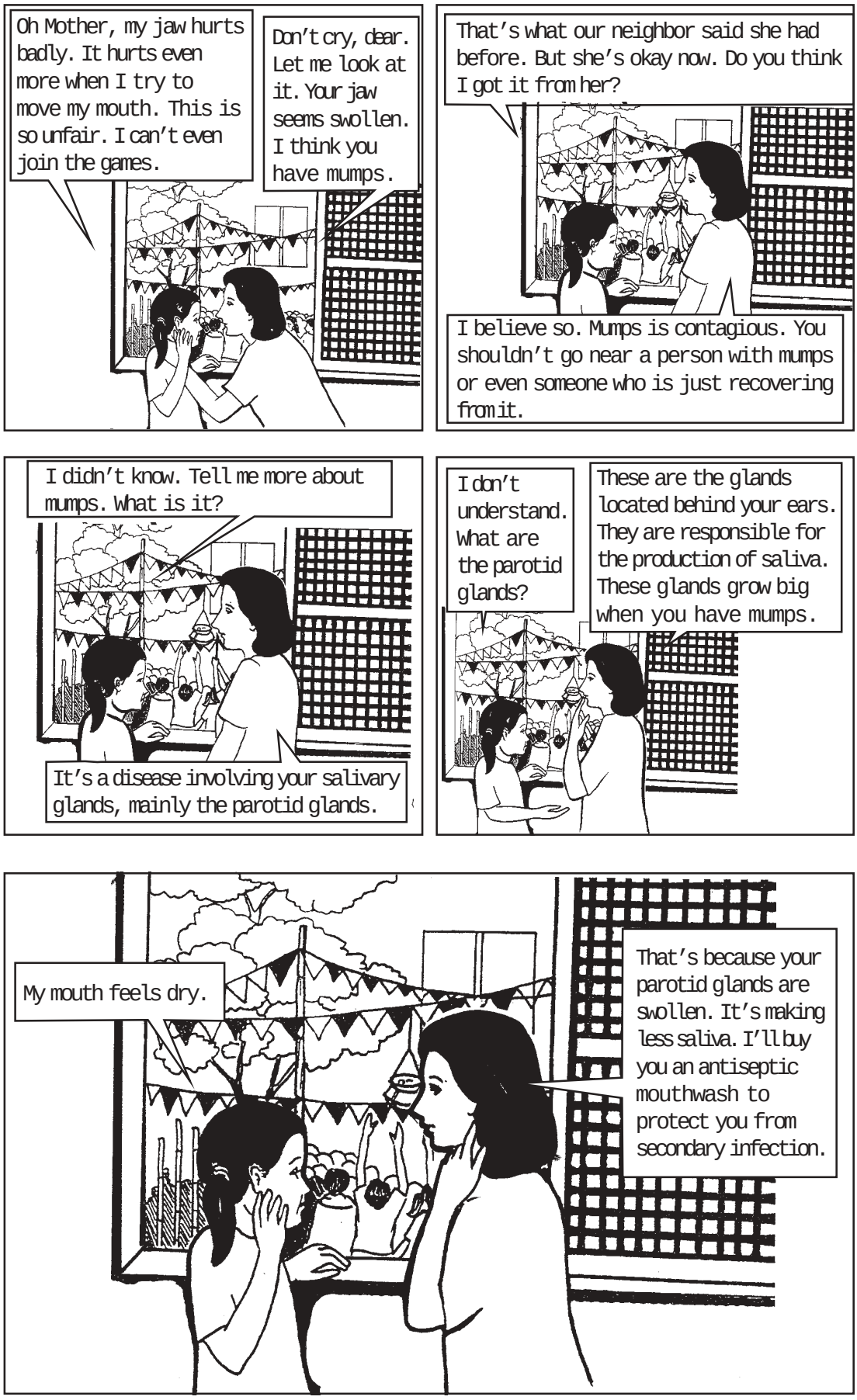
Compare your answers with those in the *Answer Key* on page 48.

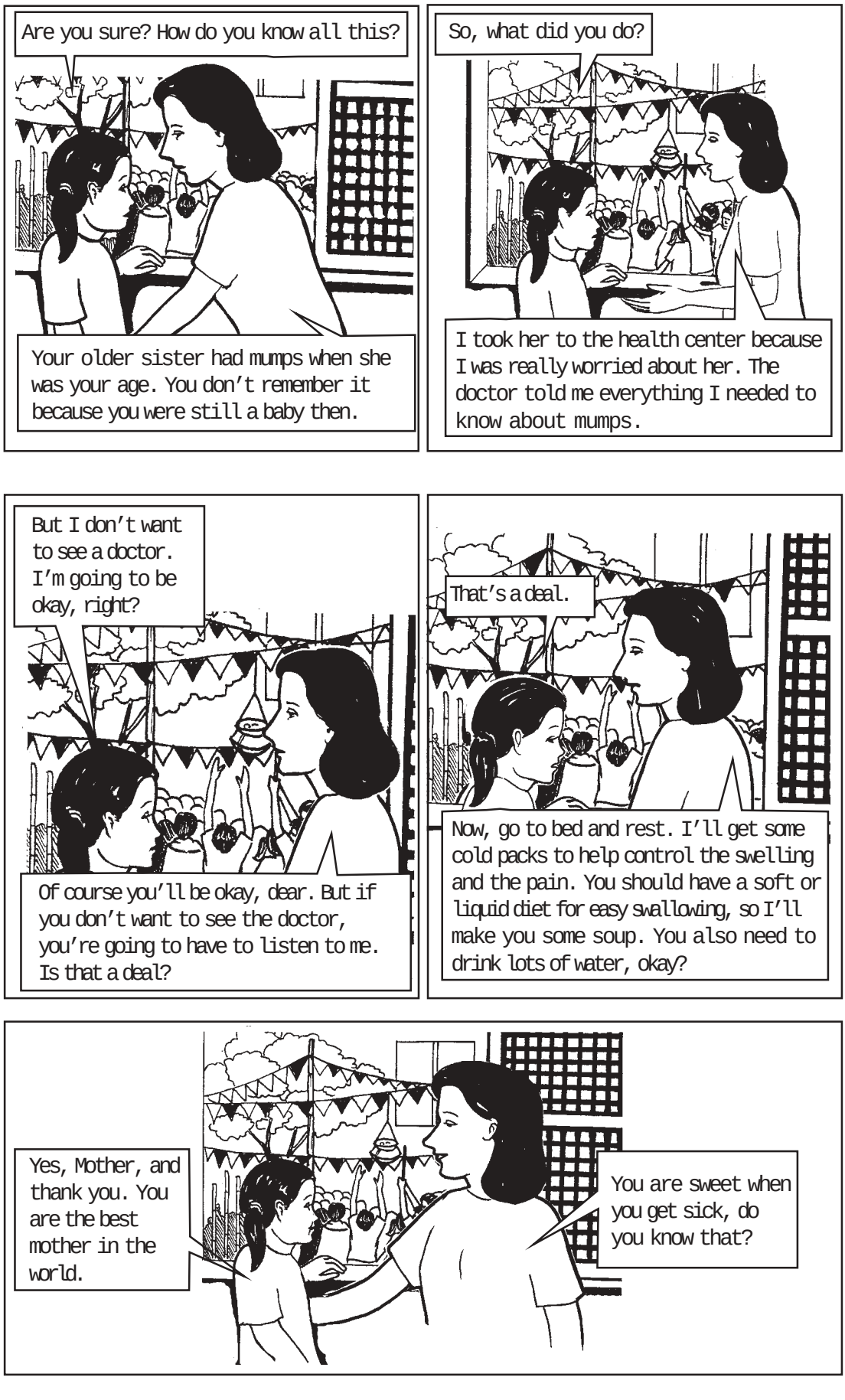
Let's Study and Analyze

Let us continue studying the different types of communicable diseases common in children and young adults. We should be familiar with these types of diseases because we never know when they can infect us. We can only be ready for them.You may already have experienced some of these diseases. If you have, you may discuss your experience with other people like your family and co-learners. You may tell them what symptoms to expect, what to do in order to treat the diseases, and what they could do to avoid such diseases.

Here is another story of a child with an infectious disease.

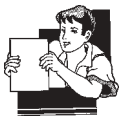
There is a fiesta in Barangay San Lucas. Samantha was so excited to join all the games and be with her friends. She even practiced all week for the dance competition. But on the feast day, she noticed that her jaw ached whenever she tried to talk. So her mother told her to stay at home.


Oh Mother, my jaw hurts badly. It hurts even more when I try to move my mouth. This is so unfair. I can't even join the games.
Don't cry, dear. Let me look at it. Your jaw seems swollen. I think you have mumps.
That's what our neighbor said she had before. But she's okay now. Do you think I got it from her?
I believe so. Mumps is contagious. You shouldn't go near a person with mumps or even someone who is just recovering from it.
I didn't know. Tell me more about mumps. What is it?
It's a disease involving your salivary glands, mainly the parotid glands.
I don't understand. What are the parotid glands?
These are the glands located behind your ears. They are responsible for the production of saliva. These glands grow big when you have mumps.
My mouth feels dry.
That's because your parotid glands are swollen. It's making less saliva. I'll buy you an antiseptic mouthwash to protect you from secondary infection.


Are you sure? How do you know all this?
Your older sister had mumps when she was your age. You don't remember it because you were still a baby then.
So, what did you do?
I took her to the health center because I was really worried about her. The doctor told me everything I needed to know about mumps.
But I don't want to see a doctor. I'm going to be okay, right?
Of course you'll be okay, dear. But if you don't want to see the doctor, you're going to have to listen to me. Is that a deal?
That's a deal.
Now, go to bed and rest. I'll get some cold packs to help control the swelling and the pain. You should have a soft or liquid diet for easy swallowing, so I'll make you some soup. You also need to drink lots of water, okay?
Yes, Mother, and thank you. You are the best mother in the world.
You are sweet when you get sick, do you know that?

The three stories you have just read are all about children who were infected with a communicable disease. Their stories are different from one another because they had different diseases with different symptoms, but they all had one thing in common. Their diseases were all contagious, and there was only one thing they could have done to prevent being infected — be vaccinated.

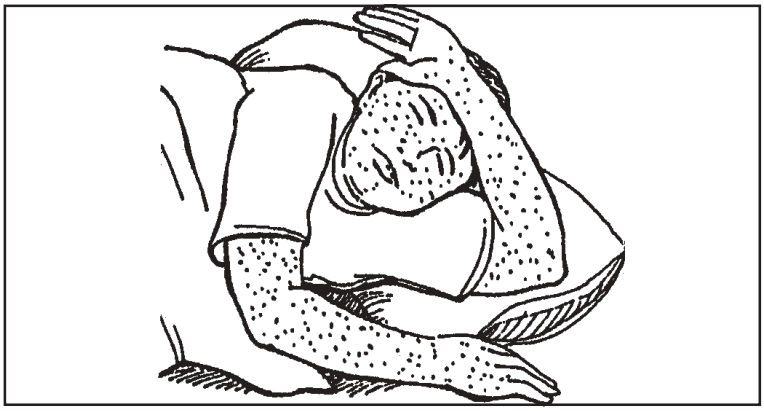
Now, let's learn more about some other communicable diseases that can be easily prevented through vaccination.



Let's Learn

Study below some important information on the diseases measles, diphtheria, tetanus and rabies.

Measles (Rubeola)



Description	Infectious viral disease marked by red spots on the skin. When no complications such as ear infection and pneumonia occur, this disease will only last for about 10 days.
Signs and Symptoms	Fever Sneezing Dry cough Redness of the eyes Tearful eyes Photophobia (being sensitive to light) Itching

How to avoid contracting this disease

You have to be vaccinated against measles.

Don't go near a person with measles.

It is advisable to immunize all infants between 6 to15 months of age. Most infants are born with measles antibodies. Children or adults who have not had measles or have not previously been vaccinated should receive the measles vaccine, as soon as possible.

How to treat this disease

Do not scratch your skin; use lotion or cold cream instead for the itching.

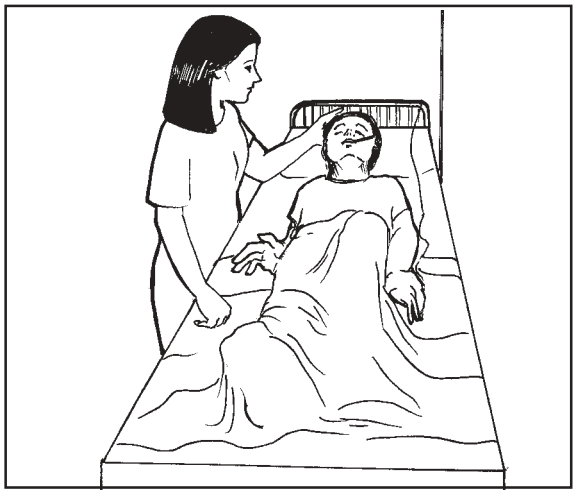
Protect your eyes from the glare of direct sunlight or strong lighting by keeping your room dark.

Bathe with warm water to feel comfortable.

Drink plenty of fluids.

Have lots of rest in bed.

Diphtheria

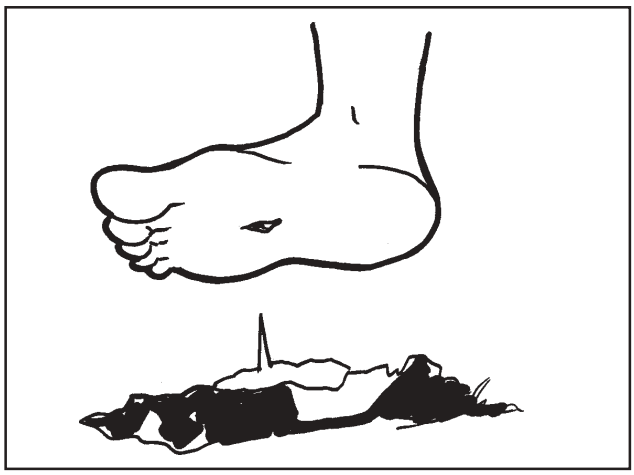


Description

An infectious disease caused by a germ, *corynebacterium diphtheriae,* which enters the body through the respiratory tract. The germ settles on the tonsils and creates an inflammatory reaction. The

	infection spreads in the body through the bloodstream. It can cause great damage to the heart and nervous system.
Signs and Symptoms	Swollen throat
	Difficulty in breathing, swallowing and talking
	Fever
	Pain in the back, arms and legs
	Vomiting
	Convulsion
How to avoid contracting this disease	You have to be vaccinated with Diphtheria Toxoid.
	Try to stay away from a person with this disease.
How to treat this disease	Administer antitoxin to neutralize the circulating toxin.
	Take a lot of bed rest, with the patient flat on his/her back to ease breathing.
	Drink plenty of fluids, including soup.
	Have a liquid or soft diet for easy swallowing.
	Apply hot or cold packs to lessen the pain in the throat.
	Consult a health worker or go to the nearest health center if the fever persists after 24 hours.

Tetanus



Description	It is a form of blood poisoning in which the jaws become firmly closed. This disease is not transmitted from person to person. The bacteria comes from the feces of animals, mainly horses and mules. The tetanus germ, *clostridium tetani*, is present everywhere in the environment — in soil, dust, window ledges and floors. It gains access to the human body through wounds, particularly deep punctures.
Signs and Symptoms	Painful spasms Difficulty in swallowing Heavy sweating Convulsions
How to avoid contracting this disease	The Tetanus Toxoid vaccine should be given to every children and repeated especially when they are wounded.

Always wear slippers or shoes to prevent dirt, dust or sharp articles on the ground from coming in contact with a wound. Deep wounds are the most serious.

How to treat this disease

Go to the nearest hospital or health center immediately.

Tetanus antitoxin should be given as soon as possible.

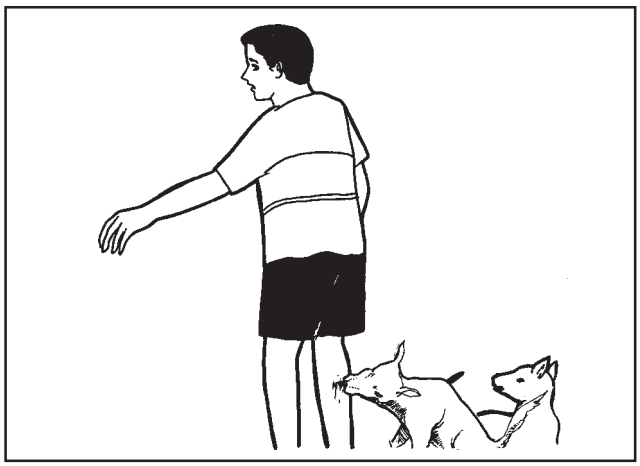
Remove everything that got into the wound.

Clean out all the dirt from the wound.

Leave the wound open to permit free access of oxygen to hinder the growth of bacteria.

Antibiotics such as penicillin can be given to kill the microorganisms in the wound.

Rabies



Description

Rabies is a contagious viral disease of animals, particularly dogs. The source of infection is the saliva of an infected animal, which can be transmitted to a person by its bite. The rabies virus

	travels quickly to the central nervous system.
Signs and Symptoms	Anxiety (worry, fear)
	Mental depression (sadness)
	Malaise (feeling of uneasiness)
	Dry throat
	Hydrophobia (fear of water). The muscles of the throat become paralyzed so the person cannot swallow or drink. This leads to a fear of water.
	Catchy breathing
	Delirium (acting in a mad, wild or frantic manner)
	Convulsions
How to avoid contracting this disease	Try to stay away from animals with rabies.
	If you have a dog, have it vaccinated with antirabies.
	Once a dog or any other animal like a cat, horse, squirrel or cow bites you, go to the nearest clinic right away.
How to treat this disease	Wash the affected area with soap and water immediately to remove the dog's saliva.
	Allow the wound to remain open.
	Don't kill the dog. Put it in a cage and observe it for two weeks. If the dog dies in two weeks' time, bring the victim to the health center to be injected with antirabies.

If during the time of observation, the dog becomes fierce, refuses to eat, and foams at the mouth, kill and bury the dog. Bring the victim to the nearest health center or hospital for appropriate treatment.

The patient should receive a dose of antirabies serum.

Let's Review

Encircle the letter of the correct answer.

1. This is the swelling of the parotid glands which are located behind the ears.

   a. diphtheria

   b. mumps

   c. measles

   d. rabies

2. This is an infectious disease caused by bacteria that enters the body through the respiratory tract. Its signs and symptoms are swelling of the throat, fever and difficulty in breathing and talking.

   a. diphtheria

   b. mumps

   c. measles

   d. rabies

3. This is an infectious disease marked by red spots on the skin.

    a. diphtheria
    b. mumps
    c. tetanus
    d. measles

4. This is a disease caused by bacteria that enters the human body through wounds, particularly deep punctures.

    a. diphtheria
    b. mumps
    c. tetanus
    d. measles

5. What would you do once a dog bites you?

    a. Don't wash the affected area with soap and water.
    b. Kill the dog.
    c. Go to the nearest clinic right away.
    d. Cover your wound with bandage.

Compare your answers with those in the *Answer Key* on pages 48–49.

Let's Talk About This

There are ways to prevent these kinds of diseases. Vaccines are usually available in all health centers and are commonly given to children. Vaccines prepare the body's defenses against a particular pathogen or disease-causing organism before it strikes. A vaccine usually consists of dead or damaged pathogens that can no longer cause the disease.

Ask your mother or father if you were vaccinated against any kind of illness before. If you were not, then have yourself vaccinated at a health center. If you already have children, make sure that they too get vaccinated.

You may also participate in local government and non-government services and programs for immunization, vaccination (antitetanus, antirabies, flu shot, etc.), periodic medical check-ups, environmental health, nutrition, and safe water supply. You may ask for health information in your barangay clinic and pharmacy, or contact the Department of Health.

Let's Remember

- Communicable diseases are infections caused by bacteria or viruses, which usually spread from person to person through coughs and sneezes, direct contact or touching, and by using contaminated items.
- Some of these communicable diseases are influenza, chicken pox, measles, mumps, diphtheria, tetanus and rabies.
- These diseases are all contagious, but can easily be prevented through vaccination.

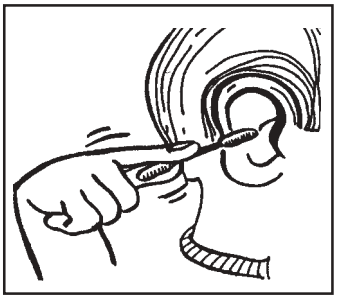
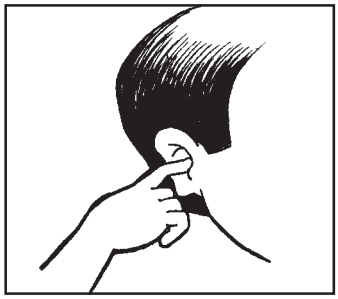
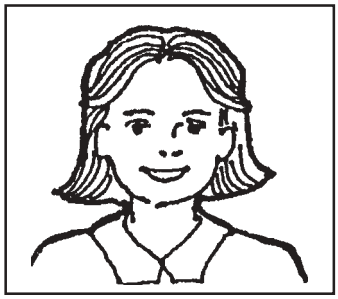
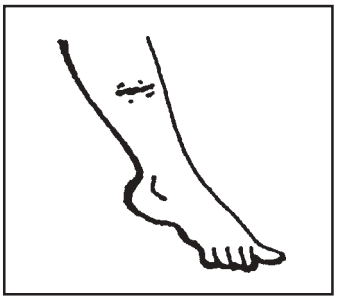
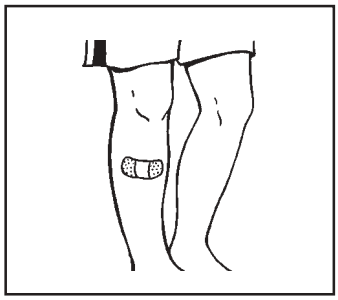
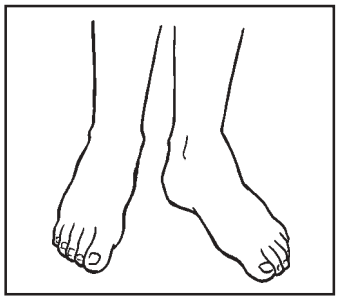
Well, this is almost the end of the module! Congratulations for reaching this far. You have been a diligent learner. Did you like the module? Did you learn something useful from it? A summary of its main points is given on the next page.

Let's Sum Up

- The body has natural defense mechanisms that protect us from infectious diseases.
- We should do what we can to keep our body healthy and strong, so that it can protect us from sickness.
- We can avoid infectious diseases by keeping our body clean, staying away from persons with contagious diseases, consulting our doctor regularly, and getting vaccinated against diseases.
- We must be vaccinated against diphtheria, tetanus, measles, chicken pox, mumps and influenza. Other diseases we must be vaccinated against are cholera, pertussis, polio and typhoid fever.
- There are many available health services and programs that can help us prevent diseases.

What Have You Learned?

A. Write the letter of the picture showing the correct way of taking care of oneself in each number.

	A	B
1._____		
2. _____		
3. _____		
4. _____		

B. Encircle the letter of the correct answer.

1. The nose helps in preventing the germs from getting into our system by _____.

   a. blocking dirt from coming in through the action of tiny hairs inside the nose
   b. inhaling air
   c. killing the virus while it passes through the nose
   d. producing a vaccine which kills the germs

2. Which of the following cell types can produce antibodies?

   a. macrophages
   b. lymphocytes
   c. erythrocytes
   d. red blood cells

3. When a dog bites us, we might get infected with _____.

   a. rabies
   b. tetanus
   c. diphtheria
   d. influenza

4. Which of the following diseases may cause death?

   a. chicken pox
   b. influenza
   c. rabies
   d. flu

5. Influenza, chickenpox and other infectious diseases may be prevented if we receive_____.

   a. vaccination
   b. herbal medicine
   c. oxygen
   d. vitamins

6. The first layer of defense that protects our body from germs is the _____.

   a. muscle
   b. bone
   c. skin
   d. immune system

7. Which of the following diseases is not transmitted from person to person?

   a. chicken pox
   b. tetanus
   c. influenza
   d. measles

8. Some examples of inherited diseases or conditions are _____.

   a. diphtheria, diabetes, measles
   b. rabies, tetanus, arthritis
   c. high blood pressure, heart disease, diabetes
   d. chicken pox, diabetes, measles

9. It is what the body possesses to resist and protect itself from disease-causing microorganisms such as bacteria and viruses.

   a. immunity
   b. disease
   c. antibody
   d. vaccine

10. The important function of tears is _____.

   a. to make our eyesight clearer
   b. to allow us to cry
   c. to remove dirt or germs from our eyes
   d. to help us see better

11. What is a very contagious viral infection that produces an itchy skin rash?

    a. Mumps
    b. Chicken pox
    c. Influenza
    d. Diphtheria

Compare your answers with those in the *Answer Key* on pages 49–50.

Answer Key

A. Let's See What You Already Know *(pages 2–3)*

A. 1. **(a)** The skin protects us from illnesses. Bacteria and viruses can infect it, and it is actually more easily affected when it is lighter in color.

2. **(b)** When dirt gets into our eyes, it may affect our eyesight, and irritate and infect our eyes.

3. **(a)** We cover our wounds with bandages to prevent infection.

B. 4–6. (Any of these answers is correct.)

Measles	Influenza
Chicken pox	Mumps
Rabies	Diphtheria
Tetanus	

C. 7. **True**

8. **True**

9. **False.** The body has natural defenses that protect us against diseases.

10. **False.** It is not safe to be near a person with chicken pox because it is a contagious disease.

B. Lesson 1

Let's Talk About This (pages 7–8)

1. Marc has already quit smoking and he started working out regularly. He jogs every morning for about thirty minutes before he leaves for work. When he gets home, he takes his dog to the park for a walk. These help him relieve his stress.

2. Here is a sample answer. You may have other answers.

   I make sure that I eat nutritious foods. I drink lots of water and fruit juices. I also exercise to keep my body healthy and strong. I take a bath every day to maintain cleanliness and to keep my skin free from germs. I try to see my doctor regularly. I always keep my surroundings clean and orderly. I take enough rest and sleep. Most of all, I don't smoke and drink.

3. Marc noticed that Joe looked thinner than he was before. He heard him cough, and Joe said the cough has been coming and going for some time now. And when they played basketball, Joe got tired easily and was catching his breath. Joe does not want to quit smoking. He's afraid to see a doctor regarding his bad cough because he probably doesn't want to face the fact that it's caused by smoking.

4. Joe's cough is due to his habit of smoking. Also, Joe does not exercise regularly so he gets tired very easily.

5. Here is a sample answer. Your answer may be a little different.

   If my friend smokes and it's affecting his health, then, I will advise him to quit. I will advise him to consult a doctor. The doctor can probably prescribe to him a nicotine patch or other alternatives to cure his addiction for cigarettes. I will encourage him to exercise regularly and to eat nutritious foods, especially those that are rich in vitamins and minerals. And if he still doesn't want to quit smoking, I will constantly remind him what smoking can do to his body and what diseases he might acquire due to smoking. These diseases include pneumonia, lung cancer, heart attack and stroke.

Let's Review (pages 10–11)

1. treat
2. dirt
3. clinic
4. right
5. cleanliness

Let's Try This (pages 13–14)

1. c
2. b
3. a
4. c
5. b
6. a

Let's Review (pages 16–17)

1. white blood cells
2. infection
3. Immunity
4. Congenital or inborn
5. Antibodies

Let's See What You Have Learned (pages 19–20)

A. 1. vaccinated
   2. immune
   3. infection
   4. *Cilia*
   5. soldiers of the body

B. 1. The best answer is **(b).** (a), (c), and (d) may be correct but the best answer is (b). We wash our hands to wash away germs.

   2. The correct answer is **(a).** (b) is wrong because vaccine is a substance that gives us immunity. (c) and (d) are also wrong because "inherited" means "acquired through family traits."

   3. The correct answer is **(b).** His body will make antibodies that will attack the virus so he won't get infected.

   4. The correct answer is **(d).** "Communicable" also means "infectious and contagious," therefore, it can be transmitted from infected to non-infected persons.

5. The correct answer is **(a).** Skin, tears and cilia are some of the natural defenses that our body has to protect us against diseases. Bones, muscles, mouth, brain, etc., have other functions.

C. Lesson 2

Let's Review (page 23)

1. Influenza
2. Her face was pale; she felt warm; she had headache, sore throat and aching muscles.

Let's Talk About This (page 27)

1. Chicken pox
2. Through his brother Arsad, who was infected with chicken pox
3. His face and arms had red spots.
4. She consulted a doctor and told Abdul to stay in his room alone.
5. If he was vaccinated and if he didn't go near his brother Arsad.
6. To stay in his room alone so that his other siblings won't get infected; not to scratch his skin so he won't have scars for the rest of his life; wait until the red spots disappeared; and to use a lotion to ease the itching.

Let's Review (pages 37–38)

1. **(b)** Mumps is the swelling of the parotid glands. Diphtheria is a disease that affects the respiratory tract. Measles is a disease marked by red spots on the skin. Rabies is a disease of animals, particularly dogs.

2. **(a)** is the correct answer. (b), (c) and (d) are wrong. Refer to the explanation in Number 1.

3. **(d)** Measles is a disease marked by red spots on skin. (a), (b) and (c) are wrong. Tetanus is a disease caused by bacteria which gains access to the human body through wounds, particularly deep punctures.

4. **(c)** is correct. (a), (b) and (d) are wrong. Refer to the explanation in Number 1.

5. **(c)** Once a dog bites you, you should go to the nearest clinic or hospital right away to receive appropriate treatment. (a), (b) and (d) are wrong because you are supposed to wash the affected area with soap and water to remove the dog's saliva, put the dog in a cage for observation, and don't kill it. Allow the wound of the victim to remain open, so you should not cover it with bandage.

D. What Have You Learned? *(pages 41–44)*

A. 1. **(A)** We should clean our ears to remove earwax and microbes.

2. **(B)** We should wash our face to cleanse away dirt and germs.

3. **(B)** We should cover our wound with bandage to prevent infection.

4. **(A)** We should wear slippers at all times to prevent dirt from getting into our feet.

B. 1. **(a)** The nose protects us from bacteria. The tiny hairs inside the nose serve as a filter to block dirt or germs.

2. **(b)** Lymphocytes produce antibodies that combat disease-causing organisms.

3. **(a)** Rabies is a contagious viral disease of animals, mainly dogs. It can be transmitted to us if an animal with rabies bites us.

4. **(c)** The virus of rabies can reach the brain through the nerves and can cause mental impairment, convulsion, and eventually death.

5. **(a)** Vaccine contains an antibody that serves as immunity (resists the virus or bacteria) to infectious diseases like chicken pox, tetanus, etc. Herbal medicines, oxygen and vitamins are not used to prevent these kinds of diseases.

6. **(c)** The skin is the outermost covering of our body that protects us from disease-causing organisms. Bones and muscles help us to move. The immune system protects us once the germs enter our body.

7. **(b)** Tetanus is present in animal stools, dirt, dust and sharp objects, which can easily enter the wounds. We become infected if we come in contact with such particles. Chicken pox, influenza and measles can be transmitted from person to person.

8. **(c)** High blood pressure, heart disease and diabetes are often acquired through family traits. Therefore, they are usually inherited. Diphtheria, measles and tetanus are communicable diseases.

9. **(a)** Immunity is the power the body has to resist and protect itself from disease-causing microorganisms such as bacteria and viruses.

10. **(c)** Our tears are useful in cleaning dirt or germs from our eyes.

11. **(b)** Chicken pox is a contagious viral disease that produces an itchy skin rash. Mumps is the swelling of the parotid glands, which are found near the ears. Tetanus is an infection caused by bacteria from feces of animals. Influenza or flu is a viral disease affecting the respiratory tract. Diphtheria is caused by a bacteria that affects the respiratory tract.

Glossary

Acute Critical, serious

Antibody Any of the various proteins in the human body, which is produced to fight and destroy disease-causing microorganisms

Antiseptic Something that disinfects

Antitoxin A substance that inactivates or cancels out a toxin (poison, virus)

Arthritis Inflammation (swelling, irritation) of joints

Cilia Thin hairs found inside the nose and ears; they block dirt and microbes

Communicable Can be transmitted

Convulsion Violent irregular motions of the arms and legs or body due to involuntary contraction of muscles

Diabetes A disease marked by a high level of sugar in the blood and urine

Disease Unhealthful condition of the body, often with a characteristic set of symptoms

Epidemic The rapid and uncontrolled spread of a disease

Foreign Not belonging to nor part of the body (e.g., glass splinters in a wound)

Immunity The capacity of the body to resist and overcome infection

Immunization The production of immunity

Infection The state wherein the pathogen has already established itself inside the body

Inflammation/Inflammatory A response by a damaged tissue that includes becoming swollen, red and sore

Microbes Germs; microorganisms

Mucous membranes The tissues that line the nose, mouth and upper respiratory tract

Neutralize To balance; counteract

Organism A living individual, animal or plant

Parotid gland A large salivary gland located in front of and below each ear

Pathogen Any disease-producing organism or virus

Rabid With rabies; dying of rabies

Reservoir Source of pathogenic organisms in permanent hosts or healthy carriers, from which they spread to cause disease

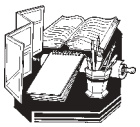
Stimulation Producing an increase of activity in the body or some part of it; something that causes and encourages a given response

Symptom Change in the body due to a disease

Transmitted Transferred

Vaccination The injection of vaccine into the body

Vaccine A suspension of killed microorganisms (virus, bacteria) that acquire immunity; it is given for prevention of infectious diseases



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