



What Is This Module About?

The state of our environment is something that we can no longer ignore. A variety of environmental problems now affect the entire world. Have you heard of environmental issues like global warming, deforestation and acid rain? These are just some of the many environmental problems and they affect each one of us. Therefore, we should all do our part in protecting our environment.

This module will increase your understanding and awareness of environmental problems and will offer suggestions on how you can take part in taking care of the environment.

This module is divided into three lessons. These are:

Lesson 1 – *The State of the Environment*

Lesson 2 – *Why Do We Need to Act Now?*

Lesson 3 – *What Can We Do?*



What Will You Learn From This Module?

After completing this module, you should be able to:

- ◆ describe the state of the environment here in the Philippines and in the whole world;
- ◆ identify the different environmental issues and how they affect the entire world;
- ◆ analyze the consequences of man's continued abuse of the environment; and
- ◆ identify possible solutions to the environmental problems.



Let's See What You Already Know

- A. Fill in the blanks with the word that best describes each statement. Choose your answer from the box below.

overpopulation	global warming	deforestation
environmental	acid rain	air pollution
CFC	recycling	

1. Global warming and acid rain are some of the major _____ problems that we are experiencing today.
 2. Also known as “greenhouse effect”, _____ is a condition where gases gather above the earth, preventing heat from leaving the surface of the earth and warming the planet.
 3. _____ is rainfall that is believed to have caused the decline of many forest ecosystems.
 4. _____ adds pressure on the environment to produce more resources.
 5. _____ is the destruction of forests due to excessive logging.
 6. _____ is the presence of harmful substances that are released into the air by cars and factories.
 7. _____ is the leading cause of ozone depletion.
- B. Write **true** if you think that the statement is correct, and **false** if it is wrong.
- _____ 1. Family planning is a way of protecting the environment.
 - _____ 2. Recycling means decomposing organic materials to be used as fertilizer for garden plots.
 - _____ 3. If we continue to destroy our environment, we will further endanger the lives of all living things.

- _____4. As an ordinary person, you have no part in the big task of protecting the environment.
- _____5. CFC is the leading cause of ozone depletion.

Compare your answers with those found in the *Answer Key* on pages 30–31.

Well, how was it? Were you able to answer all the questions correctly? If you did, then that's very good! You are very much aware of what's happening in our environment. Study this module to learn a few more new things about this topic.

If you got a low score, don't worry. This module is for you! It will help you understand important concepts about our environment.

Are you ready? You can now turn to the next page for Lesson 1.

The State of the Environment

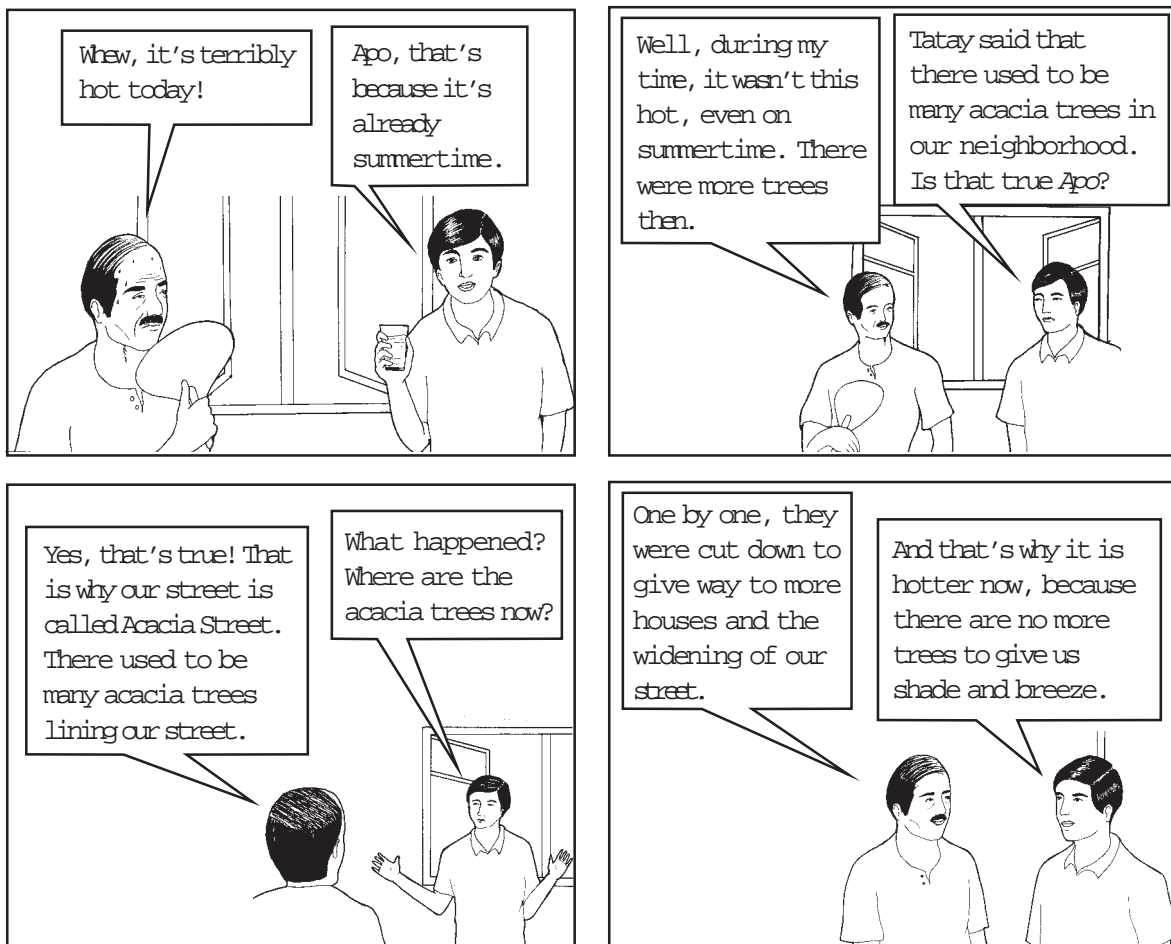
This lesson will discuss major environmental issues, such as global warming, ozone depletion, hazardous waste and many others. The information that you will learn here will help you become aware of the state of our environment.

After studying this lesson, you should be able to analyze the state of our environment and the different environmental issues that are affecting our country and the whole world.



Let's Study and Analyze

Read the comic strip below about something that is happening in Candelaria, Quezon.



According to Apo, what is the reason why we are experiencing extreme heat nowadays?

Do you agree with him? Why or why not?

What do you think are the other factors that contribute to the rise in the environment's temperature?

Compare your answers with those found in the *Answer Key* on page 31.



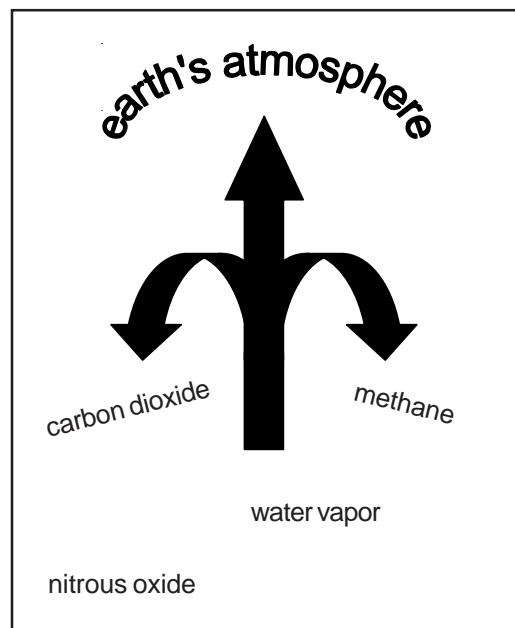
Let's Read

The Heat Is On

The threat of global warming, also known as the **greenhouse effect**, is among the most important of all modern environmental problems. It is called the greenhouse effect because the gases that are gathering above the earth make the planet comparable to a greenhouse. By trapping heat in the surface of the earth, the greenhouse effect is warming the planet and threatening the condition of the environment.

What are these gases that gather above the earth?

These gases are primarily carbon dioxide, methane, nitrous oxide and water vapor. They become trapped in the earth's atmosphere, making our weather very warm.

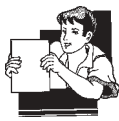




Let's Think About This

What do you think are the possible causes of global warming? How can this affect us? Try to think of your answers to these questions. Write them down in the spaces below.

Compare your answers with what it is in the next section. We are going to discuss the factors that contribute to global warming.

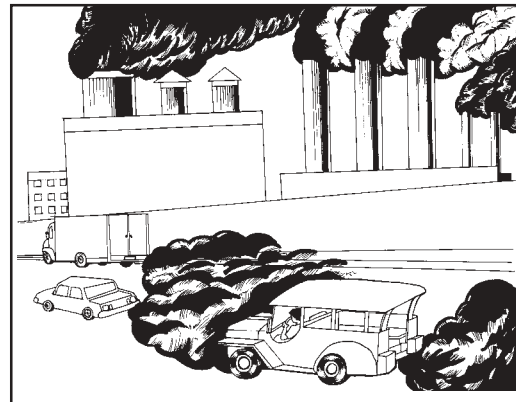


Let's Learn

Deforestation, overpopulation, ozone depletion, air pollution and garbage dumping are some of the environmental problems that we are experiencing today. They are also major factors that contribute to **global warming**.

People release chemicals and substances into the air. These substances are called “emissions.” Emissions cause **air pollution**.

An example of chemicals that we release into the air is chlorofluorocarbon (CFC). CFC is present in products like hairsprays, styrofoams, insecticides, air conditioners, refrigerators and many more. It is the main cause of the **depletion of the ozone**



Emissions



Ozone depletion increases the temperature

The ozone layer is a thin band in the upper part or layer of the atmosphere. Without it, ultraviolet (UV) rays from the sun will enter the earth. UV rays are the sun's harmful rays. They can cause skin cancer and cataract. They can also increase the temperature of our planet.

In addition to releasing gases and particles into the atmosphere, humans produce **waste** that they improperly dump in the environment. These hazardous wastes are produced both by major industries and by individuals. Chemicals used by plants and factories often create dangerous forms of waste which may cause critical illness to humans and animals.



Dangerous wastes are improperly dumped in the environment



Overpopulation

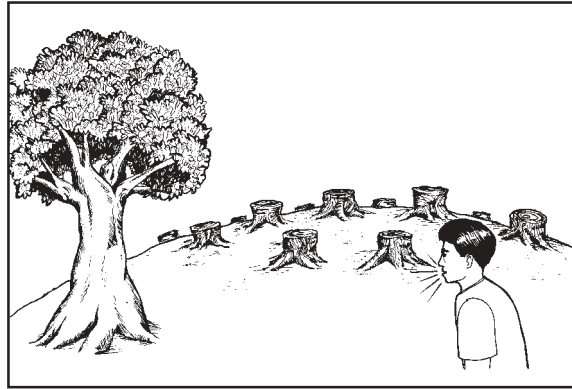
Overpopulation also contributes to the destruction of the environment. More people means more emissions, more garbage and less resources. As the population increases, the demand for water, food and land also increases. The pressure to come up with these resources is put on the environment. Trees are cut down for more wood to be used in building houses and as

fuel. Meanwhile, more forests are converted into real estates to meet the growing need for houses.

Did you know that....

- ◆ According to the United Nations Population Division, the world population as of 1998 is 5.9 Billion. The current population is estimated to be greater than 6 billion.
- ◆ According to the National Statistic Office (NSO), as of May 2000, the population in the Philippines is now 76.5 million.

Deforestation is the destruction of forests due to excessive logging or cutting of trees. These trees are the sources of food for both man and animals. They also provide shelter to many animals. Aside from this, trees release oxygen (which our body takes in as we inhale) and absorb carbon dioxide. When forests are destroyed, there will be less oxygen and more carbon dioxide in the air. Carbon dioxide will further increase the temperature of the environment.



Trees are cut down excessively.

Did you know that...

- ◆ According to some estimates, 50 million acres of rainforests in the world are cut down every year?
- ◆ Every minute, 25 to 50 acres of trees are cut or burned to the ground?



Let's Think About This

1. Do you think overpopulation can affect the quality of life of the people? Why or why not?

2. Are you and your family using products that are harmful to the environment? Give examples. Why are they harmful to the environment?

Compare your answers with the sample answers given in the *Answer Key* on page 31.



Let's Try This

Look at the list of words below.

deforestation	ozone depletion	emission
global warming	waste products	overpopulation

Try to find these words in the box of jumbled letters below. The words may be found horizontally, vertically or diagonally. Encircle the words when you have found them. An example is given to guide you.

H	R	E	T	I	S	S	P	G	M	W	V	E	G	I	O	H
N	D	D	M	A	H	A	O	J	S	A	M	N	J	J	I	R
O	V	E	R	P	O	P	U	L	A	T	I	O	N	K	S	M
I	T	H	V	D	S	Z	M	A	V	M	B	Y	Z	L	D	W
S	D	E	F	O	Y	E	S	Y	R	A	T	I	O	N	W	D
D	E	F	O	R	E	S	T	A	T	I	O	N	G	U	G	J
I	F	O	R	G	J	F	W	F	S	F	M	F	B	F	A	G
M	G	H	M	A	D	L	P	O	G	I	N	E	I	L	D	D
E	A	Z	C	W	A	S	T	E	P	R	O	D	U	C	T	S
C	O	R	E	B	D	S	E	L	A	I	N	E	F	G	H	M
H	O	Z	O	N	E	D	E	P	L	E	T	I	O	N	W	A
J	K	L	Q	E	T	U	O	A	D	G	J	L	X	V	N	P
L	G	I	W	R	E	M	I	S	S	I	O	N	C	B	M	L

Were you able to find all the words? To see if you did, turn to the *Answer Key* on page 32.

Another kind of environmental problem that we are facing today is **acid rain**. Read the next section to find out more about this problem.



Let's Read



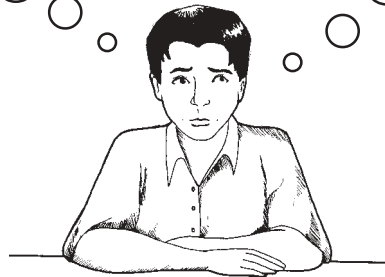
Roland was reading his favorite newspaper when he came across an article about acid rain. Let's see what was written in the article:

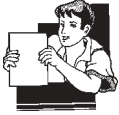
It's raining vinegar!

Readings of pH 2.4 – as acidic as vinegar – were recorded during storms in New England. During one particular summer storm, rain falling on a lime-green car dissolved the yellow and green paint, leaving blue raindrop-shaped spots on the car.

What is acid rain?

What causes acid rain?

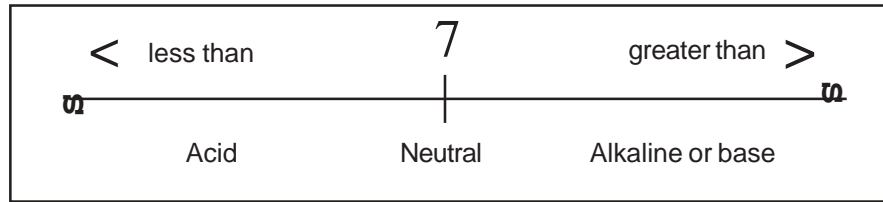




Let's Learn

Acid rain is any rainfall that has an acidity level beyond what is normal. Simply put, it is rainwater that is more acidic than normal.

Acidity is measured using a pH scale, with number 7 being neutral. A substance with a pH value of less than 7 is **acidic**, while one with a value greater than 7 is **basic**. The following is the illustration of the pH scale:



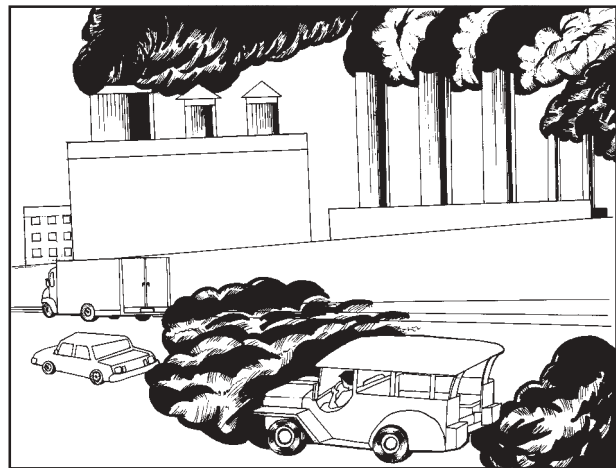
Examples:

Food Groups or products	pH
Vinegar	2.4 (Acid)
Melons	7.5 (Alkaline)
Peas	6.0 (Acid)
Fruit Juices	6.0–7.5 (Acid Alkaline)

The pH of **5.6** is used as the baseline in identifying acid rain. This means that rain water that has a pH level of 5.6 and below is considered acid rain. Being highly acidic, this kind of rain can cause damage to many things it comes in contact with.

WHAT CAUSES ACID RAIN?

The primary causes of acid rain are **sulfur dioxide** and **nitrogen oxide**. Sulfur dioxide comes from power plants that use coal as their fuel, while nitrogen oxide comes from cars and exhaust fumes emitted by factories. They make the rain acidic. These chemical are carried by the rain to the ground.



Sulfur dioxide and nitrogen oxide from cars and power plants

Volcanoes, sea spray, rotting vegetation and plankton also emit smaller amounts of sulfur dioxide.

Did you know that...

Only pH values between 6.8 and 7.8 are compatible with human life?

WHAT ARE THE EFFECTS OF ACID RAIN?

Acid rain has harmful effects on both people and the natural ecosystems of the world. It has made numerous lakes so acidic that they no longer support fish populations. Acid rain is also thought to be responsible for the decline of many forest ecosystems worldwide. Acidic water ruins plant nutrients, reducing the plant's ability to survive and to give life to other organisms.



Acid rain destroys natural ecosystems.

? Let's See What You Have Learned

How much did you learn from this lesson? To find out answer the test below.

You are given some words inside the box. Match the word with the correct sentence that best describes it. Write the letter of the word in the blank before the sentence that correctly describes it.

- | | | |
|-------------------|-----------------------------|------------------|
| a. sulfur dioxide | e. 76.5 million | i. UV rays |
| b. overpopulation | f. nitrogen oxide | j. pH scale |
| c. ozone layer | g. acid rain | k. deforestation |
| d. 6 billion | h. CFC (chlorofluorocarbon) | |

- _____ 1. It causes skin cancer and cataract on humans.
- _____ 2. It prevents ultraviolet (UV) rays from entering the earth.
- _____ 3. This may cause less oxygen and more carbon dioxide in the air.
- _____ 4. It is the scale that we use to measure the acidity of a substance.
- _____ 5. It affects the environment and the quality of life of the people.
- _____ 6. It has an acidity level of pH 5.6 and below.
- _____ 7. It is the leading cause of ozone depletion.
- _____ 8. } The primary causes of acid rain.
- _____ 9. }
- _____ 10. The estimated human population of the Philippines.

Well, how was it? To see how you did in this test, compare your answers with those found in the *Answer Key* on pages 32–33. Were you able to get all the correct answers? If you did, very good! You are now ready for our next lesson. If there are items in this lesson that are not yet clear to you, simply go over then once more and try to understand them better. Before going on to the next lesson, here is a summary of the important points in this lesson.



Let's Remember

The major environmental problems that we are experiencing today are **global warming** and **acid rain**. Global warming is the condition in which the earth's temperature rises due to gases that gather above the earth, thereby trapping the heat in our planet. Meanwhile, acid rain is rainfall that has an abnormally high acidic level.

There are many factors that contribute to global warming. Individually, these factors are also environmental problems that must be dealt with. These include the following:

- ◆ ozone depletion or destruction of the ozone layer;
- ◆ air pollution due to emissions or chemicals and substances that are released into the air;
- ◆ improper dumping of waste products;
- ◆ overpopulation; and
- ◆ deforestation.

Why Do We Need to Act Now?



The Tragedy at Payatas

Events, like the Payatas tragedy clearly show the consequences of the continued destruction of our environment. It is not only animals, plants and our livelihood that are at risk, but most importantly, man. Mankind is in danger!

There is a fable that teaches us this lesson: “You only appreciate the importance of water when it is no longer available.” Will we be able to appreciate nature and the vast resources in our environment only when they are no longer there? If we will not take care of our environment, then who will? If not today, then when?

After studying this lesson, you should be able to analyze the consequences of the continued abuse of our environment. You will also identify the effects that are happening right now.

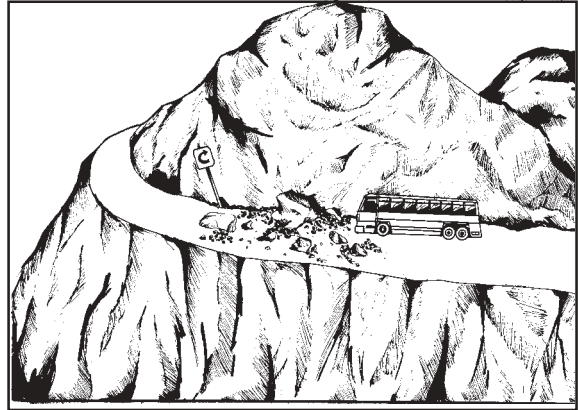


Let's Study and Analyze

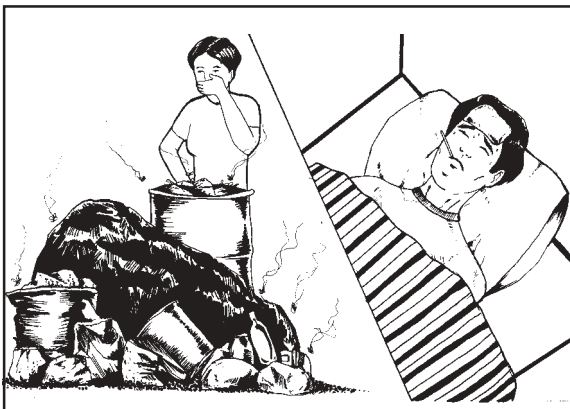
Study the pictures below and interpret the situations which they represent. Write your answers in the blank spaces provided.



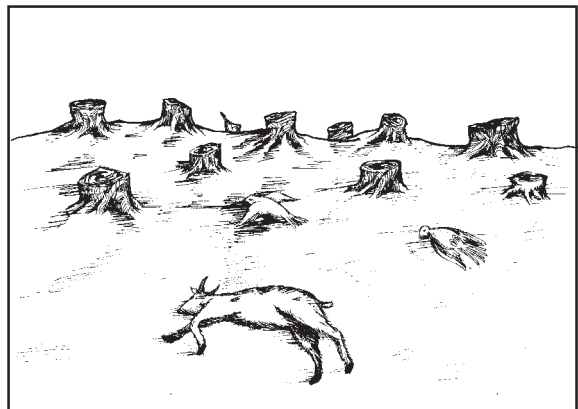
a. _____



b. _____



c. _____

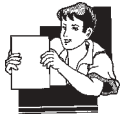


d. _____

Compare your answers with this:

- (a) Flooding in low-lying areas,
- (b) landslides due to soil erosion,
- (c) people getting sick because of their dirty surroundings; and
- (d) the death of plants and animals.

These are among the effects of man's abuse of the environment. Do you know how these situations happened? Read on to learn the answer to this question.

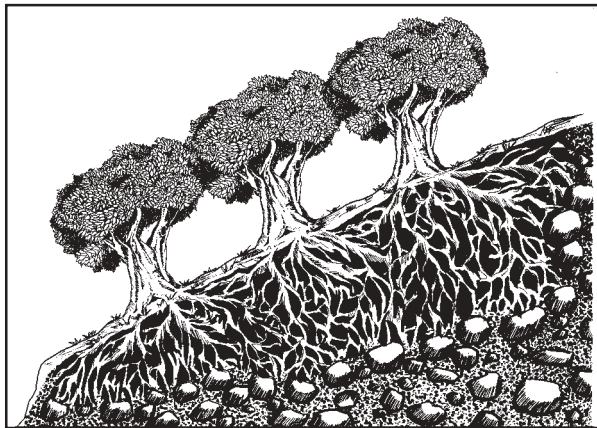


Let's Learn

The trees in the forest help regulate the flow of water. They act like sponges, absorbing rainwater and slowly releasing it into rivers and streams. As we cut the trees, the forests and mountains can no longer hold back sudden flows of water, thereby causing flood in low-lying areas.



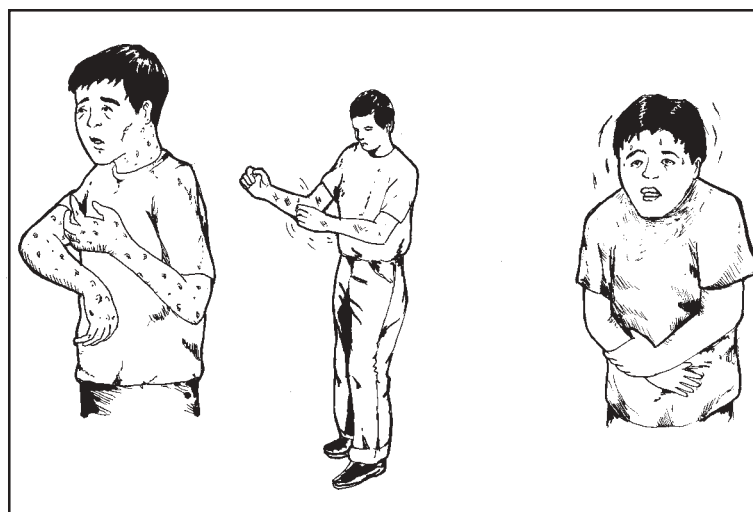
Trees absorb rain water.



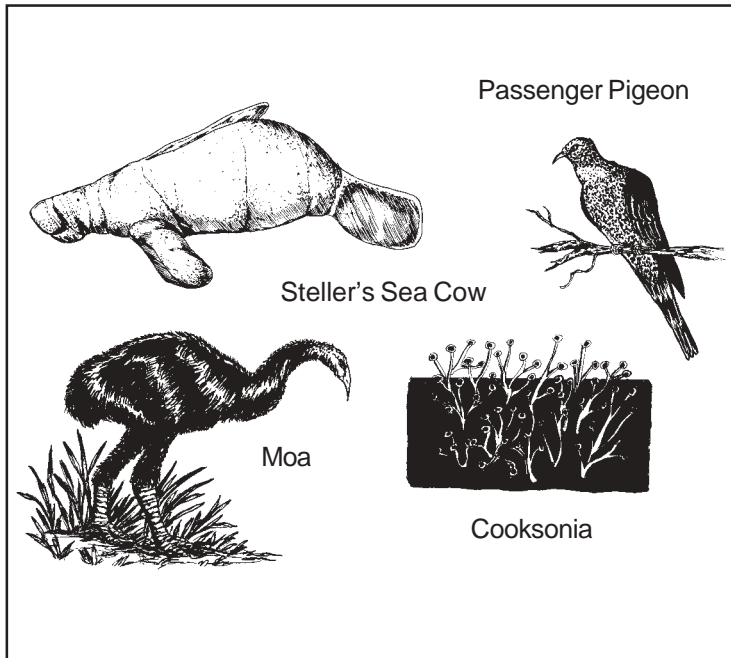
The roots of a tree make the soil stable.

Erosion happens when soil becomes unstable and is easily washed away by the rain. During heavy rains, the soil slides down the slope of the mountain, resulting in a landslide. This happens because there are no more trees that will hold the soil with their roots.

One of the reasons why people get sick is because of their dirty or polluted surroundings. The bacteria and viruses present in the garbage that we dump can cause illnesses among humans. Asthma, skin allergies, and scabbies are just some of the illnesses that we can get because of our dirty surroundings.



Dirty surroundings can cause different illnesses.



Some Extinct Animals and Plants

Many species of plants and animals are already extinct. **Extinction** is a condition where a species, such as a plant or animal, no longer exists or lives, partly because its natural habitat was destroyed either by natural occurrences or man-made activities (such as cutting down of trees, improper waste disposal and others). In fact, according to researchers, some 50

percent of the world's plants and animals can be on the path of extinction within of a hundred years.

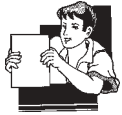


Let's Try This

To see if you understood some important points in our discussion, do this activity. Match the items in Column A with the items in Column B. Draw a line to connect each pair.

A	B
extinction	water coming down from a mountain, submerging low-lying areas
trees	a condition where a plant or animal no longer exists
landslide/erosion	unstable soil is washed away by the rain and slides down to the slope of the mountain
flood	absorb rain water and slowly release them in rivers

Were you able to connect all the items correctly ? To see if you did, turn to page 33.

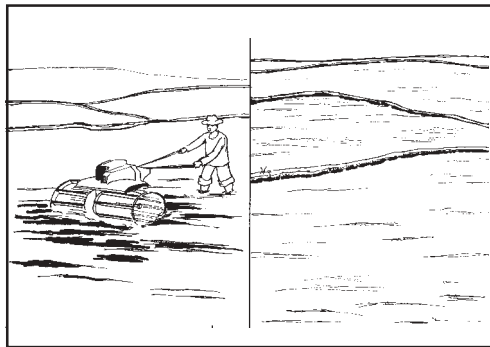
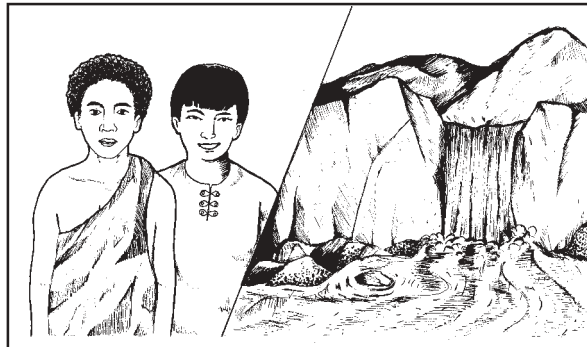


Let's Learn

The situations presented in the previous pages are some of the effects of our continued abuse of the environment. These are situations that we are experiencing today. Now let's look at the bigger picture as far as these problems are concerned. Let's find out *what will happen in the whole world if global warming continues?*

Gases and chemicals gather above the earth, trapping heat and causing the temperature to rise deamatically.

As temperature increases, those who live in the hot regions of the earth will suffer from extreme heat. Meanwhile, icecaps (tips of mountains covered with snow) in the cold regions of the earth will melt. Water will flow from these mountains and, since there are less trees to absorb and hold back the water, it will flow towards rivers, streams and seas. This will cause the sea level to rise, which then may flood coastal and low-lying areas.



As a result of this, fields and farms will disappears, crops will be destroyed, people will be forced to leave their homes, and some islands may even disappear.



Let's Think About This

Do you think that global warming will affect us here in the Philippines? If yes, how? Write your answer below.

Compare your answer with this:

We will be affected because we live in a warm or tropical region of the earth. Increase in the earth's temperature will mean more hot weather for us, especially during summertime. We are also affected because the Philippines is an archipelago or a group of islands. Many of our people live near the sea and in some low-lying areas. A rise in the world's sea level will definitely cause flooding and will affect us. At present, we are already experiencing floods, scientists believe to be related to.



Let's Read

Aside from the floodings that we experienced in our country, we were hit by a tragedy that made us pause and think deeply about how we treat our environment. Read the following article on what happened at the Payatas dumpsite.

On Monday, July 10, 2000 after many days of rain, disaster struck the Payatas garbage dump in Manila. A huge slide of stinking and smoking garbage loosened by the rain came crashing down the side of the dump, smashing shanties and killing at least 140 people, including many children. Many of those who were killed were scavengers or those who make a living out of sorting garbage and selling those that can still be used. They have made their home among the piles of garbage.





Let's Try This

1. Based on the article, what happened at Payatas?

2. What do you think should be done to prevent this tragedy from happening again?

Compare your answers with these:

Due to heavy rains, the garbage dump collapsed and crashed the huts or shanties in the dumpsite. As a result, many people died.

Dumpsites and landfills offer temporary relief for our garbage problems. But they are not efficient and, as we have seen, they are not safe for the environment and most especially for the people who live near these sites. The government, with the help of its people, should apply a better way of garbage disposal or management.

The next lesson will suggest actions that you can take in dealing with this problem and in protecting the environment.



Let's See What You Have Learned

Write **true** in the blank if the statement is true or correct. Write **false** if it is not correct.

- _____ 1. Flooding is the result of global warming.
- _____ 2. The roots of a tree hold the soil and prevent it from being washed away.
- _____ 3. The snow on the tip of mountains will become solid as a result of global warming.
- _____ 4. Rise in global sea level may cause some islands to sink and disappear.
- _____ 5. Dirty surroundings may cause illnesses among humans and animals.

- _____6. Destruction of rainforests may result in the extinction of some species of plants and animals.
- _____7. The Payatas dumpsite is safe for the environment and the people who live near it.
- _____8. Extinction is the process where species multiply in number.
- _____9. The garbage that we dump is clean and free from viruses or bacteria.
- _____10. Trees in a forest act as a sponge, preventing flooding in low-lying areas.

Well, how was it? Do you think that you got all the correct answers? To see if you did, turn to pages 33–34.



Let's Remember

This is a summary to help you remember the important points discussed in this lesson.

We are already experiencing the consequences of our continued abuse of the environment. Some of these effects include:

- ◆ flooding in low-lying areas as a result of deforested hills and mountains;
- ◆ soil erosion and landslides due to the decrease in the number of trees that make the soil stable;
- ◆ illnesses among humans and animals due to dirty or polluted surroundings; and
- ◆ extinction or dying out of many species of plants and animals.

Why do we need to act now? Well, if we don't act now and global warming continues, icecaps in the cold region of the earth will melt and flow toward rivers and seas. This will cause the world's sea level to rise and flood low-lying and coastal areas. These floods will destroy farms and croplands, affecting the livelihood of many people. Aside from losing their sources of livelihood, people will be forced to leave their homes as some islands may disappear.

What Can We Do?

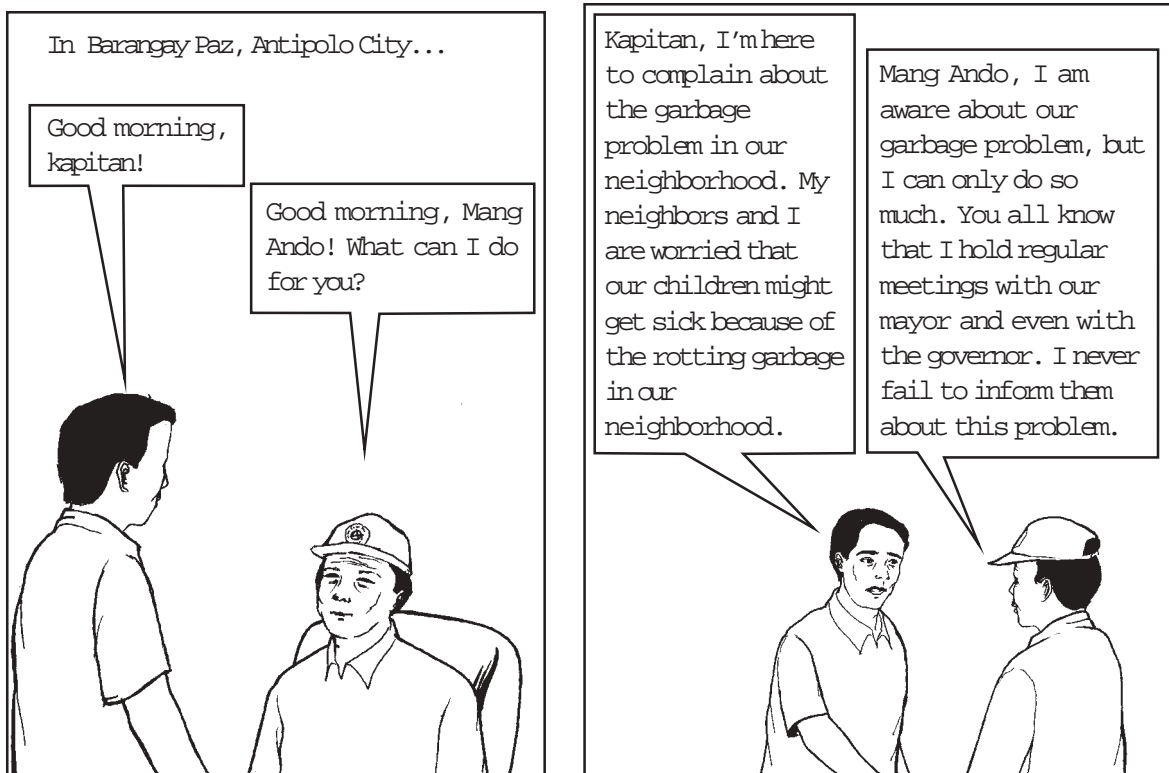
Our world is in danger. Various kinds of pollution contaminate the air that we breathe, the water that we drink and the land that we live in. We depend on our environment in order to live. Therefore, if we destroy it, we endanger our own survival. Unless all people of the world will be educated and informed about this issue, this destruction will continue. Let us then begin being educated and informed about how to take care of our environment. This lesson will help bring this about.

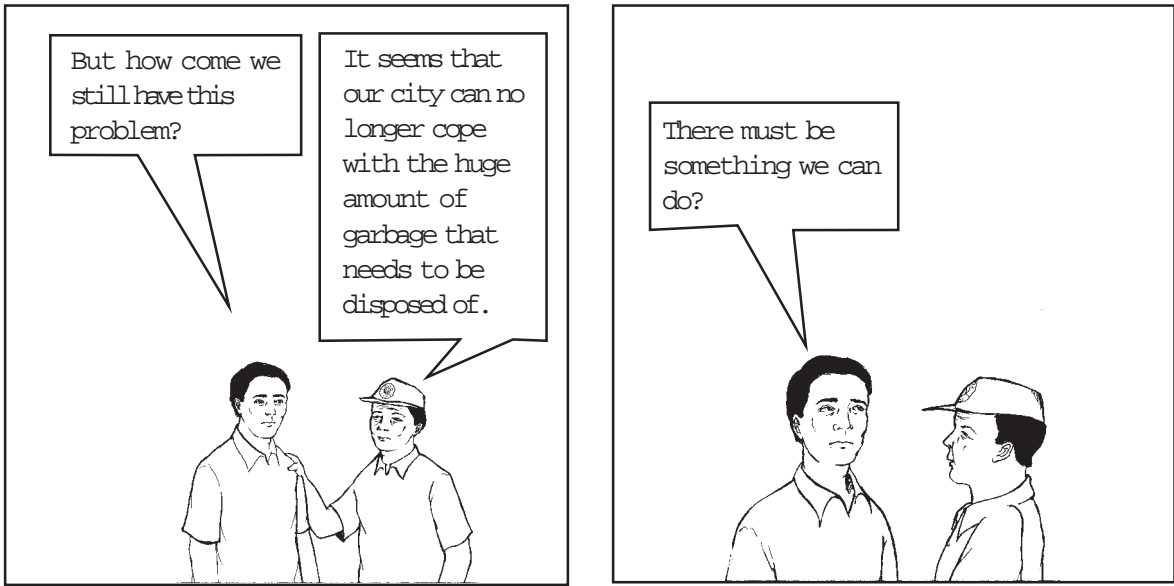
After reading this lesson, you will be able to identify and understand possible solutions to the environmental problems that we have. You are also expected to come up with your own solutions to these problems. Remember, if you want to change the world, or your own community, start by making the change in you!



Let's Study and Analyze

Read the comic strip below. Then answer the questions that follow.





1. What is the problem of the residents of Barangay Paz?

2. If you were the barangay captain, what would you do to help your constituents or *ka-barangay*?

3. What about Mang Ando and his neighbors? What can they do?

Compare your answers with these:

The problem of Barangay Paz is the lack of proper garbage disposal in their neighborhood. Their garbage is left to rot on the streets. This may cause illnesses among the residents of that barangay especially their children.

If I were the barangay captain, I would encourage my constituents to do segregation, composting and recycling of our garbage. Garbage segregation is sorting out or classifying the contents of your garbage. Meanwhile, composting is the process of decomposing plant remains and other organic materials. (To know more about these, you may read these modules: *Recycling and Composting*.)

Mang Ando and his neighbors can help their community by applying these better alternatives to garbage disposal.



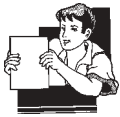
Let's Try This

What can you do as an individual to help your community and our country in solving our garbage problems?

Go around your neighborhood and observe the garbage situation. Is there any garbage on the streets? Is there an effective system or way of disposing of the community's garbage?

Can you think of ways of disposing of garbage that are more effective and at the same time, safe for the environment? You may share your ideas with a barangay official the barangay captain. Share with him the importance of proper garbage disposal in protecting the environment.

Record the results of this activity on a piece of paper and show it to your Instructional Manager or Facilitator.

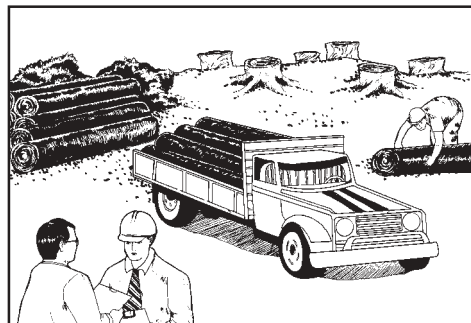


Let's Learn

Disposing of our garbage is just one of the many problems that affect the environment. In the previous lessons, you learned that emissions from cars and factories, overpopulation and deforestation are also some of the problems that we need to solve. Here are suggested steps or actions that you, as an individual, can do to help protect the environment.

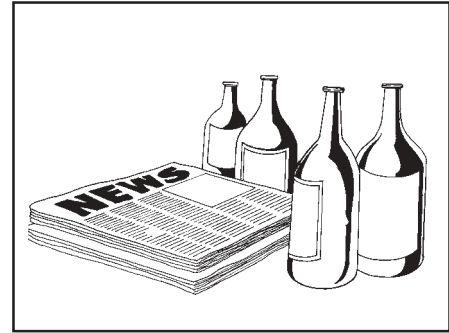
WHAT CAN WE DO TO PROTECT THE ENVIRONMENT?

You can help avoid excessive logging or cutting of trees by using your paper products efficiently. Paper comes from the bark of trees. The more paper products we use, the more trees are cut down. So before you throw away paper and other paper products, think of other possible uses for them.



Avoid excessive logging.

Recycling is the process of using and reusing a product over and over again. An example of this is when we use empty coffee jars as flower vases or containers of other objects. Practice recycling to reduce the amount of garbage and to save money. For more information about recycling, read the module entitled *Recycling*.



Recycle!



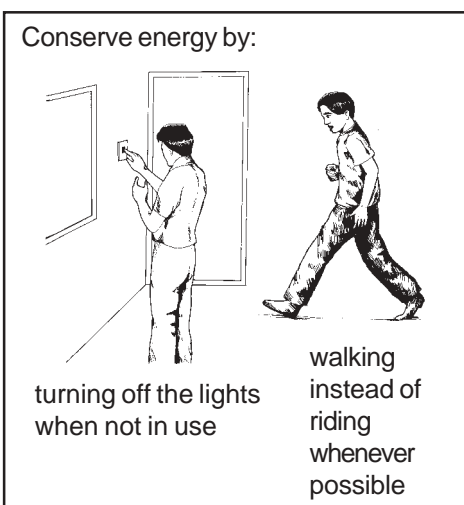
Use available land effectively by planting trees.

Planting trees and plants in vacant lots will help a lot in protecting the environment. We can replace the number of trees that are being cut by planting trees in our backyard. If you don't have enough space in your house, you can grow small plants in pots or containers.

Plan your family and fight overpopulation. Remember that overpopulation affects the quality of life of the people. Ensure your family's health and welfare by having children that you can support. For more information about this topic, read the module *Fighting Overpopulation*.

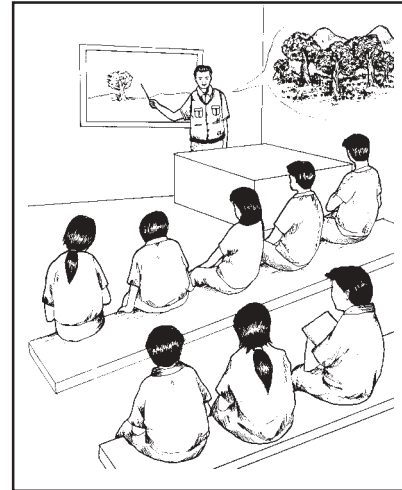


Plan your family.



Remember that power plants and cars burn fuel to produce the needed energy. As they burn more fuel to meet the needs of people, more emissions are released into the air. This will lead to an increase in the level of air pollution. **To help decrease emissions and air pollution, use energy wisely.**

The most effective way of solving our environmental problems is through education. **Learn more about the environment and share your knowledge with other people.**



Learn more about the environment.



Let's Try This

An **environmentalist** is a person who studies and cares for the environment. Anyone can be an environmentalist. Are you an environmentalist? Let's see if you are. Put a check on the pictures that show activities which you do.



Finished? Or do you need help interpreting what the pictures mean? You may then refer to the *Answer Key* on pages 34–35. You will also see there how to interpret your score.



Let's Remember

Even ordinary individuals like you and me can do something to protect the environment. We should do the following measures:

- ◆ Avoid excessive logging by using paper products efficiently.
- ◆ Recycle products to lessen our garbage.
- ◆ Plan your family by having the number of children that you can support.
- ◆ Conserve energy.
- ◆ Learn more about the environment.



Let's Sum Up

Congratulations! You are almost done with this module. All you have to do now is to answer the post-test on the next page. Before answering the test, read the summary below to help you remember the important points discussed in the module.

Our environment offers a variety of resources that help different species of plants and animals and most especially, humans, to live. If we harm or destroy the environment, we are destroying our own lives. Yet, we continue to abuse the environment. As a result, we are experiencing different environmental problems.

We need to act now and deal with the different environmental problems. If we don't stop abusing our environment, we may not have a future to look forward to. We must remember that the destruction of the environment does not only affect the survival of different species of plants and animals in our planet, but most especially our own survival.

There are actions that we can do in our daily lives which will help protect the environment. These actions may seem simple, yet if each one of us makes a habit of doing them, we will make a big difference in the care of our environment.



What Have You Learned?

Let's see if you understand the important concepts in this module. Answer the following questions.

- A. Complete the sentence by writing the letter of your choice in the blank space.
- _____ results in the flooding of low-lying areas since there are less trees to hold the rainwater coming down the mountain.
 - ozone depletion
 - deforestation
 - air pollution
 - overpopulation
 - The chemical chlorofluorocarbon (CFC) comes from products such as _____.
 - some insecticides
 - styrofoams
 - hairsprays
 - all of the above
 - _____ are substances and chemicals that are released into the air, causing air pollution.
 - emissions
 - CFC
 - sulfur dioxide
 - nitrogen oxide
 - _____ is a condition where heat is trapped by gases that gather above the earth, causing an increase in the earth's temperature.
 - global warming
 - greenhouse effect
 - emission
 - both a and b

5. _____ has water that is more acidic than normal, with a pH level of 5.6 and below.
- a. acid rain
 - b. ordinary rain
 - c. fruit juice
 - d. all of the above

B. 1.–5. List down five (5) consequences or effects of our continued abuse of the environment. (5 points)

6.–10. List down five (5) actions that you can take that will help protect the environment.

Well, how was it? Do you think you fared well in this post-test? To see if you did, compare your answers with those found in the *Answer Key* on pages 35–36.

If you scored:

- 14–15 Excellent! You have learned much from this module. You may now proceed to the next module.
- 11–13 Good! Just review the questions that you failed to answer correctly.
- 6–10 Review the parts of the module that you failed to understand.
- 0–5 You should review the entire module.



Answer Key

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

- A. 1. **environmental.** Global warming and acid rain are some of the major environmental problems that we are experiencing today.
 2. **global warming.** Also known as the “greenhouse effect”, global warming is a condition where gases gather above the earth, trapping heat and warming the planet.
 3. **acid rain.** Acid rain is rainfall that is believed to have caused the decline of many forest ecosystems.
 4. **overpopulation.** Overpopulation adds pressure on the environment to produce more resources.
 5. **deforestation.** Deforestation is the destruction of the forest due to excessive logging.
 6. **air pollution.** Air pollution is the presence of harmful substances released into the air by cars and factories.
 7. **CFC.** CFC or chlorofluorocarbon is the leading cause of ozone depletion.
- B. True or false.
1. **True.** Overpopulation affects the environment. To help protect the environment, plan your family.
 2. **False.** *Recycling* is to use and reuse products over and over again. Decomposing organic materials to be used as fertilizer for garden plots is called *composting*.
 3. **True.** Human beings and animals depend on the environment for resources necessary for them to live. Therefore, if we continue to harm and destroy our environment, we will further endanger the lives of all living things.

4. **False.** The big task of protecting the environment is started by ordinary individuals like you and me.
5. **True.** CFC or chlorofluorocarbon is the leading cause of ozone depletion.

B. Lesson 1

Let's Study and Analyze (page 5)

Here are sample answers:

According to Apo, the reason why it is extremely warm nowadays is because there are fewer trees in our communities.

I agree with Apo. Trees give us shade and breeze. Hence, when we cut down trees, we can expect the weather to be hotter.

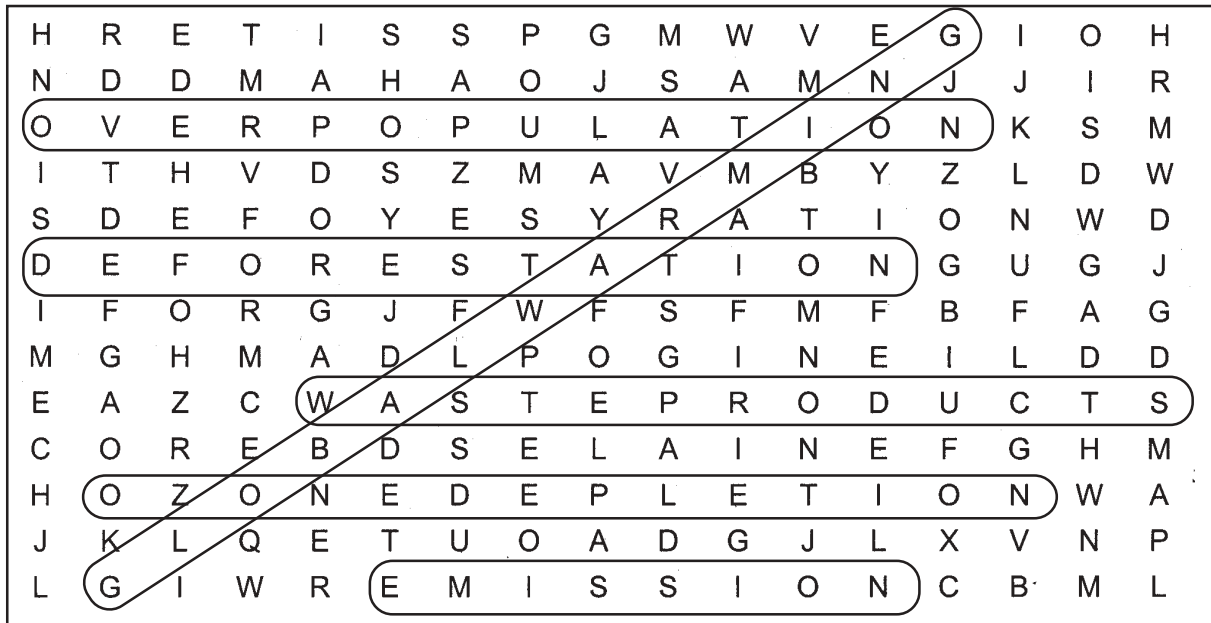
I think other factors that contribute to the rise in the environment's temperature are: air pollution, global warming and others.

Let's Think About This (page 8)

Here are sample answers:

1. Yes. Overpopulation affects the quality of life of the people. When there are more people than can be supported by the available resources, the quality of life is poor. There would be shortage in water, food and land available to people.
2. After reading this lesson and learning about CFC, I found out that there are products in our household that are harmful to the environment. The deodorants and hairspray that I use contain CFC and may contribute to the depletion of the ozone.

Let's Try This (page 9)



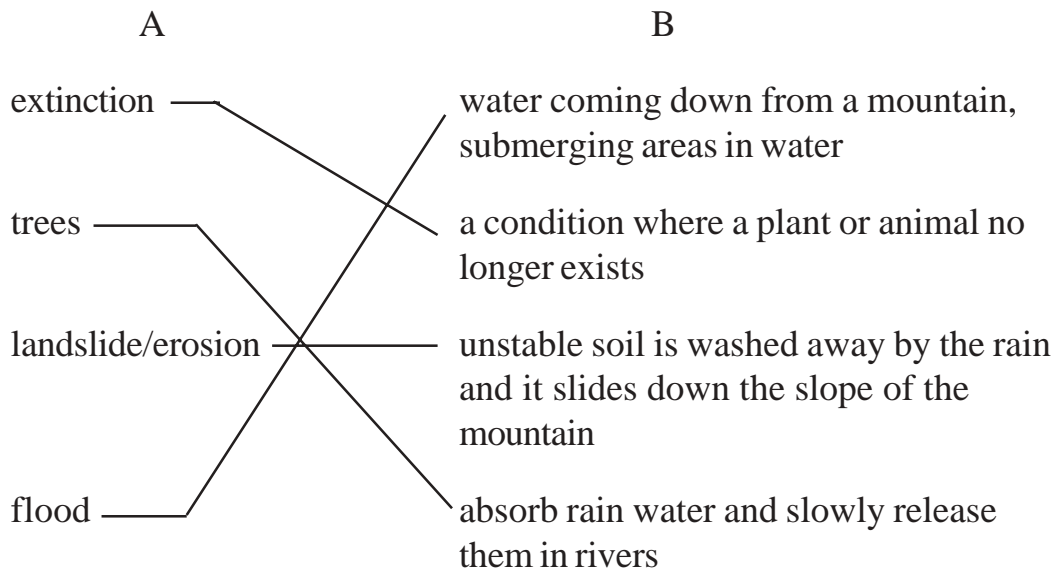
Let's See What You Have Learned (pages 12–13)

1. (i) UV rays. The UV rays of the sun, when they enter the earth, may cause cataract and skin cancer on humans.
2. (c) Ozone layer. The ozone layer prevents the ultraviolet (UV) rays of the sun from entering the earth.
3. (k) Deforestation. When the forests are destroyed due to excessive cutting of trees, there are less oxygen and more carbon dioxide in the air.
4. (j) pH scale. The pH scale is used to measure the acidity of a substance.
5. (b) Overpopulation. Overpopulation affects the environment and the quality of life of the people.
6. (g) Acid rain. Acid rain has an acidity level of pH 5.6 and below.
7. (h) CFC. CFC or chlorofluorocarbon is the leading cause of ozone depletion.

- 8–9 (a) and (f) Sulfur dioxide and nitrogen oxide. Sulfur dioxide and nitrogen oxide are the primary causes of acid rain.
10. (e) 76.5 million. The estimated human population of the Philippines is 76.5 million.

C. Lesson 2

Let's Try This (page 17)



Let's See What You Have Learned (pages 20–21)

- True.** An increase in the earth's temperature due to global warming may cause icecaps in the cold regions to melt. Melted ice will flow into rivers and seas, causing the global sea level to rise. This will then cause flooding in some areas.
- True.** The roots of a tree hold the soil and prevent it from being washed away.
- False.** The snow on the tip of mountains, or icecaps, will melt due to rise in the temperature of the earth.
- True.** A rise in the global sea level may cause some islands to disappear due to heavy flooding.
- True.** Bacteria and viruses that thrive in dirty surroundings may cause illnesses among humans and animals.
- True.** The forest is the natural habitat of plants and animals. This is where they live and where they get their food. Destruction of the forest may kill or eliminate species of plants and animals.

7. **False.** As the Payatas tragedy showed us, mismanaged dumpsites are not safe for the environment and the people who live near it.
8. **False.** Extinction is a condition where species of plants or animals no longer exist.
9. **False.** The garbage that we dump is composed of decaying food and other waste products. Because of this, all kinds of bacteria may breed in garbage. The garbage that we dump is actually full of bacteria and viruses.
10. **True.** The trees in a forest absorb water into the ground, so the water stays there instead of flowing downhill to flood low-lying areas.

D. Lesson 3

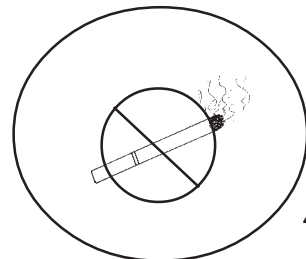
Let's Try This (page 26)

Planting trees and other plants will help restore and save the environment.



4

Avoid smoking. Aside from being harmful to your health, smoking contributes to air pollution. You can help care for the environment by avoiding this vice and convincing other people to also avoid it.



4

Clean your surroundings and avoid illnesses.



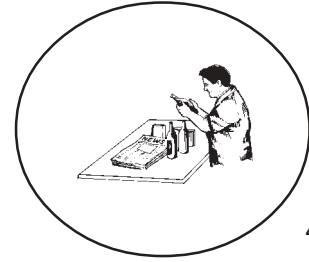
4

Read the labels of products that you buy. Do not buy products that have harmful chemicals such as CFC.



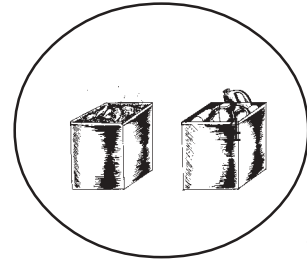
4

Recycle! Use and reuse your products over and over again. This will lessen the amount of garbage that you need to dispose of and will save you extra money.



4

Practice garbage segregation. Separate garbage that will rot or decompose from those that will not (For more information on how to segregate garbage, read the module titled *Recycling*.)



4

How many items or pictures did you check? If you checked:

(6) 4 4 4 4 4 4

Congratulations! you are a true environmentalist. You really care for the environment.

(5) 4 4 4 4 4

Very good! Apply the ideas discussed in this module and you are on your way to becoming a true environmentalist.

(4) 4 4 4 4

Good! You have the making of a true environmentalist. Try to exert more effort in protecting the environment.

(3) 4 4 4 and below

Wake up! The environment needs your care and protection.

E. What Have You Learned? (pages 28–29)

- A. 1. The correct answer is **(b)** or deforestation. Deforestation results in the flooding of low-lying areas since there are less trees to hold the rainwater coming down from the mountain. Deforestation is one of the environmental problems that we are facing today. Other environmental problems are: ozone depletion (a), air pollution (c) and overpopulation (d).
2. The correct answer is **(d)** or all of the above. The chemical chlorofluorocarbon (CFC) is present in products such as styrofoams, hairsprays and some insecticides.

3. The correct answer is **(a)** or emissions. Substances and chemicals that are released into the air, causing air pollution, are called emissions. CFC (b), sulfur dioxide (c), and nitrogen oxide (d) are examples of emissions.
4. The correct answer is **(d)** or both a and b. Global warming, also known as greenhouse effect, is a condition where heat is trapped by gases that gather above the earth causing an increase in earth's temperature. One of the factors that contribute to global warming is emission of substances and chemicals that are released into the air.
5. The correct answer is **(a)** or acid rain. Acid rain is more acidic than ordinary rain (b), having a pH level of 5.6 and below. Acid rain is also more acidic than fruit juice (c) which has a pH level of 6.0 to 7.5.

B. Compare your answers with these:

In any order:

1. flooding along coastal and low-lying areas
2. illnesses among humans
3. extinction of species of plants and animals
4. soil erosion and landslide
5. extreme heat

In any order:

6. recycle products to lessen the amount of garbage to be disposed of
7. plant trees and other plants
8. conserve energy
9. practice family planning
10. avoid excessive logging, or campaign against illegal logging



Glossary

Acid rain Any rainfall that has an acidity level beyond what is expected in a rainfall that is not polluted

CFC or chlorofluorocarbons Group of chemicals proven to be harmful to the ozone layer and are present in refrigeration and air-conditioning appliances

Composting The process of decomposing plant remains or other organic materials to be used as fertilizer for plants

Contaminate Make dirty; pollute

Ecosystem The community of organisms and their environment

Emissions Chemicals or other substances released into the environment

Environment The circumstances, objects or conditions by which one is surrounded; everything in our surrounding

Extinction The condition of no longer existing

Global warming or greenhouse effect The situation in which gases gather above the earth, trapping heat and making the planet comparable to a greenhouse

Habitat The place or environment where a plant or animal naturally lives and grows

Recycling To use and reuse products over and over again

Overpopulation A situation in which the population of a country or area is so high that there are not enough resources for everyone. This often results to poverty and low quality of living

Ozone layer A thin band in the upper layer in the atmosphere that shields the earth from the sun's ultraviolet (UV) rays

Ultraviolet (UV) rays Rays of the sun that are not visible and that can cause certain diseases in people



References

Thinkquest. 1999. *Hazardous Waste*. <http://library.thinkquest.org/26026/Environmental_Probl.../hazardous_waste_-_effects.htm>. December 12,2000, date accessed.

Thinkquest. 1999. *Ozone depletion* <http://library.thinkquest.org/26026/Environmental_Problems/ozone_depletion.html>.December 12,2000, date accessed.

Thinkquest. 1999.*Global warming* <http://library.thinkquest.org/26026/Environmental_Problems/global_warming.html>.December 12,2000, date accessed.

Thinkquest. 1999.*Acid rain* <http://library.thinkquest.org/26026/Environmental_Problems/acid_rain.html>.December 12,2000, date accessed

National Statistics Office. 2000. *2000 Census of Population*. <<http://www.census.gov.ph/data/sectordata/c2khighlights.html>>.January 25, 2001, date accessed.

United Nations Population Division. 1998. *World Populaiton Estimates and Projections*. <<http://www.popin.org/pop1998>>. January 25, 2001, date accessed.