



HISTORY & GEOGRAPHY

STUDENT BOOK

▶ **9th Grade** | Unit 8

HISTORY & GEOGRAPHY 908

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Man and His Environment

Introduction

As you continue your education and become even more involved with the world around you, you will notice that many problems must be faced. Only with the brief time in the Garden of Eden did man find himself in control of his environment. During that brief stay, harmony existed between man, the animal life, and the plant life of the earth. With the coming of sin into the world, this balance changed. For hundreds of years man has believed that he would never exhaust the resources of the earth. Man also felt that he would reign supreme over land, air, and water; and that he could do anything to these areas of the environment without hurting himself in return. Now in the twenty-first century he sees a much different picture.

As man has increased in numbers and has become technically advanced, he has begun to damage the delicate environment. He is also making life with his fellow man very complicated and often unhappy. Our heavenly Father established an order for man's personal life to enable him to have the greatest blessing in his relationship to Him and to others. Although the order or morality and conscience that He established is ideal, it, too, is under attack in all areas of life.

You will have an opportunity in your life, beginning today, to help improve the conditions of the environment. Because your life is like a light on a hillside that cannot be hidden, you will want to have a part in solving these problems and to become an example to all who know you. The possibility exists that your life's work will relate to the restoration of the environment in all areas. You will learn about some of the people, programs, and careers that help in the restoration of this environment.

Objectives

Read these objectives. The objectives tell you what you will be able to do when you have successfully completed this LIFEPAAC. When you have finished this LIFEPAAC, you should be able to:

1. Describe ways in which man is harming his physical environment.
2. Explain causes and effects of stress and poor health habits on our minds and bodies.
3. Describe methods for improving our ecological balance, human health, and the supply of natural resources.
4. Explain how people in the United States have become dependent on government.
5. List problems within the work force of this country.
6. Relate present social trends and laws that affect families today and those that may later affect you.
7. Give examples of programs helpful in improving the physical environment and conserving natural resources.
8. Discover Biblical principles governing physical and mental health.
9. Give examples of Christian principles, secular programs, and individual approaches to social betterment.

1. MAN AND HIS PHYSICAL ENVIRONMENT

As an active young person, you are constantly affected by your physical **environment**. As the technology of America and of the world continues to expand, you may become more aware of the particular problems concerning ecology that relate to land, air, and water. Constant mention is made of the environmental hazards through the media. You will want to know more about these hazards so that you can help improve your environment. Because of these conditions, many people are finding expanding career opportunities in the fields of ecology.

Physical and mental health problems are also becoming more severe in this culture. The challenge of staying or becoming healthy is very real. Much of what affects man's physical health is beyond his control, but many illnesses and diseases are caused by his own poor habits or by living under too much stress. In the rush for a better life, the United States and other developed nations in the world have been utilizing natural resources at an alarming rate. In the following pages you will learn about some of the problems and solutions to the overuse of our natural resources.

SECTION OBJECTIVES

Review these objectives. When you have completed this section, you should be able to:

1. Describe ways in which man is harming his physical environment.
2. Explain causes and effects of stress and poor health habits upon our minds and bodies.
3. Describe methods for improving our ecological balance, human health, and supply of natural resources.

VOCABULARY

Study these words to enhance your learning success in this section.

carcinogen (kär sin' u jun). Any substance that causes cancer.

contaminants (kun tam' u nunts). Those things that pollute the air and water, for example, chemicals and raw sewage.

derivative (di riv' u tiv). A substance coming from the chemical change of another substance.

ecological system (ek u loj' u kul sis' tum). The orderly way in which plants and animals interact to assure the survival of each.

environment (en vī run munt). The earth God created as a home for all living things.

Environmental Protection Agency (en vī run ment' tul pru tek' shun ā' jun sē). A federal government agency with powers to regulate and control pollution offenders.

erroneous (u rō' nē us). Mistake; in error.

fossil (fos' ul). Any hardened remains of plant or animal life preserved in rock formations.

fossil fuels (fos' ul fyū' ulz). Natural gas, petroleum, and coal.

habitat (hab' u tat). A region where a plant or animal naturally grows and lives.

hydroponic (hī dru pon´ ik). Growing plants in solutions containing the necessary minerals, instead of soil.

inflation (in flā´ shun). The accelerating rise in the cost of living.

leukemia (lü kē´ me u). Disease of the blood-forming tissues.

limnologist (lim nol´ u jist). One who studies the biological, chemical, geographical, and physical features of fresh waters, especially lakes and rivers.

megalopolis (meg u lop´ u lis). An extensive, heavily populated place, usually an urban area that involves a network of cities.

nicotine (nik´ u tēn). A poison found in tobacco leaves.

peptic ulcer (pep´ tik ul´ sur). An open sore on the lining of the stomach.

phosphate (fos´ fāt). A chemical used in some laundry detergents and as a fertilizer that is harmful to the environment.

psychosomatic illness (sī kō sō mat´ ik il´ nis). A physical disorder in the body caused or aggravated by a mental or emotional problem or stress.

shale (shāl). A fossil rock containing minerals such as oil.

socioeconomic (sō sē ō ē ku nom´ ik). Pertaining to the particular person or group.

subdivision (sub du vizh´ un). An area of land divided into small parcels so houses or apartments may be built on each separate lot.

tuberculosis (tü bër kyu lō´ sis). A disease of the lungs.

Note: All vocabulary words in this LIFEPAK appear in **boldface** print the first time they are used. If you are not sure of the meaning when you are reading, study the definitions given.

Pronunciation Key: hat, āge, cāre, fār; let, ēqual, tērm; it, ĩce; hot, ōpen, ōrder; oil; out; cup, pūt, rüle; child; long; thin; /TH/ for then; /zh/ for measure; /u/ represents /a/ in about, /e/ in taken, /i/ in pencil, /o/ in lemon, and /u/ in circus.

ECOLOGICAL HAZARDS

Every time you sit down for a meal or take a breath of air or drink a glass of water, you are interacting with an **ecological system**. As an ecologist you would study the relationship between water and air, farmland, and the animal life that provide food. Some people probably take for granted that somewhere in their state, or at least somewhere in the United States, lives a farmer who has enough land on which to grow the corn that both people and cattle eat.

Even the hamburger is a product of the ecological system. All of the ingredients come from a complicated interdependency between man and animal and plant life. The hamburger was

produced by a fatted steer that grazed in open land and also received grain. The steer had to have its own supply of water and air to assure its growth.

Farm products such as these provide the nourishment needed to continue to grow strong and to remain healthy. Likewise, people must have good water and clean air to sustain a healthy life. Humans can do without oxygen for only four minutes and without water for a maximum of eight to ten days. If the water and air are contaminated, the quality of one's health and life will be limited. You will study about the ecological balances of air, land, and water.

The federal government has established the **Environmental Protection Agency** because man has not voluntarily taken care of the land, air, and water. The government had to pass hundreds of regulations to help people interact with their **environment** in a way that would not damage it.

Agriculture loss of farmland. Agricultural farmland is being used at an alarming rate—primarily because cities are growing so rapidly. Within a few years, half the world’s population will be urban. The urban population of 3.2 billion people in 2007 was than the entire global population in 1967, 40 years earlier. In 1950 cities covered 18 million acres of the nation’s total 1,940 million acres. In the next decade, 75 million acres were covered by cities. Whole sections of the countryside became part of a **megalopolis**.

The loss of farmland to the development of cities may happen in the following way. The land that surrounds cities is often the prime agricultural land that has water and transportation routes. Many cities begin to serve the needs of these farms. The little farms near the cities are then viewed by land developers as being ideal locations for new **subdivisions**. Construction planners approach the farmers and offer large payments for their acres. The farmer knows that he would take twenty years to make as much profit from his crops as the construction man is offering him in cash. To sell out and to let the cities take over the farm is a great temptation.

Another reason for the loss of agricultural land is that the value of farm acres surrounding cities increases very rapidly. Also, state taxes are so high that the farmer has to work much harder to get enough profit to pay his taxes.

In addition, with the great increases in the costs of crude oil, the farmers have found that gasoline price increases are accelerating. Farm machinery and fertilizer are also becoming more expensive. Unfortunately, the cost of living goes up as profits go down; therefore, many

farmers cannot make a living. Consequently, they are forced to sell out, move to cities, and find new jobs.

Farmland is indeed needed for urban growth. According to the United Nations’ census, 2 billion people lived in the world in 1900. By 1950 3 billion people inhabited this planet. By 1975 4 billion people inhabited the earth; and in 2000 the world population numbered over 6 billion people. The world population projection for the year 2015 is 7.2 billion people. With such a population growth occurring in only 100 years, the reasons for the growing demand for land are obvious.

Several ecological hazards are created with the loss of farmland to sprawling city development. First, huge amounts of farm products are necessary to feed a huge population. As the population continues to grow, the supply of food products will be even more critical. Many researchers are attempting to devise alternative ways of growing crops, such as using the ocean floor as farms. These new farming methods are not yet practical, however. Farms known as **hydroponic** farms enable crops fed certain minerals to be grown on shelves with no soil. Besides new farming methods, increased productivity per acre will be attempted here, as in Europe, to supply the necessary food.

In addition to the lack of space for growing food and feeding animals, a loss of oxygen also occurs. Plant life surrounding cities performs a cleansing job on the air by absorbing carbon dioxide and providing a daily supply of fresh oxygen. As green farmland disappears, the air is not sufficiently cleaned.

In past years 16,950,000 farm acres have been absorbed through urbanization. Small farms have either gone out of business, sold out to large automated farm managers because of the escalating costs. As a result, farm families have moved out and relocated in the cities. A change of occupation and an adjustment to a completely different life style has not always



| Urban Growth

been easy. In this adjustment both parents may need to work. City living is much more expensive than living on the farmer's own property. These changes put many pressures on the family to maintain the same **socioeconomic** level. Adjusting to the city environment is difficult for many. During the last several decades a continual reduction has taken place in the number of farm workers. Many unskilled people who were not farm owners but who made their livelihood harvesting crops have also been displaced. As a

result, they turn to the cities to try to find other jobs for which they are not trained. Many live on welfare and never find adequate employment to support their families.

Farm animals are also being forced from their land. Cattle, hogs, and sheep are being brought into feed lots that surround major cities and are fed high concentrations of grain and meal. However, bringing these feed lots in close to the cities has caused a new kind of pollution that offends both the nose and the eyes.



Complete these activities.

- 1.1** The study of the interaction of animal and plant life, and their dependence on air, land, and water is called a. _____ .
An b. _____ is a scientist who makes his living studying the relationships between man, animal, and plant life and their impact on the environment.
- 1.2** List three reasons why farmers have felt pressured to sell their land.
- a. _____
- b. _____
- c. _____
- 1.3** Write the name of one person or family that you know who used to live on a farm, but now lives and works in the city. _____
- _____

Complete this assignment.

- 1.4** Call or write an agricultural agency in your community, or to the United States Department of Agriculture in Washington, D. C., asking for information on hydroponic gardening or farming. Write the name and address or name and phone number of the agency you have contacted.

Contamination of water and air. The Industrial Revolution in England produced foul air and polluted water in the late 1800s. After a period of time, the beautiful Thames River that flowed through London reached a point of absolute lifelessness. All of the fish that once thrived there were choked off by the poisoned water. Although Europe had begun its Industrial Revolution long before the United States, most Americans did not notice what the growth of industry was doing to the European environment.

The practice adopted in the United States was much the same as in Europe. Any wastes of cities and industries were simply dumped into the closest stream, river, or lake. The wastes might include acid, garbage, or sewage. Steel mills on Lake Erie, for example, would flush the water they used into the lake. The water contained acids and chemicals used to process the metal. People **erroneously** assumed that eventually the water would clean itself. As man traveled throughout the oceans of the world, great floating masses of this waste were visible to passing

ships. Man began to see that nature could not absorb all of the refuse of humanity.

Electrical power plants, such as the Zion Nuclear Plant in Chicago, produced 2.16 billion gallons of waste water per day. Water in the plants was heated to twenty degrees higher than the temperature of Lake Michigan. **Limnologists**, who study the properties of life in lakes, and others living around Lake Michigan, all brought legal suit against the power plant to force them to stop dumping heated water in the lake. The scientists knew that the increased temperature of the water had a negative effect on plant and animal life. Also, the waste water had chemical **contaminants** from the power plant that further injured the balance of fish and plant life in the lake. Lake Michigan showed the effects of water pollution. Fish died, sewage washed up on the shores, and the water around the steel mills and power plants turned a strange orange color.

The New River that flows sixty miles from Mexicali into the United States is a tremendous health hazard to all of the people who live along its banks. Because of the rapid expansion of the city of Mexicali, sewage systems have not been able to handle the human waste. Also, the Mexican government's restrictions on industry are less strenuous than those imposed by the Environmental Protection Agency in the United States. As a result, polluted water containing bacteria flows into the United States. Health officials are concerned that a disease epidemic could break out. Reports have been made of ill health among people who have consumed this water. In addition, the farmers can no longer use the water for irrigation purposes because of the health hazard potential.

High **phosphate** levels found in many soaps caused some lakes and rivers to become choked with fast-growing weeds and other plant life. This plant life multiplied so rapidly that some of the waterways became clogged



| Food Chain

altogether. These areas developed into breeding grounds for bacteria and other disease-producing organisms. With the urging of the Environmental Protection Agency, many states passed laws in the 1970s to restrict the use of phosphorus in soaps.

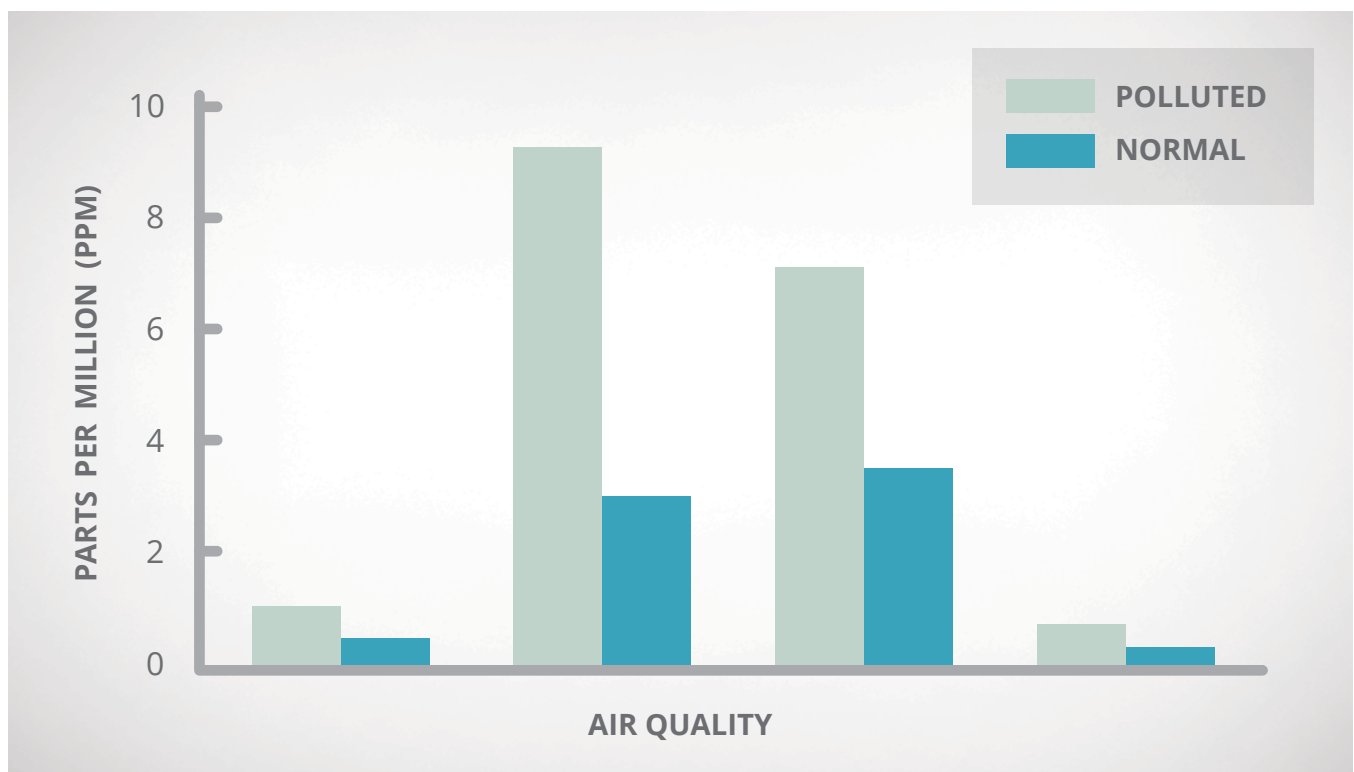
Another chemical pollutant is a pesticide known as DDT. Millions of tons of this chemical have been dumped on farmlands. The chemical has been found to have a bad effect on many kinds of animal life and to be dangerous for human consumption also. The U.S. government has banned the use of DDT almost completely.

Unfortunately, the chemical has soaked into the land and will take many decades to wash out. In 1978 DDT was found in the milk sold in Phoenix, Arizona. Increased incidents of **leukemia** have been correlated to the commercial introduction of DDT in the mid-1940s. Research discloses that soil has been deeply saturated with DDT and the roots of plants reach down into these deposits taking in the poison. Later,

cows will eat these plants and pass on small quantities of the poison in their milk. Man, in the last fifty years, has only begun to realize how delicately the environment is balanced and how dependent each segment is upon the other.

As the United States industrialized, it became dependent upon **fossil fuels**. Large industrial centers burned coal, a **fossil** fuel mined from the earth, to keep their furnaces going. Smokestacks that seemed to reach the sky were erected in these areas and belched out continuous clouds of black soot. Also, with few paved roads the amount of dust was high. Fortunately, the health hazards of dust and soot have reduced some since those days.

However, our dependence on burning fossil fuels in the form of coal has continued. At tremendous dollar costs, these once belching smokestacks have been equipped with static air cleaners and other devices to slow the soot emissions; but other gaseous materials,



including sulphur dioxide, are still being released into the air and present a health hazard. These gases, fly ash, and soot remain despite pollution control devices. They irritate the lungs and contribute to diseases, such as **tuberculosis**.

The United States has experienced a growing demand for energy not only in industry but also in the private sector. Americans insist upon the personal mobility of private auto transportation. The internal combustion engine of the

automobile burns oil products, and the increasing demand for auto transportation requires increasing supplies of oil. Furthermore, the pollution from cars is also a great health hazard. Cars emit dangerous chemicals, such as sulphur compounds, carbon monoxide, hydrogen, and nitrogen dioxide that become so thick that they are visible as smog in any large city. Cities now measure their smog levels and even issue alerts when levels threaten older persons or those with lung diseases.



Answer true or false.

- 1.5 _____ The Industrial Revolution first began in Europe.
- 1.6 _____ The heated water dumped by nuclear plants harms plant and animal life in waterways.
- 1.7 _____ Phosphate used in soaps does not cause problems when it gets into rivers and lakes.
- 1.8 _____ Decades must pass before DDT can be washed out of soil.
- 1.9 _____ DDT can cause a form of cancer known as leukemia.

Complete these statements.

- 1.10 One form of fossil fuels that men mine from the earth is _____.
- 1.11 Four dangerous pollutants caused by cars are a. _____ ,
 b. _____ , c. _____ , and d. _____ .
- 1.12 The United States has been experiencing a growing demand for _____
 _____ .

HEALTH HAZARDS

Many health hazards that plague man are a result of the situations around him and his reaction to these situations. The environment is full of potential health hazards and people are subjected to these pollutants for a long time. Noise, air, and water pollution; garbage on the streets; poisoned soils; and chemicals in the food chain will all be around for decades.

To help control these conditions, people must observe the best health habits possible.

Many illnesses that afflict man, however, could be controlled with discipline and better education. Stress is one area of the environment that cannot be avoided although people can control their reactions. Too many pressures

SELF TEST 1

Match these items (each answer, 2 points).

- | | | | |
|------|-----------------------------------|----|--|
| 1.01 | _____ nuclear power plant | a. | excess plant growth in lakes or rivers |
| 1.02 | _____ internal combustion engine | b. | sewage contamination of water resources |
| 1.03 | _____ coal-burning power plant | c. | carbon monoxide pollutes air |
| 1.04 | _____ DDT spraying in agriculture | d. | water temperature of lakes and rivers rises |
| 1.05 | _____ population density | e. | soil contamination and carcinogenic |
| 1.06 | _____ phosphate detergents | f. | fly ash of soot in air |
| 1.07 | _____ urban sprawl | g. | reduces farmland and plant life to cleanse air |
| 1.08 | _____ ecologist | h. | studies air, water, and land |
| | | i. | urban engineers |

Complete this activity (each answer, 1 point).

List five consequences of having most people move from the country to cities.

- 1.09 _____
- 1.010 _____
- 1.011 _____
- 1.012 _____
- 1.013 _____

Complete these statements (each answer, 3 points).

- 1.014 Some deposits of oil in this country are trapped in _____ .
- 1.015 When gasoline is burned it pollutes the air with a. _____ ,
 b. _____ , c. _____ , and
 d. _____ .
- 1.016 Illnesses that result from emotional stress are called _____ .
- 1.017 Any chemical or substance that has been proved to cause cancer is called a
 _____ .
- 1.018 The most common chemical additive in food is _____ .
- 1.019 Refined sugar in the diet may cause _____ .
- 1.020 Natural gas, petroleum, and oil come from _____ .

Complete this activity. Use the word increase or decrease (each answer, 2 points).

- 1.021** When we do something we know to be wrong, stress _____ .
- 1.022** Drug use was seen to _____ during World Wars I and II.
- 1.023** Addictive drugs may require an _____ in the quantity used to produce the same desired result or effect.
- 1.024** Withdrawal illness will occur if the addictive drug use is _____ .
- 1.025** Cigarette smoking has proved to _____ the occurrence of disease and death.
- 1.026** Sugar may _____ dental cavities and obesity.
- 1.027** With the Holy Spirit as the guide of our lives, quality of life and health will _____ .

Write the letter of the correct answer (each answer, 3 points).

- 1.028** A megalopolis is a _____ .
a. fishery b. large population c. new farm method d. disease
- 1.029** A person who studies water properties is a _____ .
a. psychologist b. pediatrician c. limnologist d. technician
- 1.030** Stress may cause _____ .
a. rapid heart beat b. mumps c. obesity d. chicken pox
- 1.031** Smoking may cause _____ .
a. bone defects b. muscle damage c. emphysema d. poor vision
- 1.032** A drug that causes the most serious addiction is _____ .
a. nicotine b. caffeine c. heroin d. penicillin
- 1.033** Drug abuse has risen _____ .
a. after wars b. during wars c. during depressions
d. neither a, b, nor c
- 1.034** The process of stopping the use of drugs is called _____ .
a. derivative b. psychosomatic illness
c. consumption d. withdrawal
- 1.035** Park lands that may not be changed in any way are the _____ .
a. recreational areas b. wildernesses c. camping areas d. hiking areas
- 1.036** The plants that increase the temperature of rivers and lakes are the _____ .
a. textile plants b. plastics plants c. furniture plants d. nuclear plants
- 1.037** In the next decade, _____ million acres may be covered by cities.
a. 50 b. 60 c. 75 d. 70

Complete this item (this answer, 5 points).

1.038 Explain what a food chain is. _____

Answer true or false (each answer, 1 point).

- 1.039** _____ In hydroponic farming crops can be grown without soil.
- 1.040** _____ Heated water from nuclear industries causes harm to marine life.
- 1.041** _____ DDT is believed to cause leukemia.
- 1.042** _____ Fly ash and soot is thought to cause tuberculosis.
- 1.043** _____ Stress cannot cause illness.
- 1.044** _____ The death rate among smokers is 70 percent higher than among nonsmokers.
- 1.045** _____ Lung cancer, emphysema, and bronchitis may result from smoking.
- 1.046** _____ Drug addiction is a physical dependency upon drugs.
- 1.047** _____ Trees can help cleanse the air.
- 1.048** _____ Fossil fuels are natural gas, petroleum, and oil.

89 110	SCORE _____	TEACHER _____	initials	date
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