LIFEPAC®

HISTORY & GEOGRAPHY

STUDENT BOOK

9th Grade | Unit 8

Alpha Omega
PUBLICATIONS

HISTORY & GEOGRAPHY 908

Man and His Environment

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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 LIFEPAC. When you have finished this LIFEPAC, 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.

Survey the LIFEPAC. Ask yourself some questions about this study and write your questions here.

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 became 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 fyü´ 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 bėr kyu lō´ sis). A disease of the lungs.

Note: *All vocabulary words in this LIFEPAC 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: h**a**t, **ā**ge, c**ã**re, f**ä**r; l**e**t, **ē**qual, t**ėr**m; **i**t, **ī**ce; h**o**t, **ō**pen, **ô**rder; **oi**l; **ou**t; c**u**p, p**u**t, r**ü**le; **ch**ild; lo**ng**; **th**in; /*ŦH*/ for **th**en; /*zh*/ for mea**s**ure; /*u*/ represents /*a*/ in **a**bout, /*e*/ in tak**e**n, /*i*/ in penc**i**l, /*o*/ in lem**o**n, and /*u*/ in circ**u**s.

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

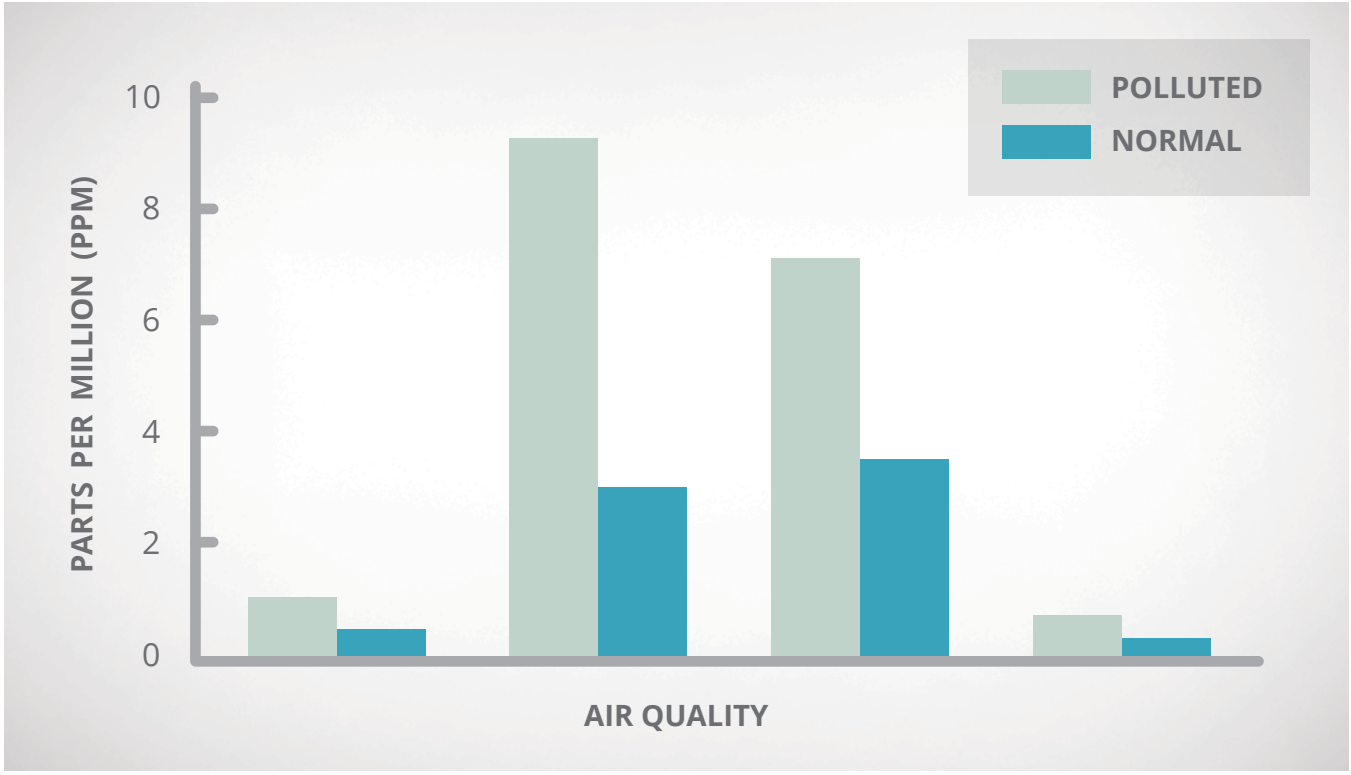
altogether. These areas developed into breeding grounds for bacteria and other disease-producing organisms. With the urging of the Environmental Protection Agency, many states passed laws in the 1970s to restrict the use of phosphorus in soaps.

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

and demands may eventually cause people to develop very serious health problems. These problems may manifest themselves in either physical or mental illness. Some of the behavior that creates physical and mental problems will be examined. Of particular importance is the area of emotional stress.

Stress-induced physical and mental illnesses. A person may not realize that he is under continuous stress. Stress is defined as the body's own reactions to the circumstances around it. Reactions may vary from fear to excitement and from irritation to laughter. The things that cause stress may be good or bad. Handling stress poorly can cause illness. Diseases that can result from poor stress management are high blood pressure, ulcers, and heart disease. Vital organs of the body will react when stress is not handled properly.

Most people react to stress that comes from such things as taking a written examination, or appearing before an audience, or going to the hospital. These reactions are normal defenses to stressful situations.

Some people, both young and old, have spent some of their lives doing things that they know are wrong. Eventually, physical problems may develop because of their inability to cope with the guilt that these wrongdoings exert upon the conscience. Some may develop so much mental and emotional stress that they end up in the hospital. Others may have severe headaches or **peptic ulcers**. Other symptoms of stress are loss of appetite, weakness, and sleeplessness. Whether the kind of stress is guilt from doing wrong things, or stress that results from having too much responsibility or stress that results in emotional reactions that come from accidents, eventually physical illnesses and problems may occur.

These kinds of illnesses are sometimes referred to as **psychosomatic** illnesses. This term means that the mind and heart of the person are in so much turmoil that they may actually create physical problems such as rapid heartbeats or pain in the stomach or in the joints.

Complete these activities.

1.13 List four health hazards over which you have little control.

a. _____ b. _____

c. _____ d. _____

Answer true or false.

1.14 _____ Some illnesses that affect man could be controlled by discipline.

1.15 _____ Things that cause stress are always bad.

1.16 _____ Blood pressure is not affected by stress.

Complete these activities.

1.17 List six immediate physical or emotional reactions that may be experienced as a result of stress.

a. _____ b. _____

c. _____ d. _____

e. _____ f. _____

Self-induced physical problems. You have already learned that physical and mental health are controlled to some extent by the environment. People are subjected to lung disease, cancer, emotional stress, and other illnesses through sources that they cannot control. Some illnesses, however, are a direct result of poor health practices. People who smoke, overuse prescription medicines, overeat, or ingest excesses of sugar are creating potential health problems.

First Corinthians 3:16, says "Know ye not that ye are the temple of God, and that the Spirit of God dwelleth in you?" Compare your physical body to the Temple in Jerusalem that Solomon built. It was a grand structure that could withhold all but the attacks of man. Before Solomon built this marvelous structure for God's people, they utilized the Tabernacle, a temporary structure subjected to hundreds of years of dust, rain, smoke, and pollutions. Clearly you do not want to subject your body to these elements. To glorify our Lord, the body needs to be as a temple: strong, erect, and a fit dwelling place for the Spirit of God.

Smoking had long been suspected to be a hazard to health, but it was research studies in 1951 that confirmed this suspicion. A study directed by Drs. Hammond and Horn in 1951 sampled the smoking habits of 180,000 men between the ages of fifty and sixty-nine. For the next forty-four months the researchers kept records on these men. Comparisons were made with the deceased who were smokers with those nonsmokers who had died. The death rate was 70 percent higher for those who had smoked than for those who had never smoked. Men who were smoking two or more packs of cigarettes a day had a death rate 220 percent higher than those who never smoked. Since 1951 research has continued at a rapid pace. The Advisory Committee for the Surgeon

General studied seven other research projects and came to the following conclusions regarding mortality. The frequency of people dying from coronary artery disease is 70 percent higher for smokers than for nonsmokers.

As the lungs are damaged, the purification of the blood is less efficient. In addition, the heart must work harder to circulate blood faster. This condition puts stress on the heart, and many heart attack victims die because their smoke-damaged lungs have caused heart damage. Bronchitis and emphysema, diseases that cause severe disability, also accounted for a death rate among smokers 600 percent higher than that of nonsmokers. The most startling statistic was that related to lung cancer. For every nonsmoker who contracted this disease and died because of it, ten smokers were found to have contracted lung cancer that eventually caused their deaths. In July of 1965, the Federal legislature passed a law requiring that the following statement be put on cigarette packages: "Caution: Cigarette Smoking May Be Hazardous to Your Health." In 1970 advertising of cigarettes was banned in some areas of the media, and in January of 1971, the statement on cigarette packages was strengthened: "Warning: The Surgeon General Has Determined That Cigarette Smoking Is Dangerous to Your Health." The warnings have continued to be strengthened and expanded since that time.

In spite of all the available research results, people still continue to smoke. One reason why the older smoker does not give up his habit despite research results is a psychological (emotional dependency) and physical form of addiction related to smoking. Seventy percent of smokers began this habit before age twenty-one. Smoking was considered cool, an adult activity. As years went by, these people realized that they had deep-seated habits related to smoking. Many situations during the day seemed to dictate the need for a cigarette. As adults they found great difficulty in giving up these habits. Many clinics have been set up

throughout the United States to help overcome this compulsion.

A physical need also exists in the smoker's body, which has become accustomed to the **nicotine** intake. Though science does not fully understand the addictive nature of nicotine, continued use of this substance results in an overwhelming desire for smoking.

Young people who grow up in families where the parents smoke are twice as likely to start smoking themselves. Advertising in which smoking is portrayed as a very masculine or feminine thing to do also influences some people to smoke. Young people are especially susceptible to this kind of suggestion.

Persons who smoke for several years lose certain types of sensitivities that nonsmokers still have. For example, the sense of smell is diminished. The taste of food is also diminished by the inhalation of smoke. Gradually the smoker loses the lung capacity for strenuous activity.

Even for these people a good reason still exists to stop this habit. The body has some capability of cleansing itself. As smoke is inhaled the lungs receive small doses of black, pungent tar. The tobacco industry has produced low tar cigarettes, but they are still harmful. Persons who smoke these cigarettes should be aware

that they are still infusing their lungs with a **carcinogen** of tar and several different hydrocarbon compounds that are cancer-producing. Once people are educated to the hazards of smoking and decide to stop, they can expect some recovery of their physical capacities. Adults who have already damaged their lungs and who have such diseases as lung cancer, emphysema, or bronchitis find that these diseases are not reversible when smoking ceases.

Continuing to smoke, however, will just worsen these conditions. An emphysema patient, in essence, has a terminal illness. No medical treatment for this disease is available other than equipping the person with oxygen and restricting his physical activity. The disease will continue in his lungs until it finally causes his death. Considering the difficulty of giving up this addictive habit, the best policy is simply not to begin smoking at all.

Match these items.

1.18 _____ substances in tobacco
1.19 _____ 75 percent
1.20 _____ 70 percent
1.21 _____ emotional dependency
1.22 _____ lung cancer
1.23 _____ lung or respiratory diseases
1.24 _____ taste and smell

a. higher death rate for smokers
b. the body cleanses itself
c. bronchitis and emphysema
d. smokers lose sensitivity of these senses
e. percentage of smokers beginning before twenty-one
f. nicotine and tar
g. mostly caused by carcinogens
h. psychological addiction

Complete these statements.

1.25 Physical and mental health is controlled to some extent by the _____ .
1.26 First Corinthians 3:16 compares the human body to a _____ .
1.27 Seventy percent more people die from coronary disease if they are _____ .
1.28 Older smokers find smoking difficult to give up for _____ reasons.
1.29 Persons who smoke for several years lose certain _____ .

Complete this activity.

1.30 Interview someone who has stopped smoking. Ask him the reasons that he began smoking, and the reasons that he quit. Also inquire about whatever mental and physical effects the person noticed as a result of his smoking, and ask if he felt any benefits from stopping. Summarize here the result of your interview.

_____

_____

_____

_____

_____

_____ .

TEACHER CHECK _____ initials _____ date

DANGERS OF DRUG ABUSE AND FOOD ADDITIVES

During the decades of the 1960s and 1970s, a great deal of national attention was given to the rising problems of drug abuse and addiction. This section will present information about these topics.

Drug abuse. A large percentage of servicemen in the 1960s and 1970s returned from the Vietnam War addicted to dangerous drugs, such as heroin and cocaine. Addiction is a complicated concept, but one that needs clarification. There are different levels of addiction. One's body may eventually reach the point where it absolutely requires a certain drug or additive, or the addiction may be only in the form of a strong desire and the tie becomes more emotional than physical. The first drugs introduced into the American society were **derivatives** from opium, morphine, and heroin. These drugs are highly addictive and result in emotional and physical dependency and cause withdrawal illnesses.

In the early 1900s people were given these drugs as standard medication. The Federal Food, Drug, and Cosmetic Act opened the way for public information on the addictive nature of these drugs. Finally, in 1914 the Harrison Act was passed and later amended to include not only regulation and prohibition of the use of these highly addictive drugs but also of their derivatives. These drugs were regulated and confined to the medical profession as prescription medication. People were becoming addicted to these drugs, however, in spite of the regulation. Eventually, smuggling became a highly profitable crime, and the illegal traffic of narcotics has since grown rapidly.

The first federal hospital for drug addicts was opened in 1935. A decline of drug addiction was noted during World War I and World War II. No commercial trade occurred during wartime with the countries who produced the opium poppy. Following each World War, on the other hand, the rate of addiction again rose to its

prewar level. From 1948 on, the growth of drug addiction has accelerated. The average age of addicts in the United States dropped to about twenty-eight years. The current average age is even younger than that.

The pattern of addiction is fairly consistent. The drug user becomes emotionally dependent on the drug and enjoys the side effects, both physical and mental. If the drug is an addictive drug, the user may then find that his body has begun to demand a consistent supply of the drug, and he will become ill if he stops taking it. This is called withdrawal illness. The most damaging aspect of addicting drugs is that the body builds a tolerance for the drug. To keep withdrawal from beginning or to produce the original side effects, the doses must become greater and greater. An addicted heroin user can require hundreds of dollars a day to support the habitual use of this drug. The increase in crimes, especially armed robbery, has been found to be directly related to the addict's need for cash on a daily basis. Both legal and illegal drug users die each year from overdoses.

Some other substances that seem to be habit-forming, although they do not produce serious withdrawal illnesses, are coffee, tea, chocolate, and some soft drinks. These foods may produce certain side effects within the body, such as nervousness and headaches. Tobacco, discussed earlier, has also been found to have an addictive property in that the body begins to demand the intake of nicotine.

Some drugs would seem to be harmless because they are prescribed by physicians. The continuous use, however, of any sedative or stimulant can leave a person emotionally

dependent. Some drugs, believed to be harmless, are now proving to produce significant withdrawal illnesses.

Many of the drugs in wide use in society today are used to control a person's moods. They can either calm him or give him more energy. Yet God has already promised us as Christians that He will be responsible for our peace of mind and health. Applying the principles that He has presented in Scripture will bring you to God's greatest purpose for your life. In Galatians, chapter 5, God describes the behavior of man responsible for many of his physical and mental illnesses (Galatians 5:16-18): "This I say then, Walk in the Spirit, and ye shall not fulfill the lust of the flesh. For the flesh lusteth against the Spirit, and the Spirit against the flesh: and these are contrary the one to the other: so that ye cannot do the things that ye would. But if ye be led of the Spirit, ye are not under the law."

Answer true or false.

1.31 _____ Drug abuse has been steadily increasing since the Vietnam War.

1.32 _____ A psychological or emotional dependency upon drugs is not possible.

1.33 _____ Drug-related illnesses result from drug abuse.

1.34 _____ In the past, people could become addicted to drugs that were prescribed medically.

1.35 _____ The Federal Food, Drug, and Cosmetic Act has protected and educated the public against harmful drugs.

1.36 _____ The first federal hospital for drug addicts opened in 1964.

Complete these sentences.

1.37 Drugs that are formed from another drug are called _____ .

1.38 The process of doing without drugs after having been addicted is called _____ .

1.39 Drug use has risen following _____ .

1.40 People may be given drugs to alter or control their _____ .

Complete this assignment.

1.41 Write a two- or three-page paper on the dangers of drugs.

TEACHER CHECK _____ initials _____ date

Excessive sugar in diets. Only in the last decade has research developed some insight into the addictive properties of sugar, the most common food additive. This seemingly harmless food additive is now being investigated for its possible contribution to many health hazards. Unfortunately, United States citizens have come to the point where each one, on the average, consumes two pounds of white sugar a week. The sugar consumed is not only the white granules put on cereal but is also hidden in many other foods, such as candy, desserts, and other packaged foods. Sugar is even found in a can of soup.

In 1976 the average person in the United States ate twenty pounds of candy, chewed one hundred thirty-five sticks of chewing gum, and drank four hundred fifty cans of pop.

High sugar levels in the blood are now believed to cause some children to become hyperactive. They lose their ability to concentrate or even to sit still in their classrooms. Some adults seem to suffer similar emotional side effects, such as depression, because of sugar imbalances. High levels of sugar consumption can also cause increased dental cavities and obesity. The fact that something which appears harmless and

is so widely used can have so many adverse effects is unfortunate. Becoming aware of the possibility that sugar may be an addictive substance should impress upon you the importance of monitoring sugar intake. Much research will be forthcoming in the next few decades to further explore the impact of sugar and other food additives on mental and physical health.

One way to monitor the amount of sugar you consume is to read the ingredient labels on the products. It is a federal requirement for food processors to list product contents. The first product on the ingredient list is the one that accounts for the largest percentage. The next ingredients are in rank order from the most to the least. Many canned vegetables will list water as the greatest ingredient in the can. The vegetable should be listed next! Sugar comes under many titles: sucrose, corn syrup, sugar, saccharose, maltose, and lactose. All of these ingredients indicate that you are eating or drinking sugar.

Complete this activity.

1.42 Read the ingredient or nutrition label on each of the following foods and write the first three ingredients.

a. child's precooked breakfast cereal _____

_____

b. packaged cake mix _____

_____

c. candy bar _____

_____

d. frozen corn _____

_____

e. carbonated soft drink _____

_____

TEACHER CHECK _____ initials _____ date

Natural resource shortages

A natural resource is a portion of nature that is used by man and is important to his life and culture. Air, water, and soil are natural resources. Some natural resources can be recycled and replaced but other natural resources cannot be reused or regrown. Gems, minerals, and fossil fuels, such as oil and coal, are placed on earth by God and will eventually disappear. The need to conserve these one-time gifts to make them last as long as possible is imperative. In the meantime, technological skills are being turned to the task of finding replacements. To prevent the depletion of forests, watersheds, wilderness lands, and the fossil fuels is important. The forests are man's basic source of wood products, and this natural resource had been much overused even before the establishment of the national forests in 1918.

Depletion of forests and wilderness lands. The forests are man's basic source for wood products. Some attempts are being made to grow and harvest lumber and wood products in places other than in a forest environment, but these efforts are not significant when compared to forest resources. One-third of the national area is forested, and 80 percent of these forests are used commercially to supply technological and personal demands. American individuals are very demanding. Each person uses paper and numerous amounts of other products made from wood each year. Demands for forest products are greater in the United States than in any other nation. In recent years building construction has shifted from block and brick to wood products.

Besides the lumber products, the forests also serve an important function in air quality. Trees are able to absorb pollutants. Through the photosynthesis process, carbon dioxide is absorbed as chlorine, sulphur dioxide, and fluorides. Particulate pollution can be trapped on the surface of the leaves and on the bark of trees and the air is cleansed some in that way.

Trees also provide an exchange of moisture within the atmosphere. Therefore, the trees help to cool the environment. Many people consider the forests as a recreational opportunity. Much personal enjoyment comes from walking in God's creation in the peacefulness of a surrounding forest. The need of man to have these unspoiled areas has been provided for, in part, by the setting aside of wilderness land.

The first effort to assess and maintain the forest land was in 1876. Studies began at that time to predict the present needs and future forecasts of the forests in America. From these early investigations through the present, efforts have continued to manage forests in such a way as to provide an adequate supply of lumber and forest products as well as a place for recreation and solitude. In 1898 a forestry division was set up in the United States Department of Agriculture with twelve employees—six clerical and six scientific. Within seven years seven hundred employees were working in this new agency. In 1918 the first national forests were established with the opening of George Washington National Forest in Virginia and White Mountain National Forest in New Hampshire. In 1976 the Forest Service was managing and protecting 187 million acres in the national-forest system. In addition to these national parks, another 395 million acres are devoted to forest conservation that is owned by states, counties, local governments, and private persons.

In 1968 the Ninetieth Congress created two additional national parks, three national recreation areas, four wildernesses, a recreational river system, eight scenic rivers, and a national trail system. The passing of the National Environmental Policy Act in late 1969 was accomplished to assure that the activities of man would be kept in harmony with the natural environment. From that time forth every agency in the United States, and many large employers, have had to conduct studies and to report on what their impact might be on the environment where they operate. These reports are called Environmental Impact Statements. Since studies have been taking place, the need has become more and more obvious for land to be set aside as wilderness areas.

Unfortunately, wherever man interacts with his environment, he seems to leave evidence of his passage. Even in the deepest forest can be found rubbish and damage to the plant life caused by those who came to enjoy the solitude. The first wilderness lands have been set aside through the Wilderness Act passed in 1964. At that time 9.1 million acres of national forest land were set aside as wildernesses. Wilderness areas are ones in which man is not allowed to take any motorized vehicle. No roads, no campgrounds, no improvements to the land are allowed. The land is to be left solely without the influence of man. Because of the studies done under the Environmental Protection Agency, the need has become obvious for these areas to be expanded. Constant pressure is exerted upon Congress to increase the number of acres designated as wilderness.

Obviously, forests provide much good to us. In addition to the functions mentioned, the forest is the location of the watershed. An area of land that is drained by a stream is called a watershed. The watershed land receives water from rain and snow; it stores some of it and releases the rest into a stream. A good watershed will be able to absorb water and store it against future needs. The soil will be porous and covered with at least a grassy surface. To maintain this watershed from the mountains all the way through to the valley where the water will be utilized is important. Even farmland is a watershed area. If the land is used excessively for harvesting timber or is damaged through poor farm practices, an inadequate supply of water will be available to city dwellers; or floods will occur. Floods occur because the water-absorbing quality of the soil has been impaired resulting in fast run-offs. Floods are dangerous to life and to property. Between 1984 and 1994

about 1,100 people lost their lives in floods in the United States. Dams are only partially effective in flood control. The watershed is still a critical part of controlling floods.

An Endangered Species Committee study performed at the site of the Tellico Dam in Tennessee revealed that this river is the only **habitat** of the Snail Darter fish. This tiny creature would become extinct if the enormous $119 million dollar dam project was completed. In accordance with the Endangered Species Act of 1978, the committee caused the dam project to be stopped. When the whooping crane was threatened with extinction, a court order was issued to stop a $1.6 billion dollar project in the Greyrocks Dam reservoir in Wyoming. The project resumed after environmental issues were worked out. Environmentalists are more vocal and are amassing public support. Public support is translated into new Federal rules, regulations, and laws that can stop multibillion dollar projects.

Complete these statements.

1.43 Demands for forest products are greater in _____ than in any other nation.

1.44 Trees are able to absorb some _____ .

1.45 The first national forests were established in _____ .

1.46 The law designed to keep modern development in harmony with the natural environment is the _____ .

1.47 Man is not allowed to change anything in the part of the national forests known as _____ .

1.48 An area of land drained by a stream is called a _____ .

1.49 Dams and watersheds help to control _____ .

Complete this activity.

1.50 Identify the closest state or national forest to you. Collect information about this forest from your Chamber of Commerce, U.S. Forest Service, National Park Service, or State Parks Department. Most of this information can be found online, in encyclopedias, or other resources.

a. number of acres _____

b. ways it can be used by the public (for example, camping) _____

_____

_____

c. months of year it is open _____

d. costs, if any, for admission or other uses _____

_____

TEACHER CHECK _____ initials _____ date

Depletion of fossil fuels. Fossil fuels continue to be the main source of energy in the United States and in the world. About 40 percent of energy use in the United States comes from fossil fuels. The United States energy demands are three times higher today than they were in 1950. Natural gas, petroleum, and oil are all derived from fossil fuels. Americans use about 20% of the world's energy production. The growing demand in Asia for fossil fuels will further increase global demand for these resources. Realizing that the demand, if not the need, would continue to escalate, people hoped that peaceful uses of nuclear energy would be a primary source of energy. The complexity of the shift was not anticipated; fifty years were needed to switch fuel needs from wood to coal; and another fifty years, to switch from coal to oil.

As of 2008, nineteen percent of the nation's total electric energy generation came from 104 commercial reactors at its sixty-five nuclear power plants. Demand for nuclear power has declined due to concerns about safety. There is only one nuclear power plant under construction in the United States. It is due to be completed in 2012.

Coal resources are available in north America to fuel coal-burning power plants. The reserves in the United States were about 476 billion tons in 1992. At that rate or, even an accelerated rate of use, several hundred years would be required to exhaust this resource.

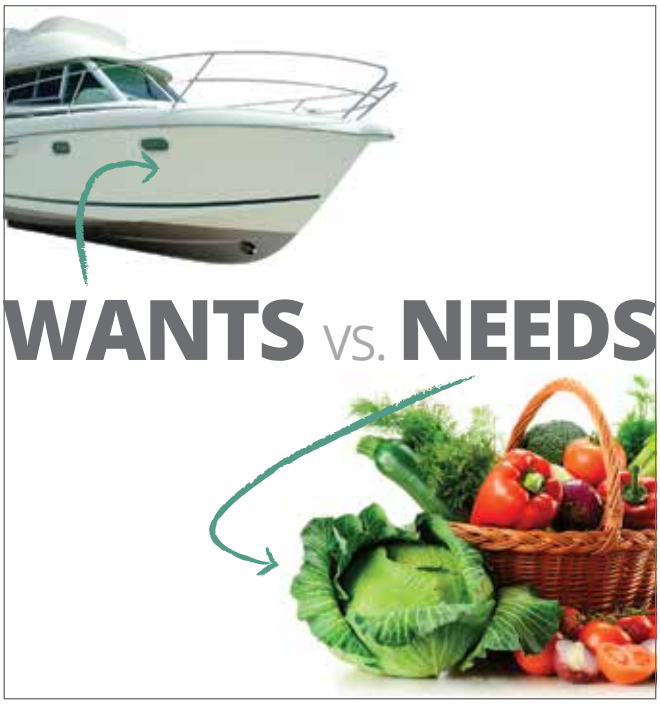
Nevertheless, although the United States has abundant coal supplies, burning coal results in hazardous air pollution, and mining the coal can cause severe damage to the land. Both dangers are of great concern to environmentalists and other people.

As mentioned previously, the challenge is to restore the land to its premined quality. Ecological recommendations do not have the full backing of the law and are not enforceable.

Unfortunately, much damage will be done as the ground is stripped away to bare its treasure.

A great urgency for an oil substitute arose in the 1970s. In the United States the oil wells were estimated to be producing about 100 billion barrels annually. This nation continues to be heavily dependent upon imported oil. In 1973 and 1974 a shortage of oil and gasoline occurred in the United States. The price if oil climbed to $100 a barrel. Many power plants that burned oil were forced to pay even higher foreign prices. Consequently, prices for electricity skyrocketed. Automobile owners have seen the price of gasoline go up since 1973, and more increases can be expected as more oil producing countries continue to control prices and distribution. Political instability in the middle east has the potential to continue to drive oil prices up. The price of oil hit $145 a barrel in July of 2008. The price has fluctuated below that level after that, but returned to $100 a barrel in January 2011.

Some deposits of oil in this country are trapped in **shale**. Shale is expensive to mine. Shale deposits are located in Colorado, Utah, and Wyoming and would have to be strip-mined. Again, the contrast between the demand for fuel and the concern for environmental quality remains apparent. These deposits hold an estimated 1.43 trillion barrels but 80 billion barrels are expected to be removed. The cost will be high. The alternative would be to cut back on the use of oil products. However, these products are the basis for the plastics industry and for much drug manufacturing; and cutting back would result in great inconvenience. Furthermore, the demand for electricity and gasoline continues to climb inspite of increasing fuel costs. Runaway costs are referred to as **inflation**. Since 1946 the population in the United



States has increased 60 percent. The demand for electrical power has gone up 530 percent.

Cars have been modified to respond to the high oil prices. Alternative cars have been developed. Hybrid cars use a combination of gas and either electric batteries or solar energy. Cars that plug-in and use only electricity have been developed. Alternative energy engines are being developed to use natural gas, compressed air, and liquid nitrogen. Other fuels in development are algae based, alcohol, ammonia, and hydrogen.

The United States is beginning to make other adjustments to meet demands for fuel. The country has become one of the largest producers of power using renewable energy sources in the world. About 11 percent of United States domestically produced power came from renewable energy in 2010. Hydroelectric dams are the largest producer of renewable energy; however, wind, geothermal, and solar energy are also used.

Complete these activities.

1.51 Make a list of some appliances or devices that consume energy.

a. _____ b. _____

c. _____ d. _____

e. _____ f. _____

g. _____ h. _____

i. _____ j. _____

k. _____ l. _____

m. _____ n. _____

o. _____ p. _____

1.52 Though strip mining is less expensive than drilling for oil, the costs will be higher because of

_____

_____

_____

1.53 Do you think aerospace engineers or petroleum engineers will be in greater demand in the twenty-first century? Explain why. _____

_____

_____

_____

_____

_____

_____

1.54 Read Psalm 104 and then describe God's relationship to nature from the viewpoint of the Psalmist. _____

_____

_____

_____

 **Answer true or false.**

1.55 _____ The coal supplies in the United States would take several hundred years to exhaust.

1.56 _____ Natural gas, petroleum, and oil are derived from fossil fuels.

1.57 _____ The United States uses about 45 percent of the world's energy.

1.58 _____ This nation depends heavily upon oil from foreign countries.

Complete these activities.

1.59 Give four examples of the function of forest lands.

a. _____

b. _____

c. _____

d. _____

 **Review the material in this section in preparation for the Self Test.** The Self Test will check your mastery of this particular section. The items missed on this Self Test will indicate specific areas where restudy is needed for mastery.

SELF TEST 1

Match these items (each answer, 2 points).

1.01 _____ nuclear power plant
1.02 _____ internal combustion engine
1.03 _____ coal-burning power plant
1.04 _____ DDT spraying in agriculture
1.05 _____ population density
1.06 _____ phosphate detergents
1.07 _____ urban sprawl
1.08 _____ ecologist

a. excess plant growth in lakes or rivers
b. sewage contamination of water resources
c. carbon monoxide pollutes air
d. water temperature of lakes and rivers rises
e. soil contamination and carcinogenic
f. fly ash of soot in air
g. reduces farmland and plant life to cleanse air
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** _____ _____
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