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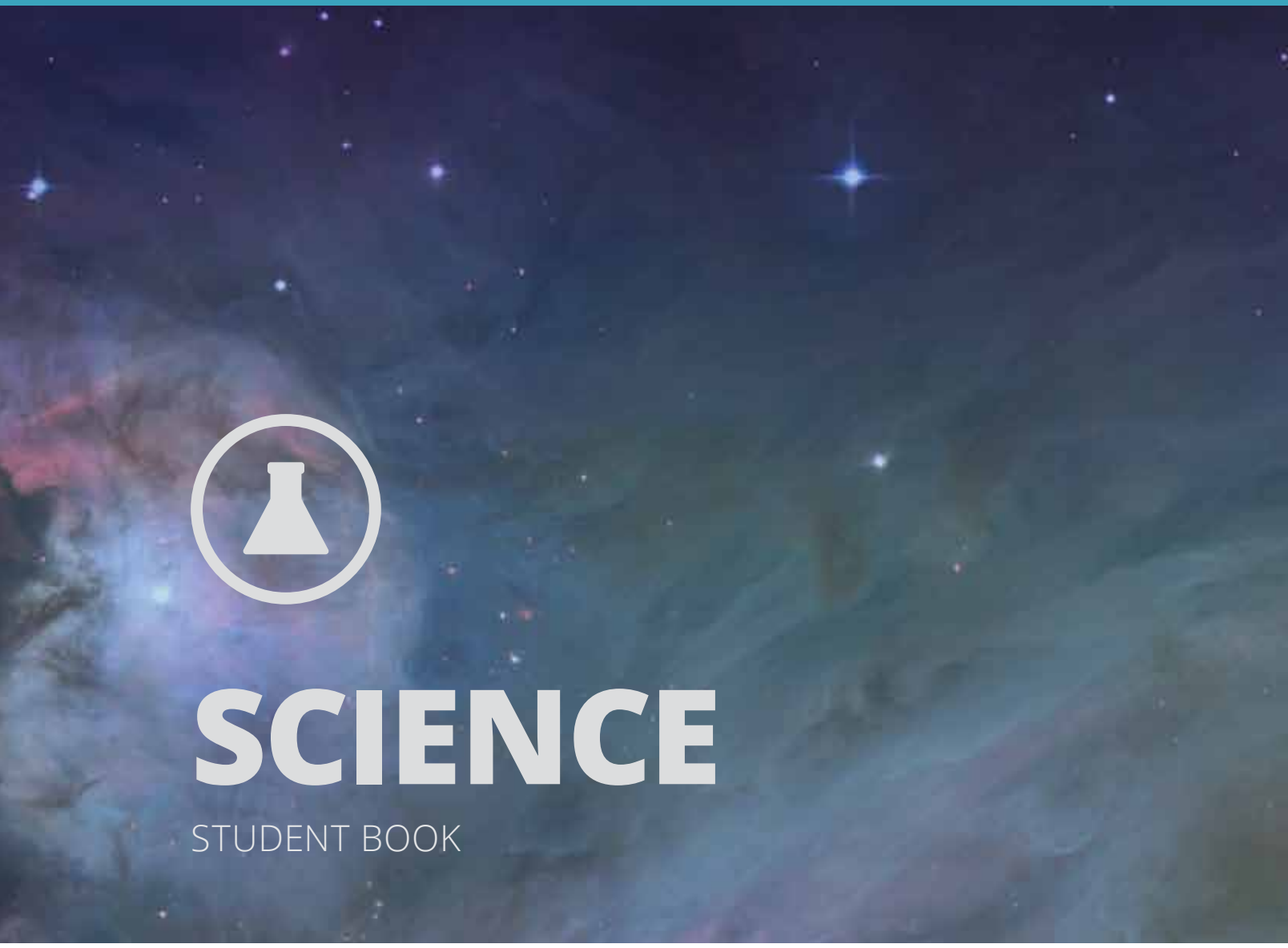

SCIENCE

STUDENT BOOK

9th Grade | Unit 6

Alpha Omega
PUBLICATIONS

SCIENCE 906

Body Health 2

LIFEPAC Test is located in the center of the booklet. Please remove before starting the unit.

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Body Health 2

Introduction

Since man's fall from grace a great need has been the search to relieve pain, illness, and physical suffering. Primitive cultures became expert in the use of herbs and plant remedies for healing wounds and illnesses. Today, ancient natural remedies are being sought once again as aids in relief of illnesses.

The Christian, while seeking medical advice and treatment, knows that healing comes from God through the Lord Jesus Christ. Prayer has sometimes opened the way for healing. One of the means Jesus used to show His love for man was His healing of the sick. Matthew 4:23 states, "And Jesus went about all Galilee, teaching in their synagogues, and preaching the gospel of the kingdom, and healing all manner of sickness and all manner of disease among the people."

We have within the church an avenue for healing as we are told in the Word (James 5: 14-15) "Is any sick among you? let him call for the elders of the church; and let them pray over him, anointing him with oil in the name of the Lord: And the prayer of faith shall save the sick, and the Lord shall raise him up; and if he have committed sins, they shall be forgiven him."

Being healthy is a concern of the Lord. We are the temple of His Holy Spirit and He wants that temple to be strong and well. We are also told in 1 Peter 2:24 that Jesus "Who His own self bare our sins in his own body on the tree, that we, being dead to sins, should live unto righteousness: by whose stripes ye were healed."

As you study infectious diseases and the methods for treating them, keep in mind that medical science can be an arm of the Lord.

Science LIFEPAC® 905 contained much information about infectious diseases that included some areas of prevention and treatment. In this LIFEPAC you will review those prevention and treatment concepts and study some other areas. You will learn more about preventive drugs and medications. You will learn what needs to be done to modify our environments to aid in the prevention of disease. You will also learn how community agencies operate to aid in disease prevention.

Man has limited ability to counteract the effects of his actions because he has expended most of his energies on the solution of problems rather than on their prevention. For centuries attitudes reflected the idea that "this is the way it always has been" or "certain conditions are unavoidable." Even today, more money is spent on cosmetics research and advertising than on all areas of medical research. Much has been done in environmental awareness, but implementing certain programs for elimination of disease-producing conditions creates many problems for leaders in government and industry. In this LIFEPAC the problems of economics, taxes, ethics, shifts in population, and ecology that disease eradication would involve will not be explored.

The first year the government recognized the need for nutritional research into related disease was 1978. Thousands, if not millions, living at poverty level income are unable to purchase medicines or to use facilities for treatment; however, with God's help, science will continue to develop within budgetary limits to aid in disease prevention and control.

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. Identify several bodily defense mechanisms.
2. Discuss environmental prevention of infectious and communicable diseases.
3. List several medical drugs and associate them with the type of infectious disease they cure or prevent.
4. List various community agencies and their roles in disease prevention.
5. Describe technological advances that have led to present-day disease prevention
6. Identify certain historical leaders and their contributions in the fields of disease prevention and drug development.
7. Discuss modern medical drugs and their place in the treatment of diseases.

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

1. DISEASE TREATMENT

The science of **immunology** is a complex one. Much is still unknown about how and why people have **immunity** against disease. The earliest immunity against a particular disease was that used by the ancient Chinese and Arabs against smallpox.

In the eighteenth century, Edward Jenner discovered that people could be made immune to smallpox by **inoculation** with the cowpox virus. Jenner was first to use the word **vaccination**. Jenner did not know, however, why vaccination worked.

Almost one hundred years later, Louis Pasteur discovered that cholera in fowl could be prevented by inoculating the fowl with a solution of weakened cholera bacteria. Pasteur reasoned that people could be vaccinated in the same way. He tried the procedure on cattle during an anthrax epidemic and modified the procedure and preparation to human application. Later he developed the *Pasteur treatment* for rabies, which is still used throughout the world.

Even after Pasteur, the scientific principles behind the success of vaccines were still unknown. Scientists did not have the tools for thorough investigation, and the *science* of immunology was born only in the last thirty years.

The application of medical drugs to the combating of infectious disease, once it starts, is also a relatively new science. Man is not perfect and is **susceptible** to disease. Combating disease by drug therapy is the field of **chemotherapy**.

SECTION OBJECTIVES

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

1. Identify several bodily defense mechanisms.
3. List several medical drugs and associate them with the type of infectious disease they cure or prevent.

VOCABULARY

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

administration (ad min u strā' shun). A giving out, applying or dispensing of medicine, justice, and so forth.

antibiotic (an' tē bī ot' ik). Product of an organism that destroys or weakens harmful micro-organisms.

antigen (an' tu jun). Any protein substance that causes or makes the body produce antibodies to counteract it.

arbitrarily (är bu trer' u lē). Based on one's own wishes, notions, or will; not going by rule or law.

chemotherapy (kēm ō ther' u pē). Treatment of disease through the use of drugs.

chlortetracycline (klôr tet ru sī' klin). An antibiotic derived from a microorganism found in the soil that is used to check or kill certain bacterial infections and viruses.

discreet (dis krēt'). Careful and sensible in speech and action, wisely cautious, showing good sense.

duct (dukt). Tube in the body for carrying bodily fluids.

endocrinology (en do kri nol' u jē). The study of any of various glands that produce secretions that pass directly into the bloodstream or lymph. The study of hormones and their influence on the organs of the body.

endothelial (en dō thē' lē ul). Connective tissue.

epithelial (ep u thē´ lē ul). A thin layer of cells forming tissue that covers surfaces and lines hollow organs of the body.

fetus (fē' tus). An embryo during the late stages of development.

fibroblast (fī' bru blast). One of the cells from which fibrous (stringy) tissue is immediately formed after an injury.

gamma globulin (gam' u glob' yu lin). A part of human blood that contains many antibodies against measles, chicken pox, and other diseases.

immunity (i myü´ nu tē). Resistance to disease or poison.

immunoglobulin (i myü' nō glob' yu lin). A protein in blood plasma that produces immunity.

immunology (im yu nol' u je). The science that deals with the nature and causes of immunity from diseases.

inoculation (i nok' yu lā shun). The preparing of someone for the prevention of a particular disease.

isoniazid (ī sō nī' u zid). A drug that is chemically related to an isomer of nicotinic acid.

leukocytes (lü' ku sīts). Cells in the blood and lymph systems that ingest and digest foreign particles.

lymphocytes (lim' fu sīts). One of the nearly colorless blood cells located in the lymphatic system produced by the lymph glands.

macrophage (mak' ru fāj). Cells that eat, envelop, and digest foreign substances.

meningococcus (mu ning gu kok' us). A bacterium that causes cerebrospinal meningitis.

nitrofurnas (nī tru fyůr' uns). Drugs that are derived from corncobs and oat husks, used against microbes and other germs.

para-aminosalycylic acid (par' u u mē' nō sal u sil' ik as' id). A synthetic drug used for the treatment of tuberculosis.

pathogen (path' u jun). Any agent capable of producing disease.

phagocyte (fag' u sīt). A cell, such as a white blood cell, capable of absorbing and destroying waste or harmful material.

pneumococcus (nü mu kok' us). The bacterium that causes lobar pneumonia.

staphylococcus (staf u lu kok' us). Any one of a group of spherical parasitic bacteria that usually bunch together in irregular masses.

streptococcus (strep tu kok' us). Any one of a group of spherical bacteria that multiply by dividing in only one direction, usually forming chains.

streptomycin (strep tu mī' sin). A powerful antibiotic that is similar to penicillin; effective against tuberculosis, typhoid fever, and so forth.

susceptibility (su sep tu bil' u tē). The quality or condition of being sensitive.

syphilis (sif' u lis). A contagious venereal disease that attacks the skin, internal organs, brain, and spinal cord.

vaccination (vak su nā' shun). The act or practice of inoculating someone with vaccine as a protection against disease.

virulent (vir´ yu lunt). Very poisonous or harmful; deadly.

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**ė**rm; **i**t, **ī**ce; h**o**t, **ō**pen, **ô**rder; **oi**l; **ou**t; c**u**p, p**u̇**t, r**ü**le; **ch**ild; lo**ng**; **th**in; /*Ŧ*H/ 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.

BODY DEFENSE MECHANISMS

Man is not susceptible to most of the parasites that infect animals and plants. The **immunity** by one type of organism to **pathogens** that afflict other types is called *species immunity*. Differences in degree of **susceptibility** to infection appear among people. Some families are more susceptible to one type of disease than others. In this way, genes affect disease resistance by determining chemical conditions of the body. Infectious organisms also become resistant through heredity to chemicals designed to destroy them.

Protective body systems. Several body systems prevent organisms from becoming active and multiplying. The first barrier is the skin, particularly if it is not broken. Secretions produced by the skin are acidic and create a poor environment for microbial growth.

The body openings also have protective barriers. **Epithelial** tissue lining the openings secretes mucus, which traps organisms. In the nose and mouth, for instance, the secretions are swallowed and any organisms that remain alive are digested by gastric juices. The *cilia*, fine hairs that are in the throat and bronchi, move the organisms up the respiratory passages to where they can be swallowed. Tears constantly bathe the eyes and wash foreign matter through a **duct** into the nose. Both tears and saliva are considered **antibiotic**. Wax provides protection for the ears. Urine stops most bacteria from multiplying and mechanically washes organisms from the urinary tract.

Another defense against disease spread is connective tissue cells. **Endothelial** cells line the body cavities and all blood vessels. Endothelial cells repair blood vessels that become damaged by infection.

Fibroblasts are scattered through the connective tissue. They form scar tissue and wall off, or surround, parasites and other foreign material. **Macrophages** actually eat foreign material by enveloping and digesting it. They are quite large and are found in large numbers in all connective tissue. Many organs that have passageways, or ducts, have macrophages present in their linings. Bone, lymph glands, the spleen, the liver, and the alveoli (air sacs) of the lungs have passageways.

Fibroblasts are relatively fixed in the connective tissue. In contrast, free cells are present in

blood and lymph. They travel over tissue cells in a movement similar to that of an amoeba. These moving cells are known as **leukocytes**, or white blood cells. Leukocytes exist as two types: **phagocytes** ingest and digest foreign particles; the other type walls off foreign material. Leukocytes are quite large.

A superficial wound brings both the blood and the lymph systems into the healing process. Both fluids have powerful chemicals that kill invading microorganisms. Enzymes in the blood also kill bacteria. Cells in the blood-stream called *platelets* release histamines, which destroy invaders.

A substance that aids in protecting the body against viral infections is *interferon*. Viruses have the ability to interfere with the growth of each other. One type of virus can stimulate its host cells to produce interferon, a protein that prevents different viruses from multiplying in the cell. Research is being directed toward using this natural defense mechanism for protection against viral disease.

The characteristic fever of infectious disease is important as a defense mechanism. Increased fever speeds the action of white cells and the formation of antibodies. The chills and shaking that accompany fever are thought by some to be a bodily attempt to maintain the fever. Fever also inhibits the reproduction of infectious organisms. Therefore, a temperature increase of two or three degrees Fahrenheit might be beneficial for short periods of time.

Complete these statements.

1.1 *Immunity* means resistance to _____ .

1.2 Hereditary conditions cause certain families to be more _____ to one type of disease than to another.

1.3 The body's first line of defense is the _____ .

1.4 Openings of the body are lined with _____ tissue.

1.5 Connective tissue cells that line body cavities and blood vessels are called _____ cells.

1.6 Cells that form scar tissue and wall off parasites and other foreign material are called _____ .

1.7 Cells that envelop and digest foreign material are called _____ .

1.8 Large moving cells in the blood and lymph that ingest and digest foreign particles or wall off material are called _____ .

1.9 A natural defense mechanism found in viruses that interferes with the growth of other viruses is _____ .

1.10 A defense mechanism that involves elevated body temperature is called _____ .

Natural antibodies. The first major step in the understanding of immunity to disease was the discovery of antibodies. These molecules are so small they can barely be seen with an electron microscope. Antibodies are specific proteins produced by the body to fight specific disease organisms. Each invader causes the body to produce an antibody specific to the invader. The antibodies either destroy them or cause the invaders to clump together so the white cells can destroy them. Antibodies are found in blood serum.

How the body can recognize a substance as being foreign is not understood. However, after a person has recovered from a disease, the antibodies remain. Immunity to that particular invader sometimes lasts a lifetime.

Foreign substances such as toxins or microorganisms that cause antibody formation are called **antigens**. Many factors determine whether an antigen will cause antibodies to be produced and how successful these antibodies will be in fighting effects of the antigen. A person who is not nutritionally healthy, or who is very young or very old is more susceptible, especially if the antigen is extremely **virulent**. No one understands the reasons why some people are able to produce effective antibodies and others are not. Some infectious organisms may cause antibodies to be produced, but they do not last long enough to provide total protection. Research is being done in this area of disease protection.

Antibodies take from a few days to many months to develop. However, if sufficient antibodies are produced, immunity lasts for months or years. Antibodies can result from acute infection, an unnoticed infection, or from the **administration** of a modified form of the pathogenic microorganisms. Administration of controlled doses of the modified pathogen, called *artificial immunization*, stimulates antibody formation but causes few or no symptoms of the disease.

Some types of diseases produce an immunity so great that protection may last a lifetime. Measles, chickenpox, and mumps are examples. Artificial immunization is not as effective as natural immunity in protecting against disease. Most artificial immunization must be boosted periodically.

Sometimes protection is possible without antibodies by injecting a person with already prepared antibodies. These antibodies are obtained from other human beings or from animals such as horses. Some people are sensitive to the animal serum and may show a severe allergic reaction.

Blood from adults contains a mixture of different antibodies and will provide the recipient with some protection against infections. Newborn infants have some of the same protection from diseases that their mothers have, since antibodies filter into the **fetus**.

Laboratories combine donated blood and extract proteins, such as **gamma globulin** and **immunoglobulin**, which contain antibodies. These proteins provide protection from German measles, mumps, infectious hepatitis, and poliomyelitis. The blood products are about 50 percent effective in preventing infection. They reduce the severity of disease in another 30 percent.

The process of immunizing involves exposing the body to an antigen, such as the polio virus, in a safe form. The exposure causes appropriate specific **lymphocytes** to be produced. This effect is the same as a person catching polio and having the body produce antibodies. Several days or weeks are required to build complete immunity in this way; however, if the body is invaded by the disease organism after immunity through antibodies is obtained, specific antibodies are manufactured in large quantities within a few hours. The disease organisms are destroyed and no illness occurs.

Smallpox vaccination involves introducing a similar virus into the body rather than the

actual virus. The viruses are similar enough to produce adequate antibody defense. In the prevention of diphtheria, the body is primed against the toxin produced by the diphtheria bacillus rather than against the bacillus itself, since the toxin damages the body. The body cannot be immunized against a virus like influenza because antibodies against one form are no protection against other forms. A person could have many types of antibodies against several types of flu and still catch flu of another variety.

Inoculations (vaccines) are available for the following common diseases: yellow fever, influenza, tetanus, measles, typhoid fever, German measles, mumps, poliomyelitis, rabies (vaccines for animals), cholera, whooping cough, scarlet fever (although it is not given on a wide scale), smallpox, and diphtheria. Influenza vaccines are generally given to sick and elderly people. **Vaccinations** against measles, tetanus, whooping cough, diphtheria, mumps, and poliomyelitis are required for all school children. Some diseases that people can be inoculated against that once weren't preventable include chicken pox and meningitis.

Complete these sentences.

1.11 Proteins produced by the body that fight a specific microorganism are called _____ .

1.12 Any substance that causes the body to produce antibodies is called a(n) _____ .

1.13 Antibodies produce resistance to disease. This is called _____ .

1.14 Infants are born with some immunity derived from _____ .

Write the letter of the correct choice.

1.15 Antibodies are found in _____ .

a. blood serum
b. tissues
c. urine
d. phagocytes

1.16 Natural immunity can last as long as _____ .

a. ten days
b. six months
c. twelve years
d. a lifetime

Complete these activities.

1.17 List the two ways in which antibodies fight microbes.

a. _____

b. _____

1.18 List six diseases for which vaccination of school children is required.

a. _____ b. _____

c. _____ d. _____

e. _____ f. _____

1.19 Choose a second research topic from the list in Science LIFEPAC 905. Follow the guidelines given there for writing a report on the topic. Submit the report for evaluation.

TEACHER CHECK _____ initials _____ date

MEDICAL DRUGS

Medical drugs can be classified in several ways: by their chronological development or according to the types of diseases and conditions they treat. For our purposes, drugs will be classified into four groups: (1) germicides, disinfectants, and antiseptics; (2) anti-infectives; (3) antibiotics; and (4) antifungal agents. This classification is according to function.

Germicides, disinfectants, and antiseptics are external destroyers or inhibitors of microorganisms. Anti-infectives are internal microorganism destroyers and inhibitors given during the presence of infectious disease organisms. Antibiotics are also internal organism destroyers or inhibitors, derived from various living organisms. Antifungal agents usually are derived chemicals used against fungus infections.

Germicides, disinfectants, and antiseptics. A *germicide* is any substance that kills germs. A significant difference exists between germicides and antiseptics. An *antiseptic* destroys some poisonous substances as well as germs, and inhibits or eliminates the multiplication and spreading of germs. The dictionary definition for *antiseptic* is *a substance that prevents infection.* Iodine, peroxide, Mercurochrome, alcohol, and boric acid are antiseptics. The dictionary definition for *disinfectant* is a *means for destroying disease germs.* Alcohol, iodine, and carbolic acid are disinfectants. The definitions are very similar, and for the most part, *antiseptic* and *disinfectant* can be used interchangeably. However, disinfectants are stronger and are usually used on nonliving surfaces, whereas antiseptics are milder and used on the body.

Among the most important disinfectants is chlorine. It is used as a water disinfectant in swimming pools, sewage, water beds, and often in drinking water. An ideal disinfectant has not been discovered because such a substance would have to have the power to destroy all forms of infectious agents and yet not be injurious to human tissue cells. It would also have to be incapable of causing sensitivity to itself.

Each antiseptic or disinfectant must be judged not only on its effect on pathogens, but on its effect on the human body. Many antiseptics and disinfectants depend on chlorine, mercury, silver, peroxides, carbolic acid (phenol), soap, and other chemicals.

Hexachlorophene is a phenol-based antiseptic additive to soap. It has been taken off the market because it is absorbed through the skin and remains in the system.

Merthiolate is an organic mercuric preparation with the advantage that it is soluble in water and does not irritate tissues.

Alcohol is widely used as an antiseptic/ disinfectant and is one of the least expensive. The isopropyl alcohol solution we buy as rubbing alcohol contains 70 percent alcohol and 30 percent water.

Phenol (carbolic acid) is powerful and rarely used in concentrations higher than 5 percent. It does not injure fabrics, paint, or metal and is inexpensive. In crystalline form, it should not be allowed to touch the skin; in a solution, it should not remain on the skin for more than thirty minutes.

Iodine is probably the best known and most widely used disinfectant. A 2 percent iodine solution is adequate for most uses.

Household disinfectants and antiseptics include lime, formaldehyde, amphyl, boric acid, and hydrogen peroxide. However, hydrogen peroxide is not highly reliable as an antiseptic.

Do this activity.

1.20 Compile a list of germicides, antiseptics, disinfectants, and medical drugs for disease prevention and healing that you find in your home. Make your list at home and transfer it to this page when it is complete. You will be referring to the list later in this LIFEPAC.

Brand Name	Ingredients (if shown)	Use

TEACHER CHECK _____ initials _____ date

Anti-infectives. Chemicals that can be taken internally to destroy microorganisms but that do not injure body cells are not easily developed. Two of the first were *quinine*, which destroys the parasites of malaria, and *emetine*, which acts against endamoeba histolytica, the organism that causes amoebic dysentery. This type of chemical agent is a *chemotherapeutic* agent.

The term **chemotherapy** was introduced by Paul Ehrlich many years ago. *Sulfanilamides* are a group of compounds that in recent years have been replaced by antibiotics. They were discovered just prior to World War I by Gerhard Domagk who received the Nobel Prize for the discovery. Sulfanilamides are important in the treatment of urinary tract diseases because of their solubility. They are also used in the treatment of meningitis in conjunction with antibiotics, especially penicillin. Such combinations seem to have distinct advantages.

Isoniazid is the most effective agent known against tuberculosis bacteria. Another chemical used against the tubercule bacillus is **para-aminosalicylic acid** (PAS), often in combination with isoniazid and **streptomycin**.

A chemical group known as the **nitrofurans** and their derivatives are effective against diarrheal disorders, infections of the urinary tract, and various infections throughout the body.

Write the definition of anti-infective agent.

1.21 _____

_____

_____

_____

Antibiotics. Most antibiotics attack only specific bacteria. Few are effective against viruses. Susceptibility of bacteria to antibiotics may be determined by suitable laboratory tests, usually designated as *sensitivity tests*. Antibiotics are produced by bacteria, fungi, or higher plants, including certain flowering plants. Bacteria vary in their ability to develop resistance to a given drug. Resistance implies that the drug is no longer effective in suppressing the growth and multiplication of the organisms.

The first antibiotic to be used extensively was penicillin. Penicillin was accidentally discovered and isolated from certain molds. It is effective in most cases against **staphylococci**, **streptococci**, **pneumococci**, **meningococci**, and **syphilis**. Synthetic penicillins have been produced by chemists since 1960. A chemist can modify the structure of a molecule and produce more desirable properties than those possessed by the natural substance. Consequently, more than five hundred new penicillins have been made; however, the severe allergic reactions some people have to penicillins is attributed to these synthetic penicillins. No reactions to natural penicillin have been recorded.

Streptomycin was isolated from an organism growing in the soil. Its action is similar to that of penicillin and, like penicillin, it can be administered orally or by injection. One of the main drawbacks to streptomycin use is its toxicity, affecting such body structures as the ear and kidney. **Chlortetracycline** is a broad-spectrum antibiotic and is effective against a wide range

of organisms. It is effective against most bacteria, rickettsiae, and certain viruses.

Many other antibiotics are on the drug market today. Most have special purposes against particular organisms.

Antifungal agents. Various fungi attack the human body, infecting the skin, lungs or other portions of the body. A substance that attacks them effectively is Griseofulvin, an oral antibiotic. Isolated in 1939, it was not generally administered until 1958. It has a wide range of antifungal activity against practically all the skin fungi. It does not act on internal fungal infections or on bacteria.

Amphotericin B is a broad-spectrum antifungal drug given through the veins. It is generally effective in the treatment of fungus infections which involve internal organs that are possibly widespread in the body. It has no effect on bacteria.

 **Do this activity.**

Get together with a friend, classmate, or your parents, and visit your local drug store or pharmacy. Get your parents' permission.

1.22 Are antibiotics sold over-the-counter? _____

1.23 Ask your pharmacist this question (1.22). His response was _____

_____

_____

_____

1.24 Check for over-the-counter antifungal agents designed as remedies for ringworm and athlete's foot. Did you find any? _____

1.25 Ask your pharmacist if he could give you any literature regarding antibiotics. Perhaps he has some brochures that came with the laboratory shipments.
List the information here.

Brand name	Ingredients	Use

1.26 Did any of the antibiotics' literature describe side effects or precautions for use?

_____

1.27 What were they? _____

_____

_____

_____

_____

1.28 What other kinds of over-the-counter medicines did you find on the shelves?

Name	Main ingredients	Use

Research and report.

1.29 Select another research topic from the lists in Science LIFEPAC 905. Research and write a report, following the guidelines of that LIFEPAC. Submit the report for evaluation.

TEACHER CHECK _____ initials _____ date

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

Several body systems help prevent pathogenic organisms from causing disease in our bodies. Tell what each system does to prevent disease (each answer, 4 points).

1.01 skin _____

_____

_____

1.02 linings of the openings of the body _____

_____

_____

1.03 fibroblast cells _____

_____

_____

1.04 macrophages _____

_____

_____

1.05 leukocytes (white blood cells) _____

_____

_____

1.06 fever _____

_____

_____

1.07 antibodies _____

_____

_____

1.08 immunoglobulin and gamma globulin _____

_____

_____

Check (✓) the diseases for which preventive inoculations are available (each correct response, 1 point).

1.09 _____ common cold

1.010 _____ cholera

1.011 _____ chicken pox

1.012 _____ meningitis

1.013 _____ influenza

1.014 _____ smallpox

1.015 _____ rabies

1.016 _____ malaria

1.017 _____ measles

1.018 _____ scarlet fever

1.019 _____ tuberculosis

1.020 _____ dysentery

1.021 _____ German measles

1.022 _____ poliomyelitis

1.023 _____ whooping cough

1.024 _____ diphtheria

1.025 _____ tetanus

1.026 _____ yellow fever

Write the names of two antibiotics (each answer, 3 points).

1.027 _____

1.028 _____

Define these terms (each definition, 4 points).

1.029 species immunity _____

_____

_____

1.030 anti-infective _____

_____

_____

1.031 antibiotic _____

_____

_____

1.032 antifungal agent _____

_____

Complete this activity (each answer, 3 points).

1.033 List five disinfectants, germicides, or antiseptics discussed in this LIFEPAC or discovered on your druggist's shelves.

a. _____ b. _____

c. _____ d. _____

e. _____

64/80 **SCORE** _____ **TEACHER** _____ _____
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