

SCIENCE

Student Book

▶ **4th Grade** | Unit 3

SCIENCE 403

MAN AND HIS ENVIRONMENT

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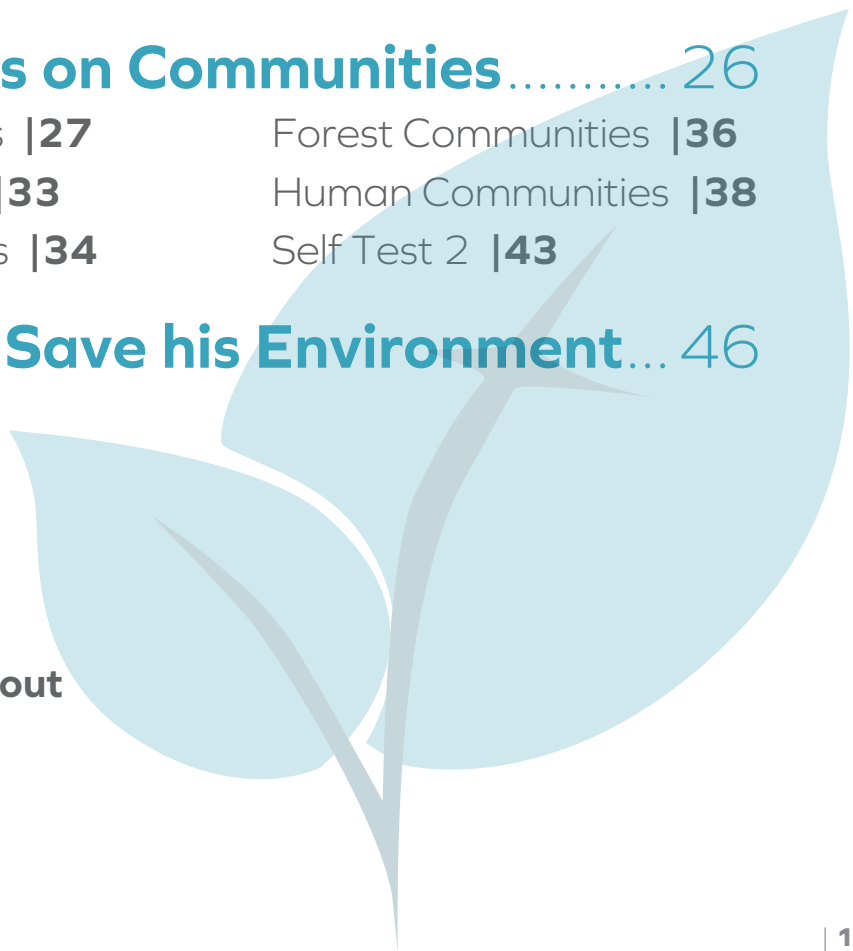
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LIFEPAC Test |Pull-out



Author:

Evelyn W. Towler

Editor-in-Chief:

Richard W. Wheeler, M.A. Ed.

Editor:

Martha K. Baxter, M.A.

Consulting Editor:

Harold Wengert, Ed.D.

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Alan Christopherson, M.S.

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MAN AND HIS ENVIRONMENT

God created the world and gave man the job of caring for His world. In this LIFEPAAC® you will learn what God created and the systems He planned for life on earth. You will learn how man depends on the things God created. You will learn if man has taken good care of God's earth. Also, you will learn about plans for keeping God's world beautiful and useful.

Objectives

Read these objectives. The objectives tell you what you will be able to do when you have successfully completed this LIFEPAAC. Each section will list according to the numbers below what objectives will be met in that section. When you have finished this LIFEPAAC, you should be able to:

1. Tell four resources that God provided on earth.
2. Tell the meaning of ecology.
3. Explain the meaning of a food chain.
4. Tell about the kinds of living things in a population.
5. Explain about the balance of nature.
6. Tell about some communities of living things and how the living things depend on each other.
7. Tell ways man has been careless with the environment.
8. Tell ways that the resources can be conserved.
9. Tell ways that the resources can be preserved.

1. MAN DEPENDS ON GOD'S PLAN

You are going to study in this LIFEPAK about your **environment**. In the first section you will learn about the meaning of the word **ecology** and how God has provided for His earth.

Objectives

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

1. Tell four resources that God provided on earth.
2. Tell the meaning of ecology.
3. Explain the meaning of a food chain.
4. Tell about the kinds of living things in a population.
5. Explain about the balance of nature.

Vocabulary

Study these new words. Learning the meanings of these words is a good study habit and will improve your understanding of this LIFEPAK.

bacteria (bak tir' ē u): Very small organisms, so small that they can usually be seen only through a microscope.

carbon dioxide (kar' bun dī ok' sīd): A colorless gas that is present in air.

chlorophyll (klōr' u fil): The green coloring matter in plants.

consumer (kun sū' mur): A person who uses food, clothing, or anything grown by producers.

create (krē at'): To make something that has not been made before.

decay (di kā'): To become rotten.

decomposer (dē' kum pō' zur): Something that rots something else.

ecologist (e kol' u jist): A person skilled in ecology.

ecology (e kol u je): The science that deals with the relation of living things to their environments and to each other.

energy (en' ur jē): The power to do work.

environment (en vī' run munt): All the surrounding things, conditions, and influences that have to do with the growth of things.

fungi (fun' jī): Plural of fungus. Plant without flowers, leaves, or green coloring matter.

mold (mōld): A fungus that appears on food when it is left in a warm, moist place.

nitrogen (nī' tru jen): A gas that is in the air.

nutrient (nu' trē unt): A nourishing substance.

oxygen (ōk' su jun): A gas that is in the air.

pest (pest): A thing or person that causes trouble.

photosynthesis (fō' tu sin' thu sis): The process in a green plant that produces carbohydrates by the action of sunlight on the chlorophyll.

population (pop' yu lā' shun): A part of the inhabitants of an area.

producer (pru dü' sur): One who makes things that are used by others.

recycle (re si' kul): To treat or process so it may be used again.

resource (re' sôrs): Any supply that will meet a need.

rot (rot): To become rotten, to decay.

termite (tēr' mīt): An insect with a soft body that eats wood.

vapor (va' pur): A large bird that eats dead animals.

Note: All vocabulary words in this LIFEPAC appear in **boldface** print the first time they are used. If you are unsure of the meaning when you are reading, study the definitions given.

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



Everyone in Mrs. Turner’s class at Good Hope School was busy. Today was a special day. The award for the most cans was being presented. Stacks of cans were in front of the building. Boxes of cans lined the driveway. In every corner cans peeked out of sacks, garbage cans, and containers of every size.

Mrs. Turner, the teacher, said to the class, “Why did you collect all these cans?” No one spoke.

Then Ken raised his hand and said, “My mother was glad to have the cans taken away from the house.”

Kim added, “My neighbors wanted the alley cleaned up.”

“We should use things again and again. These cans will be used to make other cans,” said Jane.

“You are right,” said Mrs. Turner.



Ecology

You have heard the word **ecology** used often. When the air is dirty, when rivers are not clean, when beaches are covered with oil, are times that you hear ecology mentioned. You have probably collected cans or papers to be **recycled**. People are concerned about God’s world. Ecology is the study of the way all living things relate to each other in the world God has made for us.

Ecology comes from two Greek words which mean *the study or science of the home*. Home doesn’t mean just your home but the homes and **environments** of all plants and animals and how they are related to each other.



Answer these questions.

1.1 What does *ecology* mean in Greek? _____

1.2 What is ecology? _____

Scientists call life on earth “the web of life” because life is connected much like the threads of a spider web are joined. Think about a spider web.

Notice how each thread depends on the other threads to make a complete web. If one thread breaks, the other threads would not be in place either. Life on earth is like the web. If one part of life stops, the rest of the living things will have trouble living in the same way.



Think and write your answers on the lines.

1.3 In the web of life, how do you depend on a tree? _____

1.4 In the web of life, how do you depend on a cow? _____

Ecology studies the web of life. In ecology you study how life connects together, lives and adjusts to each environment.

Environment has a broader meaning. Environment means the place where you live. Environment means more than just your home environment, for the meaning also reaches to the area in which you live. You may live in a city environment. You may live in a desert environment, too.



Think and answer the questions.

1.5 In what kind of environment do you live? _____

1.6 You know someone who lives in a different environment. What kind of environment is it? _____

Environment has become important because man has made a special environment for himself that has changed other environments. Big cities have changed the environment around them. Trees have been cut, land moved, streets paved, and many buildings built. The climate becomes warmer in winter and summer in the crowded cities. The city has changed the environment. **Ecologists** are concerned about these changes.



Think and answer the questions.

1.7 How would building a city change the environment of a field mouse? _____

1.8 How would the building of many new houses on the edge of town change the environment of John, a boy who lives on a farm near the new houses? _____

Ecology is more than the study of your home. It is the study of the life that God put on earth and the homes provided by God for each kind of life. Scientists, called ecologists, have worked out an order system for the study of homes. As you study this LIFEPAC you will find that homes, or environments, may seem to be different from each other, but in many ways they are the same.



Think and answer the questions.

1.9 Write a meaning for ecology now that you have read more about the science.

1.10 What is the meaning of environment? _____

1.11 What is the name of the scientist who studies ecology? _____

1.12 What does "web of life" mean? _____

Resources

All living things were provided by God with the things each one would need. God knew exactly what kind of things you and other living creatures would need to be able to live and grow. So He put **resources** on the earth to be used by His creatures. The four resources you will study are *water, air, light, and soil*.

Water. All living things must have *water* in order to live and grow. Think of some ways that water is used. Some uses of water are easy to list. Other uses are harder to remember because you do not know how much you depend on water. You do not see everything water does for you.

Water greatly changes the temperatures of areas close to it. Water warms slowly and cools even more slowly. Land heats and cools very quickly. Therefore, land changes its temperature more often than does water. Land that is near water changes its temperatures less often than land that is not near water. For this reason land is much hotter and much colder inland, or away from water. The areas inland do not feel the good results of the water. Therefore, inland areas get very hot or very cold. For this reason plants, animals, and people often try to live near the water. Of course, they also need water for many other reasons. Have you thought of some?



Write your answers on the lines.

1.13 Name some ways to use water. _____

1.14 Tell why inland areas get very hot or very cold. _____

Air. Another resource God put on the earth for living things is *air*. In order to live and grow, all living creatures need air. Air is largely made up of two gases called **nitrogen** and **oxygen**. Air also contains water in the form of a gas called water **vapor**. Air is the earth's blanket. The earth takes heat from the sun, and the air stores it for your use, like water does. The water vapor in the air holds heat much as do bodies of water. However, there is much less water vapor than in a body of water. As a result, the amount of heat held is also much less.

After the sun goes down, the air still holds heat. This heat keeps the earth from getting as cold during the night. Without the air, our earth would be very hot in the daytime and would be freezing cold at night. The change in temperature from season to season would also be much greater. All life on earth needs the protection of the air.



Write the correct word from the following list on each line.

air	nitrogen	oxygen	vapor
sun	water	blanket	heat

- 1.15** God provided living things with both water and _____ .
- 1.16** The earth takes heat from the _____ , and the air stores it for our use.
- 1.17** Air is largely made up of two gases called a. _____ and
b. _____ .
- 1.18** The air also contains water in the form of a gas called water _____ .
- 1.19** Air is the earth's _____ .
- 1.20** Heat is held in the air by _____ vapor.
- 1.21** After the sun goes down, the air still holds _____ .

Light. The third resource in your study is *light*. God made light. He made the sun. The source of earth's light is the sun. Light brings heat from the sun to the earth. Without light, plants could not grow and make food. Therefore, no animals would be able to live. Even the smallest animals, which grow in the dark places, feed on living things that need light. Light is necessary for life.



Answer these questions.

- 1.22 Who made light? _____
 - 1.23 What is the source of the earth's light? _____
 - 1.24 What do plants need in order to make food and to grow? _____
-

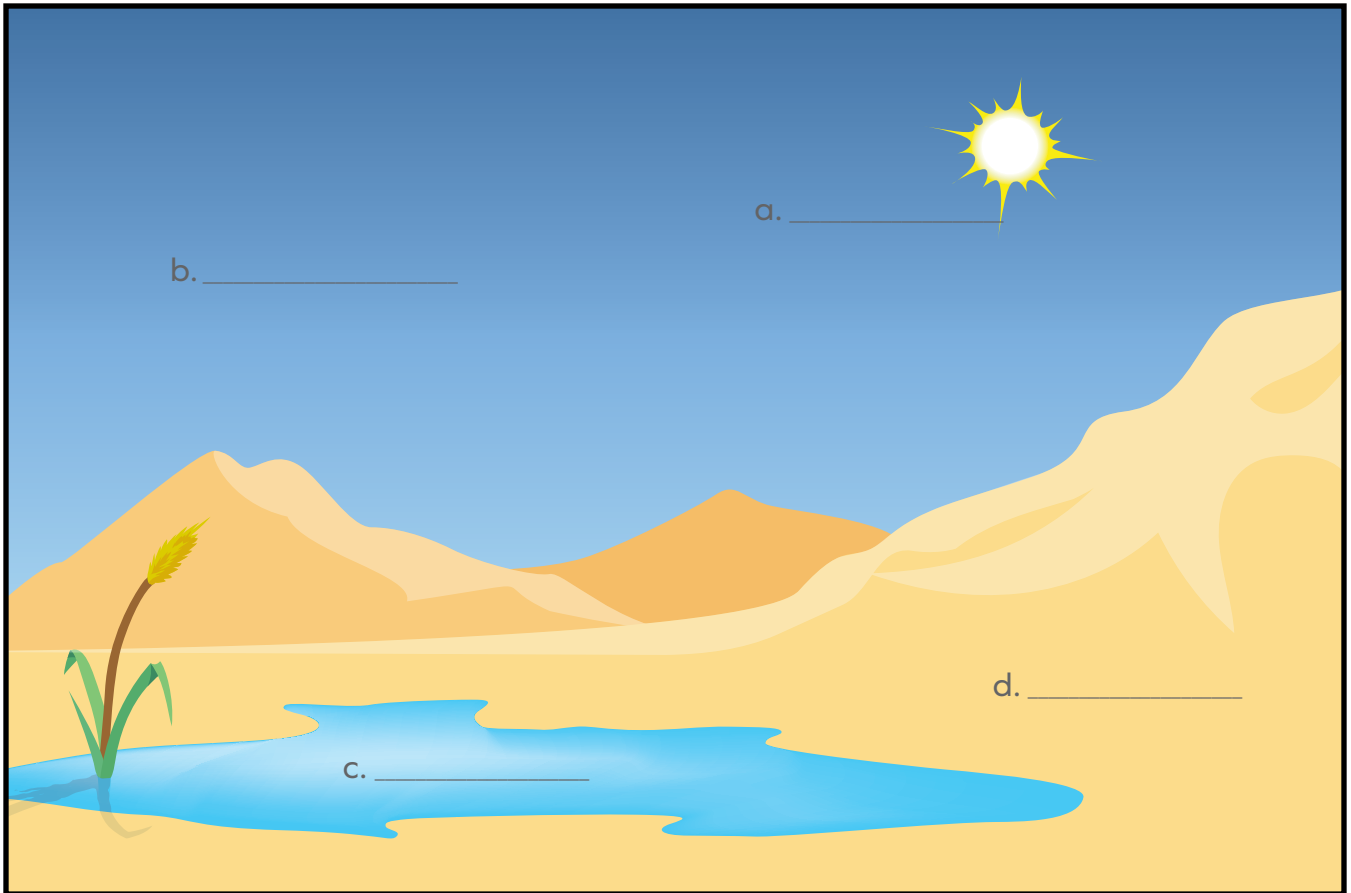
Soil. The fourth resource in your study is *soil*. Plants need soil in which to grow. You have learned that animals must have plants for food. Plants help to make the soil in which they live. They make soil as they decay, putting **nutrients**, or food back into the soil.

Water, air, light and soil are all parts of your natural environment. They work together to make your environment right for you.



Look at the picture.

1.25 On the lines write the name of each resource that God has given His creatures.



Think and draw.

1.26 What is your environment like? Does it include natural things and people-made things? Does it include people and animals? Does it include pleasant and unpleasant things? On a sheet of drawing paper make a picture of your environment. When you have finished it, put it in your LIFEPAK at this page. You will want to look at it again when you study about human communities.



Teacher check:

Initials _____ Date _____

SELF TEST 1

Match these items (each answer, 2 points).

- | | | |
|--------------|------------------------------|---------------------------------|
| 1.01 | _____ chlorophyll | a. disappeared |
| 1.02 | _____ plant-eating consumers | b. make food |
| 1.03 | _____ extinct | c. plant process of making food |
| 1.04 | _____ ecology | d. green in plants |
| 1.05 | _____ predators | e. nature's clean-up crew |
| 1.06 | _____ web of life | f. eat producers |
| 1.07 | _____ photosynthesis | g. all life is connected |
| 1.08 | _____ environment | h. feed on other animals |
| 1.09 | _____ decomposers | i. study of the home |
| 1.010 | _____ producers | j. where you live |

Write the correct word in each blank (each answer, 2 points).

sun	light	ecologist	bacteria
mold	water	communities	population
food chain	God	soil	air
water			

- 1.011** The scientist who studies ecology is an _____ .
- 1.012** People belong to the human _____ .
- 1.013** One decomposer is _____ .
- 1.014** All energy comes from the _____ .
- 1.015** Plants and animals live together in _____ .
- 1.016** To show how your food gets energy you can make a _____ .
- 1.017** A growing plant needs a. _____ , b. _____ ,
c. _____ , and d. _____ .
- 1.018** Small decomposers seen only under a microscope are _____ .

1.019 Temperatures are neither as hot nor as cold near _____ as they are inland.

1.020 Resources were given by _____ .

Follow directions carefully (each answer, 2 points).

Draw a line under each of the following words that is a producer. Circle each plant-eating consumer. Draw a box around each predator. Put an X on each decomposer.

1.021 grasshopper

1.022 birds

1.023 bear

1.024 fungi

1.025 clover

1.026 water lily

1.027 rabbit

1.028 frog

1.029 cow

1.030 mold

1.031 cat

1.032 spider

1.033 snake

1.034 termite

1.035 orange tree

Complete these sentences (each answer, 3 points).

1.036 Air and water store _____ for the earth's use.

1.037 All of your light and heat come from the _____ .

1.038 A food chain shows how you get your _____ .

Complete these items (each answer counts 5 points).

1.039 The *balance of nature* means _____
_____ .

1.040 What does the web of life mean? _____

1.041 Explain why a successful life system must have more producers than consumers.

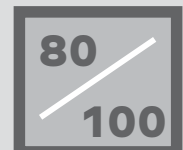


Teacher check:

Score _____

Initials _____

Date _____





804 N. 2nd Ave. E.
Rock Rapids, IA 51246-1759

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