

SCIENCE

Student Book

▶ 3rd Grade

SCIENCE 301

YOU GROW AND CHANGE

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LIFEPAC Test |Pull-out

PLANTS

Look out your window. You probably see some kind of plants growing. Plants grow in many places. Plants grow on the bottoms of deep oceans and on the tops of high mountains. Plants grow in dry places and wet places. Almost all places on the earth have plants. Plants have many different shapes, sizes, and colors. Plants can have beautiful flowers, or plants can have no flowers at all.

You will learn about some of the parts of plants. You will also learn what plants need to help them grow. You will learn how some plants are like others and how some plants are different from others. Your study of this LIFEPAC® will help you know how important plants are.

Objectives

Read these objectives. The objectives tell you what you will be able to do when you have finished this LIFEPAC.

1. You will be able to name the three main parts of a green plant.
2. You will be able to tell what job each main part of a green plant has.
3. You will be able to tell what green plants need to grow.
4. You will be able to tell why green plants are important.
5. You will be able to name some parts of plants that change to make new plants.
6. You will be able to measure changes in plants.

Vocabulary

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

breathe (brēFH). To inhale and exhale.

Celsius (səl' sē əs). A scale of temperature.

energy (ěn' ər jē). The ability to do work. An example is heat energy. Heat energy can change the temperatures of things.

environment (ěn vī' rən mənt). The things around something.

evaporate (ĩ vǎp' ə rāt). When a liquid, such as water, turns to vapor in the air.

expand (ěk spǎnd'). To become larger and take up more space.

Fahrenheit (fǎr' ən hīt). A scale of temperature.

moderate (mōd' ər ít). Between hot and cold.

moisture (mois' chər). Liquid water.

multiply (mül' tə plī). To increase.

observe (əb zûrv'). To look, see, and learn.

survive (sər vīv'). To stay alive.

temperature (tēm' pər əchər). A measure of heat.

thermometer (thər mōm' ítər). An instrument that measures the temperature of something.

Note: All vocabulary words in this LIFE PAC 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: **h**at, **ā**ge, **cā**re, **fā**r; **l**et, **ē**qual, **tē**rm; **i**t, **ī**ce; **h**ot, **ō**pen, **ō**rder; **o**il; **o**ut; **c**up, **p**ut, **r**ule; **ch**ild; **l**ong; **th**in; /FH/ for **th**en; /zh/ for **m**ea**s**ure; /u/ or /ə/ represents /a/ in **a**bout, /e/ in **t**ake**n**, /i/ in **p**encil, /o/ in **l**emon, and /u/ in **c**ircus.

Ask your teacher to say these words with you.



Teacher check:

Initials _____ Date _____

Food Your Body Needs

The class was excited. Mrs. Farmer, the teacher, explained they were going to talk about food. Everyone was interested in food. Bob thought about hot dogs. Jane was thinking about ice cream. Fred dreamed of candy. Ann could taste a soft drink. All the students were ready to listen to Mrs. Farmer because food was something that interested everyone.



| Mrs. Farmer

“Students, we will talk about food today,” said Mrs. Farmer. “We will find out how each of us can build a **healthy** body. To have a healthy body, we must eat good food. Why should you eat good food?”

Mrs. Farmer started to write on the chalkboard as she talked to the class. She wrote, Food Helps Your Body. Under those words, she wrote the numbers one to six.



As you read the story, write Mrs. Farmer’s list on the lines.

Food Helps Your Body

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

LIFEPAC, you will learn more about the sounds people make when they speak. You will also learn how sound travels from a vibrating object to your ears.

Let us do a couple of experiments to show that vibrations cause sounds.

MAKE A DRUM

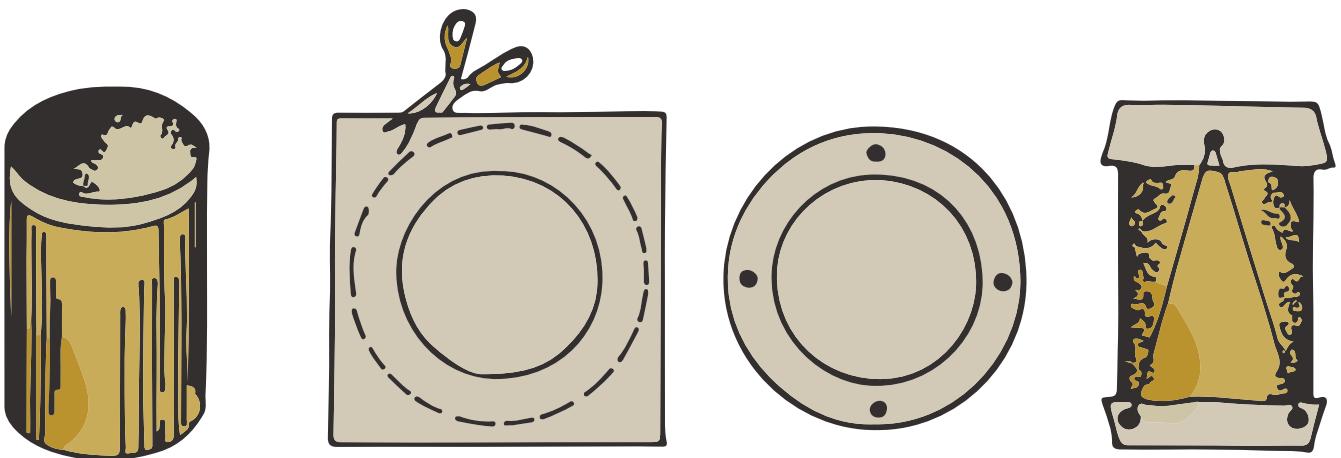


You will need these things:

- oatmeal box or section of a carpet tube
- 2 pieces of rubber or heavy plastic to fit over the ends
- small paper punch
- thick string
- scissors
- pencil

Note: If oatmeal boxes, rubber, or other materials are too hard to obtain, use a coffee can with a plastic lid and proceed to the next experiment.

(Continued on the next page)





Properties

Look at the things in the picture. Try to name as many of the things as you can. You can easily see that all the things are not the same. Some are big and some are little. Some are soft and some are hard. They have different shapes. Some are living. Some are not living. When you tell about something, you tell about its **properties**. You might tell how big something is. You could tell how much something weighs. You could tell about its taste and smell. You might tell about the shape of it, too. Anything you tell about something is a property of it. Different kinds of matter have different properties. You might say that a needle is thin and sharp. You might say that a door is hard and smooth.

Sometimes you can use many words to tell about something. You could use the words light, white, smooth, and round to tell about a ball. Some kinds of matter have many properties.

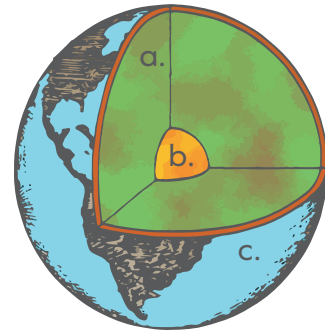


Put one of these words on a line to label the parts of the earth.

mantle

core

crust



- 1.11 a. _____
 b. _____
 c. _____



Write these words from the list to complete the sentences.

(One word is used more than once.)

animals
 top layer
 rock

middle
 soil

rock
 plants

center
 liquid

- 1.12 The core is at the a. _____ of the earth and has a
 b. _____ layer and a solid
 c. _____ layer.
- 1.13 The mantle is in the a. _____ of the earth and is
 mostly b. _____ .
- 1.14 The crust is the a. _____ of the earth and is
 made of b. _____ and
 c. _____ .
- 1.15 The soil on the crust of the earth is made of broken-down
 a. _____ and dead
 b. _____ and c. _____ .

Remember that no fuel can burn without oxygen. Oxygen is a gas that can burn. It is in the air you breathe.

OBSERVE A FLAME



Show that fire needs oxygen to burn.

You will need these things:

- 3 candles in holders
- 1 quart jar
- 1 pint jar
- matches
- clock or timer



Follow these directions. Check the boxes as you do each step.

- 1. Ask your teacher to light the three candles, or get permission to light them yourself. Be very careful.
- 2. Place the pint jar over one lighted candle.
- 3. Place the quart jar over another lighted candle.
- 4. Observe what happens to the three flames in ten minutes.
- 5. On this chart, tell about what happened to each flame.

1.12 What did you discover in each try?

candle under pint jar

candle under quart jar

uncovered candle

(Continued on the next page)

Write / before each invertebrate (without a backbone) and write V before each vertebrate (with a backbone).

1.09 _____ reptiles

1.010 _____ starfish

1.011 _____ mammals

1.012 _____ butterfly

1.013 _____ amphibians

1.014 _____ fish

1.015 _____ moth

1.016 _____ clam

1.017 _____ birds

1.018 _____ crab

Make a list.

1.019 What five things are needed for a healthy body?

a. _____

b. _____

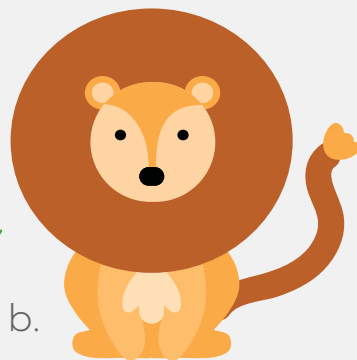
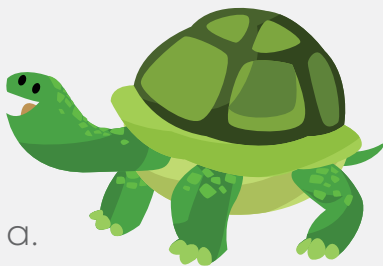
c. _____

d. _____

e. _____

Complete this activity.

1.020 Draw a circle around the picture that is different from the others.

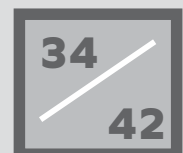


Teacher check:

Score _____

Initials _____

Date _____





SCIENCE

Teacher's Guide

▶ **3rd Grade**

SCIENCE 300

Teacher's Guide

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STRUCTURE OF THE LIFEPAC CURRICULUM

The LIFEPAC curriculum is conveniently structured to provide one teacher handbook containing teacher support material with answer keys and ten student worktexts for each subject at grade levels two through twelve. The work-text format of the LIFEPACs allows the student to read the textual information and complete workbook activities all in the same booklet. The easy to follow LIFEPAC numbering system lists the grade as the first number(s) and the last two digits as the number of the series. For example, the Language Arts LIFEPAC at the 6th grade level, 5th book in the series would be LAN0605.

Each LIFEPAC is divided into 3 to 5 sections and begins with an introduction or overview of the booklet as well as a series of specific learning objectives to give a purpose to the study of the LIFEPAC. The introduction and objectives are followed by a vocabulary section which may be found at the beginning of each section at the lower levels or in the glossary at the high-school level. Vocabulary words are used to develop word recognition and should not be confused with the spelling words introduced later in the LIFEPAC. The student should learn all vocabulary words before working the LIFEPAC sections to improve comprehension, retention, and reading skills.

Each activity or written assignment has a number for easy identification, such as 1.1. The first number corresponds to the LIFEPAC section and the number to the right of the decimal is the number of the activity.

Teacher checkpoints, which are essential to maintain quality learning, are found at various

locations throughout the LIFEPAC. The teacher should check 1) neatness of work and penmanship, 2) quality of understanding (tested with a short oral quiz), 3) thoroughness of answers (complete sentences and paragraphs, correct spelling, etc.), 4) completion of activities (no blank spaces), and 5) accuracy of answers as compared to the answer key (all answers correct).

The self test questions are also number coded for easy reference. For example, 2.015 means that this is the 15th question in the self test of Section 2. The first number corresponds to the LIFEPAC section, the zero indicates that it is a self test question, and the number to the right of the zero is the question number.

The LIFEPAC test is packaged at the centerfold of each LIFEPAC. It should be removed and put aside before giving the booklet to the student for study.

Answer and test keys have the same numbering system as the LIFEPACs and appear throughout of this handbook. The student may be given access to the answer keys (not the test keys) under teacher supervision so that he can score his own work.

A thorough study of the Curriculum Overview by the teacher before instruction begins is essential to the success of the student. The teacher should become familiar with expected skill mastery and understand how these grade-level skills fit into the overall skill development of the curriculum. The teacher should also preview the objectives that appear at the beginning of each LIFEPAC for additional preparation and planning.

INSTRUCTIONS FOR SCIENCE

The LIFEPAC curriculum for grades two through twelve was written with the daily instructional material written directly in the LIFEPACs. The student is encouraged to read and follow his own instructional material, thus developing independent study habits. The teacher should introduce the LIFEPAC to the student, set a required completion schedule, complete teacher checks, be available for questions regarding both subject content and procedures, administer and grade tests, and develop additional learning activities as desired. Teachers working with several students may schedule their time so that students are assigned a quiet work activity when it is necessary to spend instructional time with one particular student.

The Teacher Notes section of the Teacher's Guide lists the required or suggested materials for the LIFEPACs and provides additional learning activities for the students. The materials section refers only to LIFEPAC materials

and does not include materials which may be needed for the additional activities. Additional learning activities provide a change from the daily school routine, encourage the student's interest in learning, and may be used as a reward for good study habits.

If you have limited facilities and are not able to perform all the experiments contained in the LIFEPAC curriculum, the Science Projects List may be a useful tool for you. This list prioritizes experiments into three categories: those essential to perform, those which should be performed as time and facilities permit, and those not essential for mastery of LIFEPACs. Of course, for complete understanding of concepts and student participation in the curriculum, all experiments should be performed whenever practical. Materials for the experiments are shown in Teaching Notes—Materials Needed.

SCIENCE PROJECTS LIST

Key

- (1) = Those essential to perform for basic understanding of scientific principles.
- (2) = Those which should be performed as time permits.
- (3) = Those not essential for mastery of LIFE PACs.
- S = Equipment needed for home school or Christian school lab.
- E = Explanation or demonstration by instructor may replace student or class lab work.
- H = Suitable for homework or for home school students. (No lab equipment needed.)
- V = This experiment is available on the Science Experiments video.

Science 301

- pp 6 (1) H
- 11 (2) H
- 22 (1) H
- 29 (1) H
- 31 (1) H or S

Science 302

- pp 6 (1) H or S
- 9 (1) H
- 19 (3) E
- 27 (3) H
- 31 (2) H
- 35 (1) H

Science 303

- pp 9 (1) S
- 10 (2) S
- 12 (2) S
- 13 (2) S
- 19 (3) S
- 22 (3) H
- 44 (1) S
- 52 (2) S
- 54 (2) S

Science 304

- pp 36 (3) S

Science 305

- pp 8 (3) H
- 9 (3) H
- 15 (3) H
- 18 (2) S
- 19 (1) E
- 21 (1) S
- 27 (1) S
- 30 (2) H
- 36 (1) S

Science 306

- pp 8 (1) S
- 9 (1) S
- 10 (1) S
- 19 (2) H
- 21 (2) S
- 22 (3) H
- 28 (2) S
- 37 (3) H
- 40 (2) H

Science 307

- pp 8 (1) H
- 11 (1) H
- 15 (1) H
- 19 (1) H
- 43 (1) H

Science 308

- pp 16 (1) S
- 18 (2) S
- 21 (1) H
- 46 (3) H
- 53 (3) H

Science 309

- pp 7 (2) H
- 11 (1) S
- 15 (1) H
- 16 (2) H
- 19 (1) H
- 23 (3) S
- 31 (2) H
- 33 (1) H
- 37 (1) H
- 39 (1) H
- 44 (1) E

Science 310

- 36 (1) H
- 44 (2) H
- 47 (1) S

TEACHING NOTES

MATERIALS NEEDED FOR LIFE PAC

Required

- clock with a second hand
- salt
- cocoa
- paper towel
- small drinking glass
- large drinking glass half full of water

Suggested

- sponge

ADDITIONAL LEARNING ACTIVITIES

Section 1: Your Body Breathes Air

1. If a model of the lungs is available, use it for discussion. If not available, use pictures. Discuss placement and function of lungs, and so forth.
2. To show that air is everywhere, put soil into a jar. Slowly pour water into the jar (bubbles should rise). Ask students to record what they observe.
3. Ask students to blow up a balloon. Release the air slowly. Ask them to record what changes they see in the balloon both before and after it has been inflated. Write a report comparing the balloon to the lungs.
4. Make a picture showing the “balance of nature.” People and animals need oxygen. Plants need carbon dioxide. Both should be included in the picture (may be colored or painted).

Section 2: Your Body Digests Food

1. Cut very small pieces of a turnip, potato, carrot, zucchini, and etc. for a “tasting” party. Ask students to describe taste. How can they tell what vegetable they are eating?
2. Have students put a teaspoon of salt in water. Then put a piece of apple in the large drinking glass half full of water. Observe and record what happens to the salt and to the apple.
3. On a sheet of paper, write the process of digestion:
 - a. teeth and saliva,
 - b. the stomach,
 - c. the small intestine,
 - d. in the blood, and
 - e. large intestine stores food that is not used and it passes from your body.

ANSWER KEYS

SECTION 1

- 1.1** Example: The person who has been running used his supply of oxygen. He used his breath that had the oxygen.
- 1.2** Example: The body cannot get the oxygen it needs when air is not inhaled.
- 1.3** air
- 1.4** lungs
- 1.5** hairs
- 1.6** blood
- 1.7** warm
- 1.8** trachea
- 1.9** a. nostrils
b. trachea
c. two
- 1.10** The sponge became smaller.
- 1.11** The sponge became its size again.
- 1.12** yes
- 1.13** yes
- 1.14** My lungs were bigger because they had air in them.
- 1.15** yes
- 1.16** yes
- 1.17** no
- 1.18** yes
- 1.19** yes
- 1.20** yes
- 1.21** To inhale means to bring air into the lungs.
- 1.22** To exhale means to let the air out of the lungs.
- 1.23** Oxygen is taken from the air that is inhaled.
- 1.24** Carbon dioxide is exhaled.
- 1.25** 1. trachea
2. create
3. lungs
4. oxygen
5. nitrogen
6. carbon dioxide
7. nostrils

SELF TEST 1

- 1.01** lungs
- 1.02** oxygen
- 1.03** carbon dioxide
- 1.04** nitrogen
- 1.05** nostrils
- 1.06** trachea
- 1.07** Joseph Priestley
- 1.08** body
- 1.09** oxygen
- 1.010** nose
- 1.011** cleans the air in nose
- 1.012** breathing in
- 1.013** breathing out
- 1.014** air becomes this before going into lungs
- 1.015** number of lungs
- 1.016** lungs are like this
- 1.017** man who studies life
- 1.018** a. trachea
b. lungs
c. nostrils

LIFEPAC TEST

1. in mouth
2. openings in nose
3. breathe out
4. breathe in
5. carries messages
6. man has
7. 3
8. 5
9. 1
10. 4
11. 2
12. exercise
13. oxygen
14. carbon dioxide
15. Joseph Priestley
16. pulse
17. Example: People have consciences.
18. Example: People have spirits.
19. Example: Animals and people can breathe.
20. Example: Animals and people need air, water, and food.
21. Example: Animals and people digest food.
22. body
23. pulse
24. hairs
25. faster
26. diaphragm
27. rest

ALTERNATE LIFEPAC TEST

1. pumps blood
2. man has
3. in mouth
4. digestive system
5. openings in nose
6. breathe out
7. 4
8. 3
9. 2
10. 1
11. 5
12. Joseph Priestley
13. diaphragm
14. slower
15. oxygen
16. hairs
17. Examples; either order:
 - a. Animals and people can breathe.
 - b. Animals and people digest food.
18. Examples; any order:
 - a. People have a spirit.
 - b. People have a conscience.
 - c. People can choose to think good thoughts (be creative, talk).
19. pulse
20. body
21. exercise
22. inhale
23. spirit
24. conscience

SCIENCE 301

ALTERNATE LIFEPAC TEST

NAME _____

DATE _____

SCORE _____



Each answer = 1 point

Draw a line to match the words with the right phrase.

- | | |
|-----------------|---------------------|
| 1. heart ● | a. pumps blood |
| 2. conscience ● | b. openings in nose |
| 3. saliva ● | c. man has |
| 4. stomach ● | d. digestive system |
| 5. nostrils ● | e. breathe out |
| 6. exhale ● | f. in mouth |

Number the places that food goes in the order of the digestive system.

- _____ small intestine
- _____ stomach
- _____ food tube
- _____ mouth
- _____ large intestine

Fill in the circle in front of the right answer.

12. The scientist who discovered oxygen was _____ .
 William Jacobs Jacob Pride Joseph Priestley
13. The breathing muscle is the _____ .
 stomach head diaphragm
14. When the heart beats slower, the blood moves _____ .
 slower faster at the same rate
15. The body inhales _____ .
 carbon dioxide food oxygen
16. Air in the nose is cleaned by _____ .
 pulse hairs food

Complete these activities.

17. Name two ways people and animals are the same.
a. _____
b. _____
18. Name three ways people are different from animals.
a. _____
b. _____
c. _____

Fill in the circle in front of the right answer.

19. To know how fast the heart beats you feel the _____ .
 bones nose pulse
20. Blood takes oxygen to all parts of the _____ .
 body toes fingers
21. To build a strong body, you must _____ .
 eat too much exercise relax