



LIFE·PAC®

Science



Alpha Omega Publications®

SCIENCE 510 LOOK AHEAD

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Author: Barry G. Burrus, M.Div, M.A., B.S.
Editor: Brian Ring
Illustrations: Brian Ring



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

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INTRODUCTION



One of the best ways to prepare for what is ahead is to have a good knowledge of what you have covered. This LIFEPAC® is something like that. You will review much of the material that you have covered in the previous nine science LIFEPACs of this series. You will cover many of the same ideas in this LIFEPAC, but they will be presented somewhat differently. The previous topics will be related in new ways in this LIFEPAC. This LIFEPAC will give an *overview* of the topics previously covered in order to help you “look ahead” as you learn more about God’s wonderful creation in the future.

This LIFEPAC can also help you to consider ways to use your information wisely. By knowing more about science, you can make better decisions on how to be a good steward of the world as God created it and meant it to be.

You will not have new vocabulary in this LIFEPAC. Instead, you will review the vocabulary presented in some of the previous nine LIFEPACs. You will do several creative activities, and you will continue to use the Bible. Some questions may not have the answers given in the text of this LIFEPAC. You may need to refresh your memory by returning to earlier LIFEPACs. By covering the material in this LIFEPAC in a new way, you will be strengthened in your new science knowledge and better able to “look ahead” to the future.

OBJECTIVES

Read these objectives. These objectives tell what you should be able to do when you have completed this LIFEPAC.

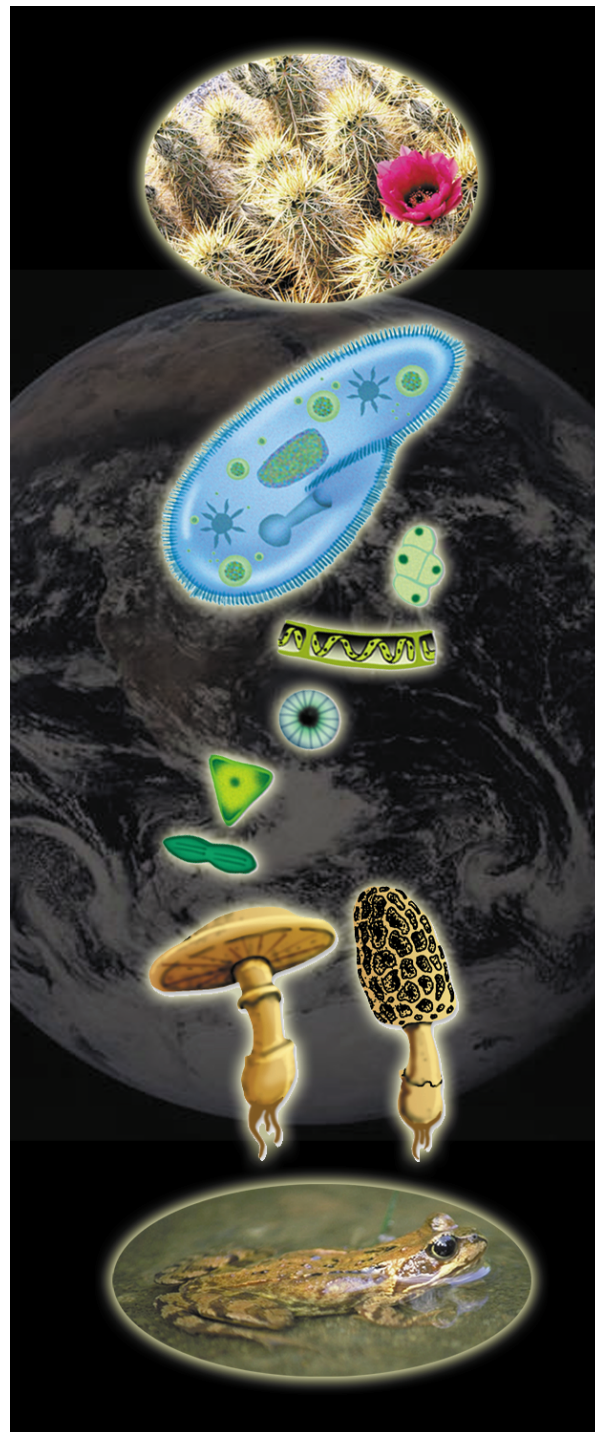
When you have finished this LIFEPAC, you should be able to:

1. Describe types of plants and animals.
2. Explain the relationship of cells to living things.
3. Describe the balance of nature.
4. Explain geological records.
5. Compare physical records and Biblical records of the earth’s past.
6. Identify types of energy and work.
7. Tell about the order in matter, its structure, properties, and changes.

I. LIVING THINGS

INTRODUCTION

God has created a rich variety of living things on the earth. Scientists today classify all living things into five *kingdoms*: (animals, plants, fungi, protists, and monerans). Examples of living things in each of these five kingdoms is given in Table I. These living things are all around us: on the land, under the ground, in the water, and in the air. All living things are made of the basic unit of living things: a cell. Some living things consist of only one cell and are called *unicellular* organisms. Other living things consist of many cells and are called *multicellular*. All living things go through life cycles: they are born, reproduce, and die.



Kingdom	Cell Type	Food	Examples
Animals	multicellular	obtains from outside sources	worms, insects, fish, birds, mammals
Plants	multicellular	produces their own	moss, trees, flowering plants
Fungi	unicellular or multicellular	obtains from outside sources	mushrooms, yeast, molds
Protists	unicellular or multicellular	produces their own and obtains from outside sources	protozoa, paramecium, green algae, red algae
Monerans	unicellular or multicellular	engulfed from outside sources	bacteria, blue-green algae

TABLE I. CLASSIFYING LIVING THINGS

The cells of all living things have some similar parts. Every cell has a cell membrane and protoplasm (or cytoplasm) within the membrane. Some cells contain only these two parts and are called *prokaryote* cells. Bacteria, which are monerans, are an example of living things that contain only prokaryote cells. Many other cells contain three basic parts. These cells contain a cell membrane, cytoplasm, and a nucleus. These 3-part cells are called *eukaryote* cells. Unicellular organisms can be either prokaryote cells or eukaryote cells. All multicellular living things consist of eukaryote cells.

In this section of the LIFE PAC, you will examine the relationship of cells to living things, especially plants and animals. You will also review various types of plants, animals, fungi, protists, and monerans. Finally, you will learn more about the natural and human influences that influence the balance of nature.

SECTION OBJECTIVES

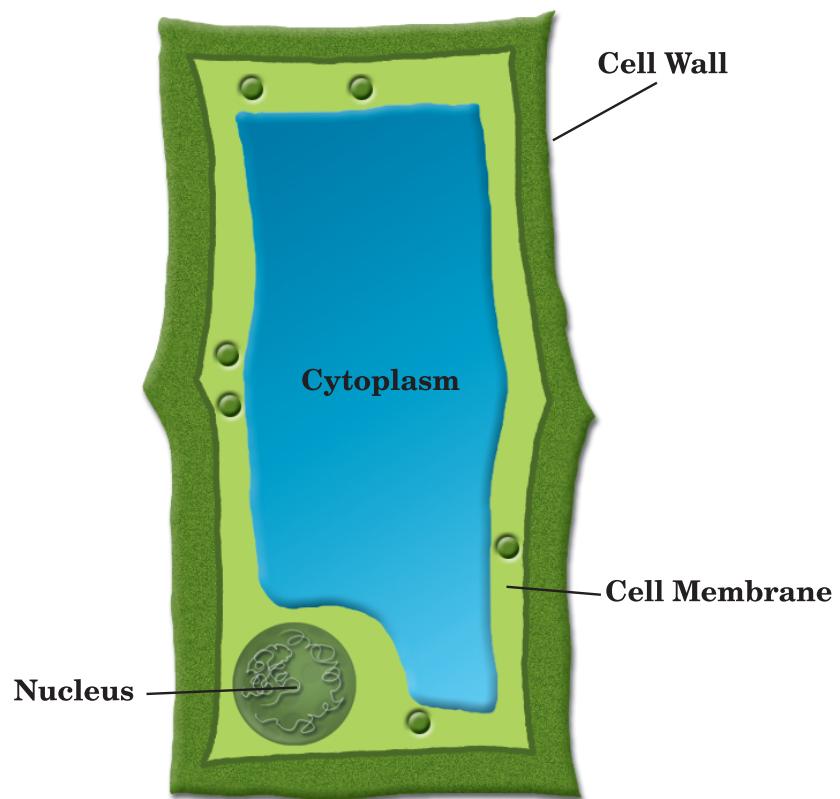
Review these objectives. When you have completed this section, you should be able to:

1. Describe types of plants and animals.
 2. Explain the relationship of cells to living things.
 3. Describe the balance of nature.
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THE LIFE OF PLANTS, FUNGI, PROTISTS, AND MONERANS

The cells of all living things are alike in some ways. For example, all cells have cell membranes and protoplasm. Yet, there are also important differences among living things of the five kingdoms. These differences among cells cause living things of one kingdom to function somewhat differently from those of another kingdom. Even within the same kingdom of living things, differences in the structures of cells cause the living things to function differently. Let's now look at some common and some different features of the cells of plants, fungi, protists, and monerans. We will especially examine some important differences among plants.

Cells. In most plant and fungi cells, there is a fourth part of the cell: the *cell wall*. Cell walls surround the cell membrane. Cellulose in the cell walls helps to make the plants and fungi more rigid. Plants and fungi need rigid cell walls in order to stand and keep shape. Otherwise, they would be lying on the ground. By having cell walls, plants and fungi do not need skeletons or hard shells.



PLANTS AND FUNGI HAVE A CELL WALL SURROUNDING THE CELL MEMBRANE

Plant cells, along with the cells of some protists and monerans, contain *chloroplasts*. These chloroplasts are some of the tiny parts of a cell within the cytoplasm called *organelles*. The chloroplasts contain *chlorophyll* — a green pigment. Chlorophyll absorbs energy from the sun. Fungi do not have chloroplasts nor chlorophyll. Only plants and some protists and monerans (like green algae) contain chlorophyll. The chlorophyll is what gives plants their green color.

When sunlight shines on the chlorophyll within living things, *photosynthesis* takes place. In photosynthesis, the energy from the sun is used by the chlorophyll to combine carbon dioxide and water in the plant. This process forms oxygen and sugars that are used within the plant for food. The oxygen is released from the plant to the atmosphere as a product of photosynthesis. The oxygen released from the plants is used by other living things, mainly animals and human beings, in order to breathe.

As part of God's plan for living things, only plants and some protists and monerans go through the process of photosynthesis. They receive energy directly from the sun and store this energy in their cells during photosynthesis and the production of "food" and oxygen. Other living things, like