



LIFE·PAC®

Science



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SCIENCE 507
RECORDS IN ROCK: FOSSILS
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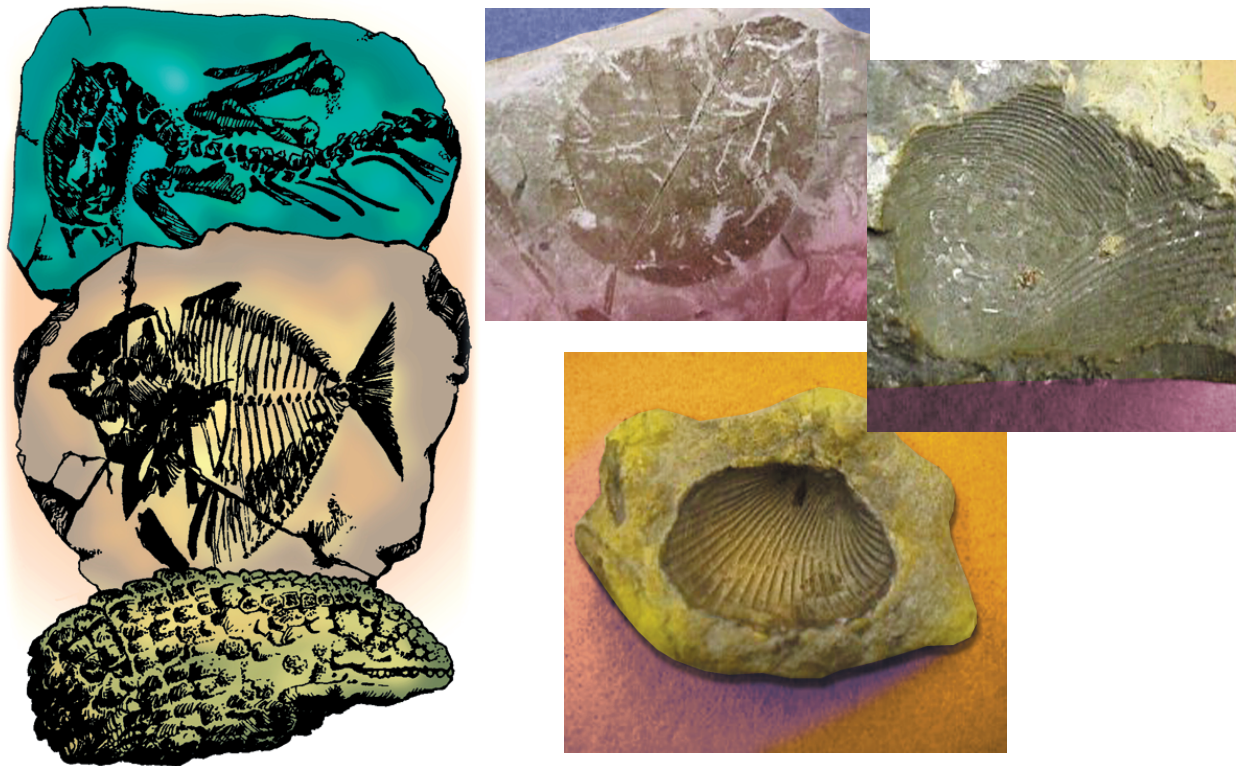
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INTRODUCTION

God created everything that exists. Fortunately, we have records preserved in rock and other materials of many of God's living things created long ago. These preserved records are called fossils. Fossils help us to learn about the types of living things existing on the earth many thousands of years ago. As you learned in the previous LIFEPAK®, they are part of the physical record that God has given us in His creation.

In this LIFEPAK, you will learn much more about fossils. You will learn about the different types of fossils and where they may be found. You will also learn how fossils were formed long ago. Finally, you will learn what we can discover about times long ago by studying fossils.



FOSSILS ARE PHYSICAL RECORDS OF TIMES LONG AGO

OBJECTIVES

Read these objectives. The objectives tell you what you should be able to do when you have successfully completed this LIFEPAK.

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

1. Identify different fossil types.
2. Explain where fossils may be found.
3. Describe fossil identification procedures.
4. Use fossil clues in making inferences.

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.

accurate (ak' yər it). To be careful. To make no mistakes.

amber (am' bər). A hardened yellowish material; comes from the cone-bearing trees in gumlike form.

boring (bôr' ing). Changed into carbon.

carbonized (kär' bə nīzd). Changed into carbon.

cluster (klus' tər). A grouping together of things that are alike.

conclusions (kən klü' zhənz). Plural of conclusion; decisions or opinions reached through reason.

determine (di tər' mən). To decide or figure out.

dissolved (di zolv'd'). Became another form — usually liquid; faded away.

estimated (es' tə mǎ təd). Made judgments or opinions; made a good general answer by using data.

evolution (ev' ə lü' shən). A process of change in a certain direction. It is also a name for several scientific *theories* about how life began and developed on the earth.

geological (jē ə loj' ə kəl). Having to do with the science dealing with the layers of the earth; may include how rocks were formed and other features.

identification (ī den' tə fə kǎ' shən). To make a decision about the name of something; telling of what something is.

identified (ī den' tə fīd). Named something; decided what something was by comparing.

imprint (im' print). A mark that is made by pressure; has been pressed into a surface.

incomplete (in kəm plēt'). Not finished; not done.

infer (in fēr'). Finding out through reason; mental activity.

inferences (in' fēr əns əz). The process of finding out through reason. Since data seems to give information, a decision is made from the data.

mastodons (mas' tə donz). Huge animals that are extinct; they looked like elephants.

method (meth' əd). The way to do something.

mineral (min' ər əl). A material gotten from the ground; it is not alive, but is a chemical.

mummification (mum' mə fə kǎ' shən). A process of forming fossils whereby animal or plant skin, tissue, or other parts are preserved by drying or the action of chemicals.

preserved (pri zêrv'd'). Kept safe or protected; kept away from harm.

prohibit (prō hib' it). To prevent from doing something.

reconstruction (rē kən struk' shən). To build or make again.

sediment (sed' ə mənt). Material that settles to the bottom in liquid. Different types of dirt that had settled to the bottom of water.

similar (sim' ə lər). Somewhat alike.

shale (shāl). A type of rock made from clay or mud; very fine-grained. It breaks easier than some rocks.

sites (sīts). Places where something is located.

unearth (un êrth'). To discover or dig up.

Note: These words appear in **boldface** print the first time they are used in this LIFE PAC. If you are unsure of the meaning when you are reading, restudy the definition given in this LIFE PAC.

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

I. FOSSIL FORMATION

INTRODUCTION

Fossils are very interesting to find and study. They are the hardened remains of a plant or animal that lived long ago. Fossils can also be an **imprint** of a once-living plant or animal. For example, some fossils are leaves, wood, shells, and skeletons of plants or animals that were buried during the time of the great Flood of Noah. Others are tracks left by moving animals of long ago.

You might be surprised to learn that fossils are very common and easy to find. They are plentiful

in nearly every state in the United States. There are probably many fossils where you live. These fossils come in a great variety.

In this section of the LIFEPAC, you will learn about the different *types* of fossils. You will also learn about the location of some major fossil deposits around the world. You will also learn where fossils could be expected to be found in your local area.

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

1. Identify different fossil types.
2. Explain where fossils may be found.

Restudy these words. They will appear for the first time in Section I of this LIFEPAC.

amber	carbonized	cluster
dissolved	estimated	identified
imprint	mastodons	mineral
mummification	preserved	prohibit
sediment	similar	shale
sites	unearth	

TYPES OF FOSSILS

Millions of fossils have been found by people in modern times. Some of these fossils are plants. Some are fossils of animals. Even human fossils have been found. Some fossils are just imprints of plants or animals. There are so many varieties of fossils that it is useful to classify them.

There are several ways to classify fossils, but one of the most useful ways is to classify them by *type*. You will now learn about four types of fossils: *print fossils*, *original-remains fossils*, *petrified fossils*, and *carbonized fossils*.

Print fossils. *Print* fossils are the most common type. They are the prints or impressions of a plant or animal that lived long ago. The actual remains of the plant or animal are not actually present in the fossil. Only an impression of the remains has been left in the rock. These print fossils are further categorized as either (1) *mold* fossils or (2) *cast* fossils. Let's consider each of these two kinds of print fossils and how they were formed. As we discuss each of these kinds of fossils, you will get a chance to make your own models of them!

A *mold fossil* was formed when a living thing was covered with **sediment** and died. Later, the sediment hardened into rock. The plant or animal within the sediment decayed and **dissolved**. Because the plant or animal no longer existed, a hollow area in the hardened sediment remained. The actual plant or animal parts were no longer present. However, the outer shape or impression



MOLD FOSSIL

of the living thing was left in the sediment. Therefore, the fossil looks like a mold of the original plant or animal.

Most of the mold fossils that have been found are prints of shells, bones, or wood. Skin, leaves, and soft plant or animal parts are not usually found as mold fossils. This is because the pressure of the sediment may have destroyed the softer parts before they could make an impression. Also, bones, shells, and wood do not dissolve or decay as quickly as do soft or delicate living things.

In the experiment that follows, you will observe how a mold of an object can be made. This would be similar to the way mold fossils were formed.

EXPERIMENT!

EXPERIMENT 507.A MOLD FOSSIL COPY

Overview: You will examine what happens when a mold fossil is made. Your result will not be a real fossil. It will be a copy of a mold fossil.

Supplies needed:

- a small plastic container (about 10 centimeters across)
- modeling clay
- a seashell or bone