ADDITIONAL ACTIVITIES

For further identification help, refer to the large numbered specimens in your kit. Although these may not be the same genus and species they are of the same general and specific group (kingdom, phylum, and class). The large specimens in your kit are:

1. Petrified Wood	Jurassic or Triassic Period	Colorado
2. Dinosaur Bone	Jurassic Period	Utah
3. Brachiopod	Pennsylvanian Period	Oklahoma
4. Gastropod	Paleozoic Era	MEXICO
5. Cephalopod	Mesozoic Era	MOROCCO
6. Crinoid Stem	Pennsylvanian Period	Oklahoma

Once you have identified all the fossils, use the Geologic Time chart to find out which Period and Epoch they lived in. Then use the chart to learn more about the important life forms and events of that time.

Using your specimens and information in this guide answer the following questions:

1) How can you tell the difference between petrified wood and dinosaur bone? Compare the marrow of a chicken or steak bone and a new piece of wood; how do they compare with their fossilized counterparts?
2) Can you determine the length of the shark that the teeth in this kit came from? (Some fossil shark teeth have measured 7 ½ inches in length...how long would that shark have been?)

If you would like to learn more about fossils, go to your school or public library and read about fossils, dinosaurs, and geologic history. The library is also a good place to find books about the modern relatives of the fossils you have found.

PO Box 2121 Fort Collins, CO 80522
1-800-289-9299 www.scotthubbard.com

FOSSIL EXPLORATION KIT

INTRODUCTION

Fossils are preserved remains of past life or trace evidence of such life in the earth's crust. Rapid burial is a primary factor in fossilization. Marine plants and animals are fossilized more frequently than land organisms because they undergo rapid burial more readily. One of a number of processes may lead to fossilization. These processes may be as simple as the freezing of an animal or as complex as minerals filling voids in the bone or the shell of an organism.

For identification, geologists will study and examine the structure and the smallest parts of the fossil. In addition they will also evaluate the geologic environment that the fossil came from (land, shallow sea, lake, etc.) by looking at the types of rocks the fossil was found in and other fossils found in the area. Geologists often use this saying: "*The present is the key to the past*".

GETTING STARTED

The materials supplied with the Fossil Exploration Kit include six large numbered fossils, small fossils in a gravel mixture, forceps for picking the fossils out of the mixture, and a magnifying lens.

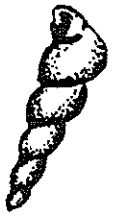
To begin identifying specimens, pour the mixture into the box or another appropriate container. Sort through the materials until you find a specimen that you would like to identify. First you will need to determine whether is a rock (the gravel mixture) or a fossil. The rock will be a rounded fragment. How was it rounded? (by water in a river.)

The fossils will be the specimens that have some symmetry to them or would look like a living creature that you would see in today's world. For example, fossil gastropods look like modern day snails and fossil pelecypods often look like modern day clams. Dinosaur bone will have a porous texture like marrow in a modern day bone and petrified wood will have a grainy texture like modern day wood.

When you have separated the fossils from the gravel mixture use the magnifying lens to examine them. You should be able to match the fossil to the drawings in this guide. Next to each picture you will find information about each fossil.

Major Group: Mollusk

Specific Group: Gastropod
Age: Paleozoic to Recent
Niche: Bottom scavenger
Habitat: Marine, freshwater, land



Interesting facts:
- Most gastropods secrete a shell
- Adapted to land and freshwater
- Related to slugs, snails, conchs
- Name means "belly-footed creature"

Major Group: Plant

Specific Group: Cordaite
Age: Pennsylvanian to Recent
Niche: Producer, base of the food web
Habitat: Forests and swamps

Interesting facts:
- Wood petrifies when sediment or volcanic ash quickly covers trees

- Cycads were similar to modern palm trees and cordaites were primitive conifer trees

Major Group: Byrozoan

Specific Group: Colonial
Age: Paleozoic to recent
Niche: Filter feeders
Habitat: Attached to bottom in shallow marine and freshwater environments

Interesting facts:
- A reef dweller
- Some grow in spiral or branching colonies
- Name means "moss animal"

Major Group: Mollusk

Specific Group: Cephalopod
Age: Paleozoic to Mesozoic
Niche: Predators
Habitat: Attached to or rested on bottom in marine environments

Interesting facts:
- Ammonites were a coiled variety
- Bellemnites had a pointed internal shell
- Uses a type of jet propulsion for swimming
- Related to squid and octopus
- Cephalopod means "head-footed" creature

Major Group: Brachiopod

Specific Group: Articulate
Age: Paleozoic to Recent
Niche: Filter feeders
Habitat: Attached to or rested on bottom in marine environments

Interesting facts:
- Early brachiopods were inarticulate, meaning they did not have hinged shells
- Nearly all species are extinct
- Name means "arm-footed" creature

Major Group: Coelenterata

Specific Group: Rugose Coral
Age: Paleozoic to Recent
Niche: Filter feeders
Habitat: Reef builder in shallow marine environments

Interesting facts:
- Related to jellyfish and anemones
- Secretes a hard exoskeleton
- Often forms colonies and reefs in a tropical marine environment
- Also known as "horn coral"

Major Group: Mollusk

Specific Group: Pelecypods
Age: Paleozoic to Recent
Niche: Filter feeders
Habitat: Swam, burrowed or attached to bottom in marine and freshwater environments

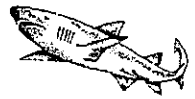
Interesting facts:
- Pelecypods include clams, scallops, and oysters
- Also known as "bivalves", meaning two shells joined at a hinge
- Name means "hatchet-footed" creature

Major Group: Echinoderm

Specific Group: Crinoid
Age: Cambrian to Recent
Niche: Some predators and others feed on microorganisms collected on cilia
Habitat: Attached to the bottom in marine environments

Interesting Facts:
- Related to sand dollars, brittle stars, and sea urchins
- Many have five-fold "star" symmetry

Major Group: Chordata



Specific Group: Chondrichthyes
Age: Tertiary to Recent
Niche: Predator
Habitat: Reefs and open seas marine environments

Interesting facts:

- Because sharks have skeletons made of cartilage, their teeth are all that fossilize
- Sharks have remained relatively unchanged for hundreds of millions of years
- Scientists estimate sizes of prehistoric sharks by this formula: every inch in tooth length corresponds to 10 feet in length of a shark.

Major Group: Vertebrate

Specific Group: Reptelia
Age: Triassic to Cretaceous
Niche: Predators and plant eaters
Habitat: Tropical land and aquatic environments

Interesting facts:
- Lizards, amphibians, snakes and even birds are presumed descendants of the great dinosaurs

- Dinosaur means "monster or terrible lizard"