

WHO IS IT FOR?

- ◆ Young Scientists . . .
- ◆ Evolving Mathematicians . . .
- ◆ Emerging Linguists . . .
- ◆ Sprouting Historians . . .
- ◆ Budding Artists . . .

TARGETED LEVEL:
(Kindergarten)

THE CHALLENGE:

The students will . . .

- ⇒ be introduced to the role of a *paleontologist*.
- ⇒ become familiar with time lines and the passage of time.
- ⇒ make discoveries about *fossils*.

SAFETY ISSUES & CONCERNS:

- * Review with students the safety rules to be followed while at the dig site.
- * Students should not place sand or tools in their mouths.
- * Students need to demonstrate care with sharp objects. (trowels)
- * Students should not throw sand.

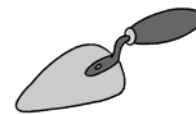
WHAT'CHA NEED?

Stick-on name tags for each student to wear when they come to the EFEC. (See procedure #9 for details)

TIME NEEDED FOR the Pre-visit Activity:

Minimum of 45 minutes.

A Digging We Will Go



Pre-Visit Activity

Paleontology is the study of prehistoric animal and plant life through the analysis of *fossil* remains. *Fossils* are the remains or traces of the prehistoric plant and animals that were buried and preserved in sedimentary rock, or trapped in organic matter. The study of these remains enables scientists to trace the history of extinct as well as living organisms.

Paleontologists play a major role in unraveling the mysteries of the earth's *strata* or layers. These scientists study uncovered fossils and attempt to use them to reconstruct the history of the Earth and life on it. Paleontologists gain most of their information by studying deposits of sedimentary rocks that formed in strata millions of years ago. They use fossils and other qualities of the rock to compare strata around the world. By comparing, they can determine whether strata developed during the same time or in the same type of environment. This helps them assemble a general picture of how the earth has changed over time.

Fossils provide most of the data on which strata are compared. Some fossils, called index fossils, are especially useful because they represent a species that was widespread but existed for a brief period of time.

Paleontologists divide the last 570 million years of the earth's history into eras, periods, and epochs. The part of the earth's history before about 570 million years ago is called Precambrian time, which began when the earth began, probably more than 4 billion years ago.

The earliest evidence of life consists of microscopic fossils of bacteria that lived as early as 3.6 billion years ago. The first abundant fossils of larger animals date from about 600 million years ago.

This pre-visit activity will allow the students to become acquainted with the science of paleontology and the job of a paleontologist.

WORDS TO KNOW?

1. Paleontology
2. Paleontologists
3. Trowel
4. Time Lines
5. Pre-historic
6. Fossils

DID YOU KNOW . . .

Paleontologists study fossils?

Archaeologists primarily work with human artifacts, objects that have been made by humans, and with human remains?

Anthropologists work with humans; their cultures, societies, languages and ways of life, in addition to their bones and artifacts?

Some paleontologists study the fossil record of humans and their relatives?

A fossil is defined as any trace of a past life form?

Common examples of fossils are wood, bones and shells?

Although most of the fossils that paleontologists study are several thousands to several billions of years old, there is no absolute minimum age for a biological structure to be a fossil?

EXTRA STUFF?

Related books/stories and online sources:

Aliki, *Wild and Woolly Mammoths*.

Byrd, Baylor/Peter Parnall. *If You Are A Hunter of Fossils*.

Shelley Gill and Shannon Cartwright. *Mammoth Magic*.

Rafe Martin and Stephen Gammell. *Will's Mammoth*.

Adrian Lister and Paul Bahn, 1994, *Mammoths*. Macmillian Press, NY.

Dick Moll, Larry D. Agenbraod, and Jim I. Mead, 1993, *Mammoths*. Fenske Printing, SD.

Lisa W. Nelson, 1988, *Mammoth Graveyard: A Treasure Trove of Clues to the Past*. Fenske Printing, SD.

TEKS

CONNECTIONS:

Kindergarten Science TEKS:

K.2 (A) – Students will ask questions about organisms, objects, and events.

K.9 (A) – Students will identify basic needs of living organisms.



PROCEDURES:

Ready, Set, Go . . .

1. Define and explain the science of paleontology and the role of a paleontologist. (Basic information has been provided on the first page as well as through the list of resources to the left.)
2. Have the students give examples of organisms that have been found by paleontologists. (Dinosaurs will be their favorite choice!)
3. Lead the students in a discussion about fossils and fossil evidence, why paleontologists dig, and the purpose of studying fossils.
4. Discuss how some organisms have changed over time and how some no longer exist.
5. Introduce the children to the safety rules that they will use at the Dig site: **No throwing sand, personal space for digging, working together cooperatively, care with sharp objects and tools.**
6. Introduce the main tool of a paleontologist - a trowel - the tool they will be using while at the EFEC.
7. Establish pairs of 2 for the dig site.
8. Prepare name tags see *Choose Your Explorer* in the *Adventure Preparation Packet* for each student to wear to the Elm Fork Education Center
9. Read *If You Are A Hunter Of Fossils* by Byrd Bayler and Peter Parnall to the students, encouraging their sense of wonder and discovery about fossils and what they represent.

Assessment:

Teacher observation

The Bottom Line: Paleontology is one of the few fields of science left in which kids can and frequently do make important contributions. Formal education is not a prerequisite for becoming a paleontologist. What is needed is a keen analytical mind combined with curiosity and imagination. For good measure, a dose of sound science is added to the mixture.