



# CAVE OF THE MOUNDS<sup>®</sup>

## National Natural Landmark

### Educational Programs

#### PaleoTALES

*Fossil Mini-Course*

Grade 7-8

#### Objectives:

At the end of this program, the student should be able to:

- Apply fossil related vocabulary.
- Name & identify the four fossil types.
- Describe the processes involved in fossil formation.
- Explain the importance of fossils in understand how the earth has changed through time.
- Examine and identify 6-8 fossils and determine the type of each.

#### Wisconsin DPI Standards:

##### *Science:*

*D.8.3, D.8.5, D.8.6, D.8.7, E.8.2, E.8.3, E.8.4, E.8.5, E.8.6*

##### *Social Studies:*

*A.8.4, B.8.1*

#### Activities:

Times are approximate. Specific reinforcement activities will vary based on the needs of each individual group.

- |            |                                                                                                                                                                                              |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30 minutes | The interactive audio visual presentation provides the definition of a fossil, investigation of the four fossil types, fossil formation and processes of collecting and identifying fossils. |
| 30 minutes | Sluicing gives participants a hands-on experience to discover their own collection like a true paleontologist. Guided identification shows examples of both local and non-local fossils.     |
| 50 minutes | The Cave Tour fosters a connection between previously discussed fossil and geology concepts with the experience of observing embedded within the rock of the Cave.                           |

#### Pre-teach Vocabulary:

A glossary of terms is provided for your convenience.

Geology	Fossil	Gastropod
Geologic Time Scale	○ Mold	Pelecypod
Geologic Processes	○ Cast	Horn Coral
Sedimentary rock	○ Trace	Crinoid
Law of Superposition	○ Body	Trilobite
Limestone	Paleontology	Brachiopod
Ancient	Cephalopod	

#### Learning Extension:

Try this before or after your visit to reinforce important concepts.

You will need:

Science oriented paperback book  
Matches, ink, vinegar  
Paper and pencil

1. Explain to students that they are part of a paleontology team going to a remote location in a National Park.
2. Students will be asked to reconstruct a paperback book that you have destroyed by tearing, burning, and applying ink and vinegar.
3. Explain to students how these processes relate to geological processes that the fossil record undergoes over billions of years. Geological processes include weathering – like tearing the pages, erosion – by water and acidic solutions, and plate tectonics – which creates heat.
4. Students will work in teams to piece the book back together, provide possible explanations for the incomplete “fossil record”, and give a general description of what the book was about.
5. Students will explain what strategies and clues they used to piece the book back together, and how those methods are similar to what paleontologist would be doing in the field.

**Glossary of Terms**

**Geology** - Scientific study of the earth and earth materials.

**Geologic Time Scale** – A scale created by scientists to divide periods of time by significant events in the history of the Earth. (suggested resource: <http://www.ucmp.berkeley.edu/help/timeform.html>)

**Geologic Processes** – dynamic processes at work in the earth's landforms and surfaces. The mechanisms involved, weathering, erosion, and plate tectonics, combine processes that are in some respects destructive and in others constructive.

(Suggested Resource: <http://www.backyardnature.net/g/processs.htm>).

**Sedimentary rock** – a type of rock that is made of very small pieces of other rocks, or tiny pieces of shells from sea creatures. Sedimentary rock often forms underwater, where these tiny pieces of rock or shell become tightly stuck together (cementation) forming layers of new rock.

**Law of Superposition** - Sedimentary layers are deposited in a time sequence, with the oldest on the bottom and the youngest on the top.

**Limestone** – a type of sedimentary rock that formed on the bottom of the ocean floor long ago. It is made of tiny pieces of shells from sea creatures, and often contains fossils.

**Ancient** – Long, long ago. A time when Earth's land and seas looked very different, and plants and animals existed that do not look like the ones we see today.

**Fossil** – the evidence or remains of ancient life preserved in rock.

- **Mold** – an impression or indentation of ancient life.
- **Cast** – a mold fossil that has been filled with material, creating a replica of ancient life.
- **Body** - The actual remains of ancient life; includes bones, shells, and teeth.
- **Trace** - Any indication of prehistoric life, such as tracks, trails, burrows, or nests

**Paleontology** - Scientific study of ancient life.

**Paleontologist** – A scientist who studies ancient life, including extinct plants and animals that look very different from the ones we see today.

**Gastropod** – (440 MYA Silurian – Recent) This large class of mollusks has been able to live in a large variety of habitats. Most shells composed of calcium carbonate. Many species of gastropods, such as the snail, are still living today

**Cephalopod** – (500 MYA Ordovician – Recent) This highly developed marine mollusk is represented today by the squid and octopus. Most fossil forms had shells which were either straight or coiled. The animal lived in the outermost chamber.

**Pelecypod** – (210 – 40 MYA Jurassic – Eocene) The Devil's Toe Nail, or, the Gryphaea, is unique because the two valves of the outer shell are grossly unequal in size and shape. The left valve is loosely coiled, while the right valve is flat and lid-like.

**Horn Coral** – (500-245 MYA Ordovician – Permian) Solitary species of Tetracorals are known as Horn Corals. They lived in the warm shallow seas. They derived their name from the horn or tube-like shape of their shells.

**Crinoid** – (440-360 MYA Silurian – Devonian) Flower-like echinoderms, often beautifully colored that lived in colonies attached to the sea floor. This fossil had a radial symmetry like today's starfish.

**Trilobite** – (550 – 245 MYA Cambrian – Permian) Common three-lobed marine arthropods (insects). They were bottom feeding scavengers and predators. Trilobites are Wisconsin's state fossil.

**Brachiopod** – (550 MYA Cambrian – Recent) These shelled-bivalves were abundant in the Paleozoic Sea. They lived attached to the shallow sea bottom by a stalk which emerged from the rear of one of the shells or valves.