

ACTIVITY: Paleontology and Geoheritage



Objective: Learners will explore the intersection of geoheritage and paleontology, emphasizing the cultural and scientific significance of fossils and the work of paleontologists to understand past environments.

Introduction: Fossils are not only crucial for understanding the history of life on Earth, but also serve as essential markers of past environments and ecosystems. Fossil sites offer valuable insights into the evolution of species and the processes that shaped Earth's surface. These locations, often protected as part of national parks and heritage sites, provide a window into past geological periods and support unique ecosystems. Fossil discoveries also have cultural significance, offering connections to ancestral lands and historical events. Additionally, these sites can hold economic value, contributing to tourism and educational opportunities. For more background, please read **Fossils & Geoheritage**, and watch “**Preserving America’s Paleontological Heritage with the U.S. National Park System**” (22:08–34:07).

Have learners:

1. Explore the **geoheritage values defined by the National Park Service** and how they relate to fossil sites and paleontological discoveries. Brainstorm on the handout about the scientific, economic, cultural, and aesthetic/artistic value of fossils.
 - a. Choose one or more videos to watch to learn about paleontological resources found in specific National Parks and Monuments and to add to your list about how fossils relate to geoheritage values:
 - **Petrified Forest National Park**, Arizona (~20 minutes)
 - **Dinosaur National Monument**, Colorado and Utah (~ 5 minutes)
 - **John Day Fossil Beds National Monument**, Oregon (~4 minutes)
 - b. Discuss your connections between fossils and the geoheritage values, which may include:
 - i. Scientific Value:
 - Fossil sites offer vital insights into evolutionary processes and allow for study of extinct species.
 - The traits of fossils can be interpreted to help scientists understand past climates, ancient ecosystems, and environmental changes over time.
 - Paleontological studies support broader geological research by providing context for Earth’s surface changes, like shifts in landforms and climate.
 - ii. Economic Value:
 - Fossil sites contribute to tourism and paleontology-related educational efforts, including museums and educational programs.
 - Specific fossils can aid the extraction industry in locating fossil fuels buried underground, enhancing exploration and resource development efforts.
 - Funding of fossil hunting and excavation can support universities and research institutions.
 - Fossils and their associated minerals can also be valuable for scientific research and conservation efforts.

iii. Cultural Value:

- Fossils often hold cultural significance for Indigenous communities, representing important connections to ancestral lands and spiritual beliefs.
- Stories of ancient creatures and the events leading to fossilization are passed down through generations, connecting cultures to Earth's deep history.
- Paleontological discoveries can also reflect cultural shifts in human understanding of the natural world and our place within it.

iv. Aesthetic/Artistic Value:

- Fossils are often visually striking, inspiring both scientific inquiry and artistic expression.
- Building stones with prominent fossils are sometimes placed to be particularly visible in a construction.
- Fossilized remains, from intricate plant impressions to immense dinosaur skeletons, hold aesthetic value that connects people with the ancient past.
- Paleontological digs can reveal fascinating, often dramatic, changes in the landscape, leading to artistic and scientific exploration.

2. Read a pamphlet on **Geoheritage from Florissant Fossil Beds**.

- a.** Discuss how the discovery of fossils at Florissant contributed to the settlement of the area and affected human populations over time.

3. Optionally, read and summarize one or more of the following time periods and how people's lives and knowledge have been impacted by the discovery of fossils, considering both cultural and scientific shifts:

- **Pre-1492 AD: Fossils & Native People**
- **1492–1800 Colonial & Early National Period**
- **1800–1865: Antebellum through American Civil War**
- **1865–1916: Early National Parks & Monuments**
- **1916–1966: First 50 Years of the National Park Service**
- **1966–2008: Filling the Gaps in the Fossil Record**
- **2009–Present: A New Beginning for NPS Fossils**

4. Write an argument for the conservation/preservation of fossil sites, emphasizing their value as geoheritage landmarks, including their cultural, scientific, and educational importance.

HANDOUT: Paleontology and Geoheritage



Aesthetic/Artistic	Scientific
Cultural	Economic



Image credit: NPS

- Use the information you collected above to write an argument for the conservation/preservation of fossil sites, emphasizing their value as geoheritage landmarks.