Exploring Ancient Ohio: A Look at Ohio's Fossil and Geologic Records Grades 6-8

DESCRIPTION

In this program, middle school students will take part in an inquiry-driven virtual field trip exploring Ohio's fossil and geologic record, focusing on two distinct times in Ohio's ancient history: The Devonian Period and the Pleistocene Epoch. At the end of this program, students will be better able to understand the cyclical nature of Ohio's ancient times, as well as learning exactly why there aren't dinosaur fossils found in the Buckeye State!

OBJECTIVES

- Students learn about the fossilization process and the scientists who study it.
- Students explore ancient ecosystems, the diversity of ancient life, and mass extinction patterns by examining Ohio's fossil and geologic records for the Devonian period and Pleistocene epoch.
- Students learn to compare geologic processes across time periods and analyze their effects on ecosystems, landscapes, and Ohio's fossil record.

OHIO'S LEARNING STANDARDS

Grade 6

- 6.LS.4: Living systems at all levels of organization demonstrate the complementary nature of structure and function.
- SL.6.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- L.6.6: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Grade 7

- 7.LS.1: Energy flows and matter is transferred continuously from on organism to another and between organisms and their physical environments.
- 7.LS.2: In any particular biome, the number, growth, and survival of organisms and

Produced and published be the Education Division
1 Wade Oval Dr., University Circle, Cleveland, OH 44106

populations depend on biotic and abiotic factors.

- SL.7.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- L.7.6 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Grade 8

- 8.LS.1: Diversity of species, a result of variation of traits, occurs through the process of evolution and extinction over many generations. The fossil records provide evidence that changes have occurred in number and types of species.
- 8.ESS.3: A combination of constructive and destructive geologic processes formed Earth's surface.
- 8.ESS.4: Evidence of the dynamic changes of Earth's surface through time is found in the geologic record.
- 8.ESS.4a: Explain how fossils indicate Earth's history and environment changes.
- 8.ESS.4c: Identify that humans can study Earth's past by looking at layers of rocks and fossils.
- SL.8.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- L.8.6 Acquire and use accurately grade appropriate general academic and domain specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression

Before your Program

How you can help us make this virtual field trip a success:

- If your students are joining us from your classroom computer, please arrange your room and projection screen so everyone can see us clearly.
- Please test your visual and audio connections prior to the day of the program. If you would like us to facilitate a test connection with you, we are happy to do so.
- If you and your students are joining us from your homes, we will have an educator monitoring the Chat feature for questions. We request that you or another staff

Produced and published be the Education Division
1 Wade Oval Dr., University Circle, Cleveland, OH 44106

person serve as a Co-Host to help monitor students for any inappropriate Chat or camera behavior.

- If you will have a hybrid class (some at school, some joining from home), our educator will monitor the Chat and camera behavior, and we reserve the right to temporarily move any disruptive students to our Waiting Room so we or school staff can correct the undesired behavior.
- If you prefer, we can turn off all cameras and interact solely via the Chat feature.

VOCABULARY

ecosystem – an energy processing system involving the interactions of biotic and abiotic parts of the environment.

extinct – A species of organism that no longer has living members.

extant – A species of organism that has members alive today.

fossil – preserved remains or impressions of a prehistoric plant or animal.

fossil record – the history of life on our planet as documented by fossils (remains or imprints of organisms from earlier geologic time periods).

geological timescale – a representation of time based on the rock record of Earth covering 4.6 billion years.

geology – the scientific field that deals with the Earth's physical structure and substances, its history, and the processes that act on it.

glacier – a slowly moving mass of ice formed by the accumulation of compacted snow.

paleontologist – a scientist responsible for studying fossils, fossil remains, and the fossilization process.

paleontology – the study of prehistoric plants and animals.

Produced and published be the Education Division
1 Wade Oval Dr., University Circle, Cleveland, OH 44106

EXTENSION ACTIVITIES

MAKE YOUR OWN FOSSIL

- Prepare a chunk of potter's clay for each student, smoothing the pieces to approximately 2"x2"x1".
- Have children press a leaf, shell, or even a lost tooth into the clay and then remove the object. Explain to the children that this is one way in which fossils are formed, from the impression of a living thing. Another example would be a footprint. These are called mold fossils.
- Set the clay in the sun to dry (about 24 hours).
- As a paleontologist would do to study the fossil, pour plaster of Paris into the mold fossil and allow the plaster to dry. Pop out the cast of the fossil. Explain to the children that the cast is not the actual fossil, but a copy of the real thing.
- Some of the examples that the children will view and touch during the program are casts, as real fossils are often too fragile to touch.

ONLINE RESOURCES FOR TEACHERS AND STUDENTS

Click the link below to find additional online resources for teachers and students. These websites are recommended by our Museum Educators and provide additional content information and some fun, interactive activities to share with your class.
https://www.fossilguy.com/gallery/vert/placoderm/dunkleosteus/index.htm

https://kids.frontiersin.org/articles/10.3389/frym.2024.1225865

CMNH Educators regularly review these links for quality. Web addresses often change so please notify us if any links have issues.

Cleveland Museum of Natural History http://www.cmnh.org

Produced and published be the Education Division
1 Wade Oval Dr., University Circle, Cleveland, OH 44106