Digging for Dinos: Exploring Fossils (Pre-Kindergarten - Grade 1)

DESCRIPTION

Does the word "dinosaur" send your students into prehistoric pandemonium? Bring the wonders of Paleontology into your classroom with this investigation of basic natural science concepts related to the job of a Paleontologist. Students will practice paleontological skills with real and cast fossils, animal bones, dig boxes, rubbings, and other age-appropriate hands-on activities.

OBJECTIVES

- Define the key terms "paleontology" and "fossil."
- Identify what tools a paleontologist uses to search for fossils.
- Practice the skills a real paleontologist uses in their job.
- Describe how fossils form from animal bones or shells.

OHIO'S LEARNING STANDARDS

Pre-Kindergarten

- Science 1.a Science Inquiry and Application – Explores and investigates objects and events in the environment
- Language and Literacy 1.b Language and Communication – Develops and expands understanding of vocabulary and concepts
- Language and Literacy 1.d Language and Communication – Participates in conversations with increasing application of turn-taking skills.
- Mathematics 4.b Geometry – Develops understanding of spatial relationships

Kindergarten

- K.PS.1 Objects and materials can be sorted and described by their properties.
- RF.K.1 Recognize that spoken words are represented in written language by specific sequences of letters.
- SL.K.1 Participate in collaborative conversations about kindergarten topics and texts with diverse partners in small and larger groups. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). Continue a conversation through multiple exchanges.
- SL.K.2 Confirm understanding of a text read aloud or information presented in various media and other formats (e.g., orally) by asking and answering questions about key details and requesting clarification if something is not understood.

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- SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- SL.K.6 Speak audibly and express thoughts, feelings, and ideas clearly.
- K.CC.5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
- K.CC.6 Orally identify (without using inequality symbols) whether the number of objects in one group is greater/more than, less/fewer than, or the same as the number of objects in another group, not to exceed 10 objects in each group.

Grade 1

- 1.LS.1 Living things have basic needs, which are met by obtaining materials from the physical environment.
- RF.1.4.a. Read grade-level text with purpose and understanding.
- SL.1.1 Participate in collaborative conversations about grade 1 topics and texts with diverse partners in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. c. Ask questions to clear up any confusion about the topics and texts under discussion.
- SL.1.2 Ask and answer questions about key details in a text read aloud or information presented in various media and other formats (e.g., orally).
- SL.1.3 Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
- MP.4 Model with mathematics

Before Your Program

IF YOU ARE VISITING THE MUSEUM…

- If this will be your first trip to the Museum for some of your students, you may want to discuss the following questions:
  - What is a Museum? Why are we going to the Cleveland Museum of Natural History?
  - How should we handle objects at the Museum?
  - Use the vocabulary and additional resources provided in this Teacher Guide to preview or review program content with your class.

IF WE ARE VISITING YOU...

- **Set-up requirements:**
  - **This program has 4 stations – please be prepared to separate your class into 4**

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groups.
    - **Please provide at least 3 tables and 1 floor space for the stations.**
    - **At least 1 school staff person must be present to assist with the stations.**
- In addition to the above room set-up, please provide a separate empty desk or small table for the museum educator to set up display items.
- Please have student desks clear before the program begins.
- Use the vocabulary and additional resources provided in this Teacher Guide to preview or review content with your class prior to the program.
- If booking multiple programs in a row, transitions will be easier if museum staff sets up in only one location.

VOCABULARY

paleontology – the study of prehistoric plants and animals

paleontologist – a scientist who studies the fossils of plants and animals in prehistoric times

fossils – the remains (or impressions) of a plant or animal that existed in a past geological age and that has been taken from the soil.

Dinosaur – extinct land-dwelling reptiles from the Mesozoic Era, certain species of which are the largest known land animals. Their bodies had legs directly below them, unlike crocodiles or lizards.

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

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.

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HOW BIG IS A DINOSAUR?

- Measure 40 feet on the floor of a gym or hallway. Explain to your students that this is how long a Tyrannosaurus rex is from the tip of its tail to its snout. Have the children compare their height to a dinosaur!
- Draw a Tyrannosaurus footprint 27 inches long and 30 inches wide. Have each child trace one of their feet on a piece of paper and compare it to the T. rex footprint.

ONLINE RESOURCES FOR TEACHERS AND STUDENTS

Click the links 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.

Dinosaurs - YouTube
Webinar: Natural History at Home – What Is a Fossil? | Smithsonian National Museum of Natural History
Dinosaurs | Natural History Museum

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

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