Dino Explorers: Happy and Friends Kindergarten to Grade 2

DESCRIPTION

Happy, the Museum's iconic sauropod is the star of this show. Meet hungry herbivores, keen carnivores and modern-day dinosaurs in this fossil-filled extravaganza. Join our Museum educators to learn how paleontologists understand the deep past and how it relates to life today. Students will see the biggest and best dinosaurs the Museum has to offer and have close interactions with curated Museum quality specimens. Experience dinosaurs like never before in our newly imagined galleries!

OBJECTIVES

- Understand how scientists use fossils to learn more about dinosaurs and the world in which they lived by observing and interacting with actual specimens.
- Learn how dinosaurs met their basic needs – Students extrapolate diet and lifestyle through anatomical observation.
- Students explore where and how fossils may form and recognize that there are different types of fossils.
- Students compare similarities and differences between dinosaurs, reptiles and birds.
- Students are introduced to science careers that sound fun, exciting and relatable.

OHIO'S LEARNING STANDARDS

Kindergarten

- K.LS.1 Living things have specific characteristics and traits.
- K.LS.2 Living things have physical traits and behaviors, which influence their survival

Social Studies: Historical Thinking and Skills

- K.1 Time can be measured

First Grade

- 1.LS.1 Living things have basic needs, which are met by obtaining materials from the physical environment.
- 1.LS.2 Living things survive only in environments that meet their needs

Second Grade

- 2.LS.1 Living things cause changes on Earth.
- 2.LS.2 All organisms alive today result from their ancestors, some of which may be extinct. Not all kinds of organisms that lived in the past are represented by living organisms today .

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1 Wade Oval Dr., University Circle, Cleveland, OH 44106

Before your Program

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.

VOCABULARY

birds (avian dinosaurs) – the direct descendants of two-legged, meat-eating dinosaurs. Birds have feathers, are warm-blooded and lay hard-shelled eggs.

camouflage – to blend in or look like the surrounding area.

carnivore – a meat-eating animal. Carnivore teeth are all sharp and pointed.

dinosaur - a prehistoric reptile with upright legs that lived during the Mesozoic era.

fossil – the preserved remains or impressions of a once living animal or plant.

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

herbivore – a plant-eating animal. Herbivorous animals have teeth that tend to be flat or rounded.

mammal - a warm-blooded animal that has hair or fur, generally gives live birth and produces milk to feed its young.

paleontologist – a scientist who studies fossils, fossil remains, and the fossilization process.

prehistoric – living more than 5,000 years ago.

reptile - an animal that has scales, breathes air with lungs and generally lays eggs with soft or leathery shells.

skeleton - the complete set of bones that some animals have inside their bodies.

skull (Crania) - an organism's head bones.

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EXTENSION ACTIVITIES

Dino Drawings

Draw a picture or write a story describing how you would live in a world with dinosaurs. We don't know what colors all dinosaurs were, but they likely were not all grey or green. Scientists using powerful microscopes can look are something called melanosomes. These are microscopic packages of melanin pigments that give feathers their various coloration. Actual traces of chemically degraded melanin pigments can also be seen in some fossils. Different shapes indicate the animal's different colors. Try a creating dinosaurs in variety of colors. Fossil evidence shows that many types of dinosaurs had colored feathers, and some may have even had patterns.

Create a rock layer drawing showing the age of the dinosaurs (the Mesozoic) with older rocks (the Paleozoic) below and newer rocks (the Cenozoic) above. Add fossils to the layers showing what life forms lived during each period. Which layer would you study if you were a paleontologist?

Fossil Fun Extensions

Usually, the only parts of an animal that become fossils are the hard parts. The soft parts decay and disappear - so from dinosaurs we find bones and teeth, from snails and clams, we find their shells. We can also find things like eggs, impressions and footprints.

• Clean off some chicken bones by boiling them. Pour plaster about ½ inch deep in the bottom of milk cartons or a few small boxes. Allow students to press bones into the soft plaster to "create" a skeleton. Before the plaster gets too hard you can sprinkle some sand over it to create a "rocky" look.

• Similarly, have students press their hands, a clean chicken bone, clam shells or any other natural objects into clay to make impressions. These impressions are similar to mold fossils that leave an imprint of the organism in hardened sediment.

• If children have access to gravel like in some driveways or playgrounds, the gray limestone rock often used can contain fossils. Look for the imprints of small shells or ancient sea life in the limestone.

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Make Your Own Fossil

- Prepare a chunk of potter's clay for each student, smoothing the pieces to approximately 2"x2"x1".
- Have students press a leaf, shell, or even a lost tooth into the clay and then remove the object. Explain to the students 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 students that the cast is not the actual fossil, but a copy of the real thing.
- Some of the examples that students 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 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.

Earth Sciences Fossil Prep Lab | Cleveland Museum of Natural History

Molecular Paleontology Lab | Cleveland Museum of Natural History

Biological Sciences | Cleveland Museum of Natural History

Bone Block: Coelophysis Death Bed | Cleveland Museum of Natural History

National Geographic Dinosaur Education: Dinosaurs

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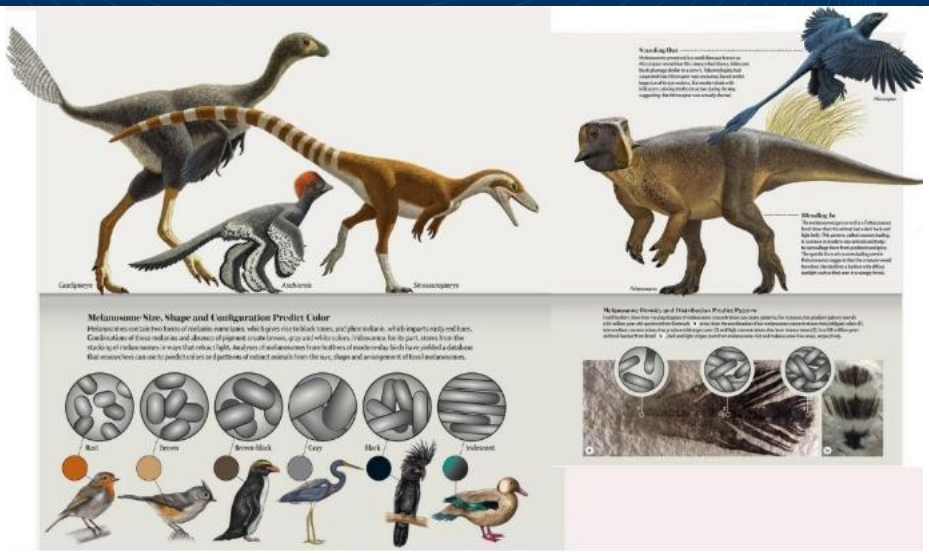

[Fossil Pigments Reveal the True Colors of Dinosaurs | Scientific American]

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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