9

Find the panel **Taphonomy** *Clues to Ancient Life and Death*. What is one piece of evidence that helped paleontologists find out what happened at this site?

10

Ceratopsians or "horned dinosaurs" were a group of Late Cretaceous dinosaurs that included Triceratops and Pentaceratops. Scientists think that horns and frills were adaptations that served a number of functions. List three of these functions below and describe the advantages that they would have for ceratopsians.

11

The **Cretaceous extinction**, which marks the end of the **Mesozoic Era** and the dinosaurs, is the most well-known extinction event in Earth's history. What was the cause of this extinction event, and what evidence do scientists have of it?

12

In the early Tertiary, prey animals gained large body sizes, improved ability to run across open spaces and burrowing abilities. What changes in the environment lead to these adaptations?

Sam Noble Museum
THE UNIVERSITY OF OKLAHOMA
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HALL OF ANCIENT LIFE

SAM NOBLE MUSEUM
GALLERY GUIDE
GRADES 9–12

Welcome to the Sam Noble Museum!

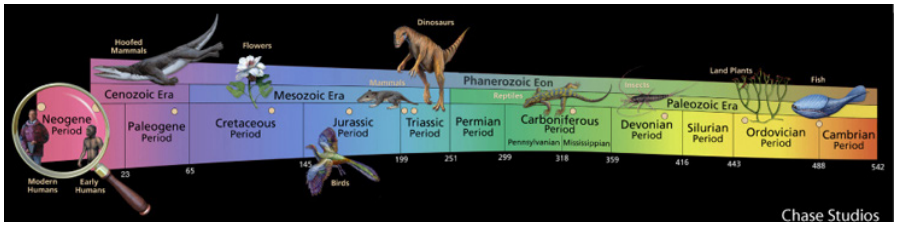
These gallery activities are designed to be completed by a student or group of students.

Gallery Guides are available for each of the museum's three permanent galleries.

The Hall of Ancient Life takes you on a trip through time, from the formation of the earth, 4.6 billion years ago to the end of the Pleistocene Period, 11, 700 years ago. Each section of the gallery represents a different time period in Oklahoma's prehistory so you can see how the environments and animals have changed through time.

Everything you see in the gallery today is based on fossil evidence from plants and animals. Paleontologists, scientists that study ancient life, use this evidence to reconstruct life in the past. In fact, many of the fossil animals and plants you will see were found by museum paleontologists right here in Oklahoma including the giant Apatosaurus and Saurophaganax of the Jurassic Period, and the newly discovered Aquilops!

Look at the geologic timeline below to see the different periods represented in the gallery. The timeline can be found on each section of the gallery marking which time period you are exploring.



SAM NOBLE MUSEUM

INSTRUCTIONS

GALLERY GUIDES

1. Begin at the Hall of Ancient Life, located on the first floor. The entrance displays cases of plants and animals with a display of the earth in the middle.
2. Explore the gallery to find the answers to the questions below.
3. Start your journey at the entrance and end in the room with the mammoth.

1

Define **superposition**. How does it help **paleontologists**?

2

Arthropods first appeared in the **Cambrian Period**. All arthropods have exoskeletons. What is an exoskeleton and what are the evolutionary advantages to having a skeleton?

3

Tetrapod is the name given to the first animals that walked on land. It means four feet. What evolutionary innovations did tetrapods have?

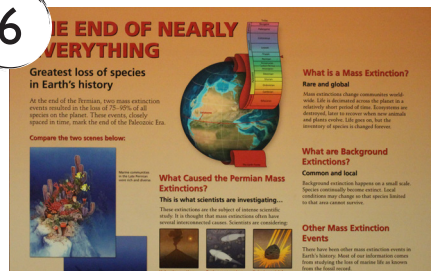
4

Pennsylvanian Coal Swamps had more oxygen in the atmosphere than today because large amounts of decaying plants called peat held onto carbon dioxide and did not remove much oxygen from the air. What effect did high amounts of oxygen in the atmosphere have on insects at this time?

5

What is the difference between a **diapsid** and a **synapsid**? What evolutionary features does each possess?

6



The **Permian extinction** is known as the largest mass extinction in Earth's history. What three causes are paleontologists investigating for the Permian extinction? How could these events cause mass extinction?

7

Which group of diapsid reptiles became dominant in the **Triassic Period**? What features did they gain in the Triassic Period that they did not have in the Permian Period?

8

What is a **theropod**? What adaptations allowed them to become the dominant carnivores of the Jurassic?