



Let's Investigate!

3rd Grade

Duration

Pre-Visit: 40 minutes

Museum Visit: 60 minutes

Post Visit: 50 minutes

Location

Age of Mammals Hall

Supplies

- Worksheet
- Pencil
- Clipboard (optional)
- Sticky Notes

Standards

[NGSS](#)

3-LS1-1, 3-LS2-1, 3-LS3-1,
3-LS4-1, 3-LS4-2, 3-LS4-3

[S+E Practices](#)

6, 7

[CA State](#)

ELA Grade 3

Comprehension and
Analysis of Grade Level
Appropriate Text 2.2

Science Grade 3

Investigation and
Experimentation 4.a.d

Vocabulary

Mammal · Observe ·
Hypothesis · Conclusion
Evidence · Plausible ·
Random

Concepts

- Scientists use observations to begin investigation.
- Scientists support conclusions with evidence from observations.

Objectives

- Students will observe animals and form a hypothesis (prediction) using their observations.
- Students will develop their questions and perform investigations.
- Students will draw distinctions between plausible predictions and random guesses.

Outline

1. In one classroom session before visiting the Museum, review the mystery mammal – the *Paleoparadoxiid*. Discuss and practice the scientific method of making hypotheses (predictions) based on observations.
2. During a trip to the Museum, explore the Age of Mammals exhibit and practice formulating hypotheses based on students' observations of the mystery mammal. Complete the worksheets and reflect on the lesson.

Pre-Visit

In the classroom, distribute worksheets 1 and 2 of this packet. Have students study the picture of the *Paleoparadoxiid* (mystery mammal) on worksheet 1 and discuss the following question: **what can you conclude about where this animal lived, how it moved, and what it ate?**

Next, explain to students that when scientists study mammals they differentiate evidence from opinion and know that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed. i.e. they must support their ideas, or hypotheses, with evidence. Recreate worksheet 2 on easel paper and do the activity with the whole class—it will offer students an experience with this type of investigation. Write one statement in each section, each one representing either a plausible conclusion from the picture or a random guess. Students will work together to figure out whether each is plausible or random and why. Here are some examples:

- Example 1: The *Paleoparadoxiid* lived in a park.

Random guess because there is nothing in the picture that shows me it could live in a park.

- Example 2: The *Paleoparadoxiid* swam by moving a flipper.

Plausible because I observe in the picture it had bones that are shaped like flipper and I know animals that have flippers swim.

- Example 3: The *Paleoparadoxiid* ate zebras.

*Random guess because I can observe from the picture that the body shape of the animal may not have allowed it to move on land as fast as a zebra. Also acceptable: the teeth of the *Paleoparadoxiid* are not sharp, like a carnivores might be.*

Ask students to come to a consensus in their group about which predictions are plausible. Then as a whole class, label the statements with the words “Plausible” or “Random” and discuss why. Each group can then go back to the predictions they wrote and choose one to write on a sticky note. Each group will then place their sticky note on the chart paper to be discussed by the class.

Finally, prepare the students for their visit to the Natural History Museum by letting them know that the essential question they will be trying to answer is: **how do we learn about mammals?**

Use easel paper to create a KWL chart (what you **know**, what you **want** to know, what you **learned**).

Ask the students:

- Now that we have gone through the process of investigation, the way a scientist would, what do you **know** about what scientists do to learn about mammals?
- What do you **want** to know about how scientists learn about mammals?

Museum Visit

At the Museum encourage students to walk around the Age of Mammals Hall (Mezzanine level) and look at all the displays. Ask students to think about how we learn about mammals.

Gather students in front of the mystery mammal display and ask the following questions:

- What do you see?
- Where do you think this animal lived? Why is that a plausible conclusion to make?
- How do you think this animal moved? Why is that a plausible prediction to make?
- What do you think this animal ate? Why is that a plausible conclusion to make?

Have students work with a partner to complete worksheet 3. Students will walk around the Age of Mammals Hall, pick another animal, and record their predictions about where they think that animal lived, how they think that animal moved, and what they think that animal ate. They will also write why their conclusions are plausible.

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Post-Visit

Once back in the classroom, complete the KWL chart from the “Pre-Visit” activity. Ask students: “What did you learn about mammals?” Discuss what students learned and add to chart.

Talk to students about the steps scientists take to learn about mammals: observation, conclusion, proving plausibility. Ask the class to finish worksheet 3 about the scientific process using the information they gathered at the Museum about the mammal they observed (this can be done independently or with a partner).

Variations & Extensions

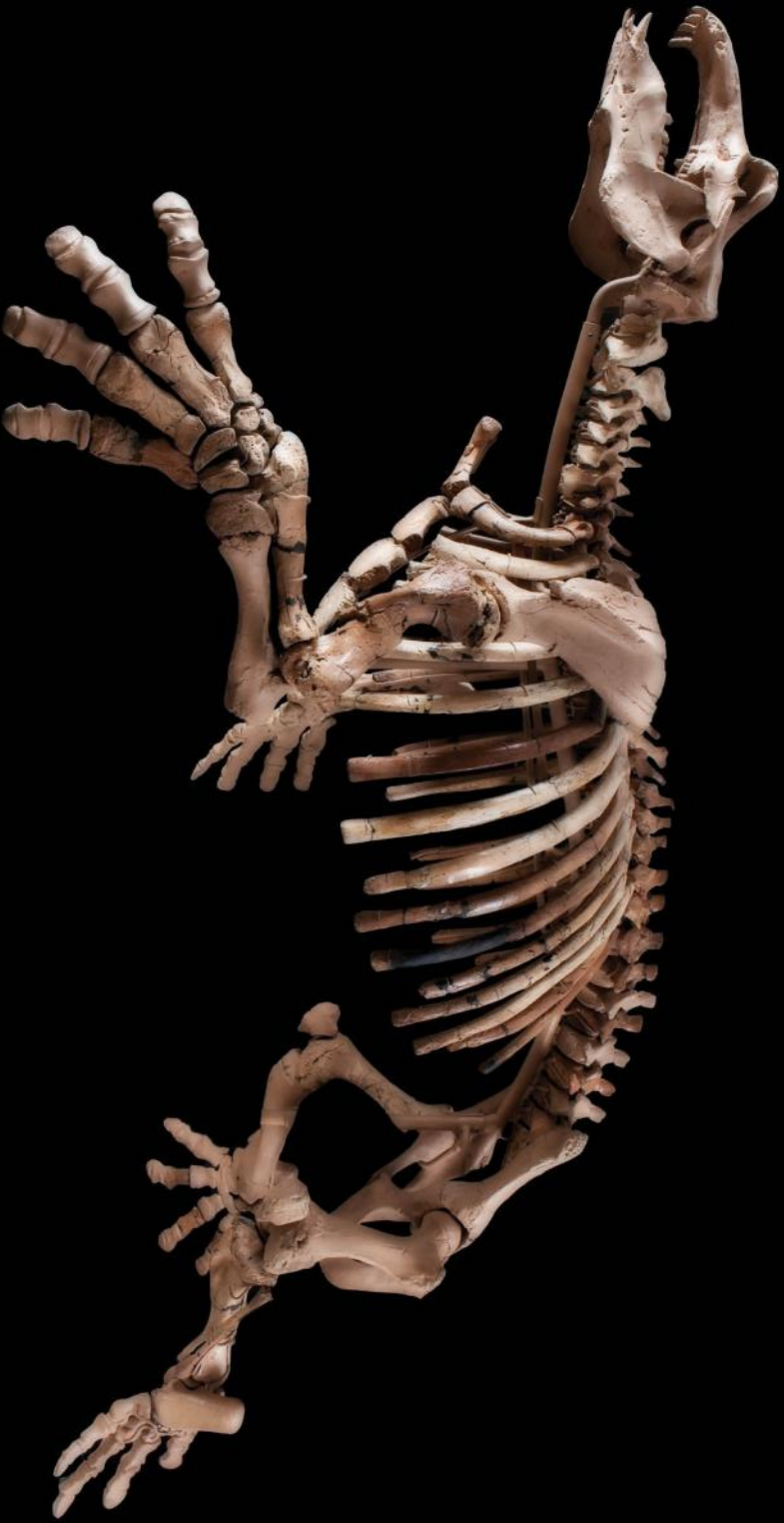
Students can present their work to the whole group, a small group, or a partner and the predictions written by the students can be checked to see if they are plausible.



Mystery Mammal

The Mystery Mammal

Scientists use fossils to figure out how ancient animals used to live! Carefully observe the fossil below and follow along with your class to figure out if the statements your teacher share can be supported with evidence, or if they are just a random guess!



PALEOPARADOXIID

Form a Hypothesis

Carefully observe the *Paleoparadoxiid* and use your observations to form a hypothesis (a prediction) that answers the questions below. Be sure to support your hypothesis with evidence from what you see!

What kind of habitat
did it live in?

How did it move
around its habitat?

What kind of food
do you think it ate?



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More Mammal!

Pick another fossil in the room to observe.

Name of Animal: _____

Observe

In the box below, draw the animal and write down observations about it's body:

A large, empty rounded rectangular box with a black border, intended for drawing the animal and writing observations.

Hypothesize

I predict that this animal moved by....

Support the Hypothesis

The evidence that supports my hypothesis is... *(hint, use your observations!)*