Virtual Field Trip Teacher’s Guide

OVERVIEW

Welcome to a virtual field trip to the Bernard Family Hall of North American Mammals! This field trip is designed for grades 3-5 students to explore habitat dioramas to learn how animals must be adapted to an environment in order to survive in it.

This activity is modular to give teachers flexibility in how they assign components to their students. The Virtual Hall Tour and Student Investigation are the core assignment. The extension activities are meant to provide opportunities for deeper student engagement and could be assigned over several days.

CORE ACTIVITY

Virtual Hall Tour and Student Investigation

Students will use Google Arts and Culture to take a virtual tour of the Bernard Family Hall of North American Mammals to explore habitat dioramas. Students can try to locate three dioramas: Black-Tailed and Antelope Jackrabbits, North American Beaver, and Mountain Goats. Then students will select one of these three dioramas to observe closely and complete a worksheet describing the animal and its adaptation to its environment using the Museum’s website.

Supports for synchronous instruction:

- After students have completed their worksheets, put them into jigsaw groups where all three dioramas are represented and have them share and discuss their findings.

Supports for asynchronous instruction:

- Have students have a flip grid recording of their worksheet so that they can view each other’s videos and learn about all three dioramas.

Common Core State Standards:
- W.3-5.2, W.3-5.8, W.3-5.9
- RI.3-5.1, RI.3-5.2, RI.3-5.4, RI.3-5.10

New York State Science Core Curriculum:
- LE 3.1c

Next Generation Science Standards:
- PE 3-LS4-3
- DCI LS4.C: Adaptation
  For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.

Instructional Modalities

This activity was designed for both synchronous or asynchronous instruction.

For synchronous instruction, we recommend a platform that allows both for whole class discussion and for students to interact in small groups.

For asynchronous discussion, we provide suggestions for teachers to provide additional video support for the activities and for students to share their work with each other.
EXTENSION ACTIVITIES

To deepen student engagement with this content, you may choose to add one or more of the following extension activities:

Reading Assignment

This part of the activity engages students in reading a nonfiction text about how animals must be adapted to an environment in order to survive in it. The reading will prepare students for their visit by introducing them to the topic and framing their investigation.

Supports for synchronous instruction: Student Reading

- “Chunking” the reading can help keep students from becoming overwhelmed by the length of the text. Present them with only a few sentences or a single paragraph to read and discuss before moving on to the next “chunk.”

- Provide “think-time” for students after you ask a question. This will allow time for students to search for textual evidence or to more clearly formulate their thinking before they speak.

- The following questions can be used for a class discussion:

  What is an adaptation? (Answers may include: adaptations are behavioral or physical characteristics that help plants and animals survive in their environment)

  Give one example of a physical adaptation and one example of a behavioral adaptation. (Examples of physical adaptations: the tree’s protective bud scales, the snowshoe hare’s color-changing coat, the grouse’s foot fringe that enables it to walk in the snow. Examples of behavioral adaptations: hibernation, the caribou’s migration, the pika’s storing of hay for the winter.)

  What happens if plants and animals are not adapted to their environment? (Answers may include: They are unable to survive and will eventually die out.)

  Can individual plants or animals change their adaptations at will when habitat or environment changes? (Answers may include: Adaptation happens over long periods of time. When an environment changes, some plants and animals survive better than others. Those that cannot survive die out.)

Supports for asynchronous instruction: Student Reading

- Film a video of yourself reading “Winter is on the Way....” This will allow students to pause or relisten to the reading so that they have time to take notes, paraphrase important information, or write down questions that they have.
Writing Task

This informational writing task asks students to draw on the reading and observations recorded during the virtual field trip, to write an illustrated essay about animals and their adaptations. The writing task should only be assigned as culminating work, if students have also completed the reading and answered the questions from the student investigation. A student checklist and teacher rubric are included.

Based on the article “Winter is on the Way...” and your virtual visit to the Bernard Family Hall of North American Mammals, write an illustrated essay in which you:

- define “adaptation”
- explain why animals must be adapted to an environment in order to survive in that environment.

Be sure to include:

- examples of three animals, their habitats, and the relationship between the needs and characteristics of each
- labeled illustrations of each animal showing the adaptation(s)

Support for your discussion using evidence from your reading and the Bernard Family Hall of North American Mammals.

While referring to the writing prompt, have students underline or highlight all relevant passages and information from the reading, and their notes from the hall, that can be used in their response to the prompt.

Supports for synchronous instruction: Writing Task

- Re-read “Winter is on the Way...” with students. Ask what they saw in the hall that helps them understand how adaptations help animals survive in their environment.

- Allow time for students to read their essay drafts to a peer and receive feedback based on the Student Writing Guidelines.

Supports for asynchronous instruction:

- Ask students to re-watch the video of the teacher reading of “Winter is on the Way....” While they view it, ask them to write down how what they saw in the hall helps them understand how adaptations help animals survive in their environment.

- You can use padlet so that students can share work with one another.
Student Worksheet: TEAM Jackrabbits

Location of diorama: (Tanque Verde Ranch, Arizona)
Date/Time in the diorama: (June at noon)
Environmental Conditions (e.g. climate): (desert; very low rainfall, average 12 in/yr; hot days)

Draw the animal in its environment. Label its adaptations. (If you cannot draw, then list the adaptations of the jackrabbits in its environment.)

(Answers may include: Long ears, long legs, brown fur.)

Think about the adaptations, such as size, behavior, and coloration, that help this animal survive in its environment.

How does each adaptation relate to where and how the jackrabbit lives?

(Answers may include: Long ears help it keep cool; long legs help it stay high and cool and move quickly in case of a threat; the color of its coat helps it blend into the environment.)

What problems might the jackrabbit face without these adaptations?

(Answers may include: If its fur were a different color it might be easily spotted by a predator. If its ears and legs didn’t help keep it cool, it might have difficulty living in such a hot environment.)

Do you think these adaptations would enable this animal to survive in a habitat with opposite conditions? Why or why not?

(Answers may include: If it lived in a cold environment it might need longer fur and shorter legs and ears to help it retain body heat.)

What does that tell you about the relationship between environments and adaptations?

(Answers may include: The environment that an animal lives in helps shape the adaptations that allow it to survive in that environment.)
Student Worksheet: TEAM North American Beaver

Location of diorama: (Hoister Creek, Central Michigan)

Date/Time in the diorama: (July evening)

Environmental Conditions (e.g. climate): (wetlands)

Think about the adaptations, such as size, behavior, and coloration, that help this animal survive in its environment.

How does each adaptation relate to where and how the beaver lives?

(Answers may include: fur for staying warm, sharp teeth for cutting trees and building a home, webbed feet for swimming)

What problems might the beaver face without these adaptations?

(Answers may include: It might get cold without its waterproof fur. It might have a hard time swimming without its webbed feet or tail. If its teeth didn’t keep growing it wouldn’t be able to cut down trees and eat.)

Do you think these adaptations would enable this animal to survive in a habitat with opposite conditions? Why or why not?

(Answers may include: If the beaver lived on land all of the time it wouldn’t need webbed feet or a tail that acted like a rudder. Its waterproof fur might make it over heat if it were not able to cool down in the water.)

What does that tell you about the relationship between environments and adaptations?

(Answers may include: The environment that an animal lives in helps shape the adaptations that allow it to survive in that environment.)
**Student Worksheet: TEAM Mountain Goat**

**Location of diorama:** (Tongass National Forest, Southern Alaska)

**Date/Time in the diorama:** (August)

**Environmental Conditions (e.g. climate):** (very cold, high altitude)

Think about the adaptations, such as size, behavior, and coloration, that help this animal survive in its environment.

How does each adaptation relate to where and how the mountain goat lives?

*(Answers may include: Specially shaped hooves and strong limbs allow them to climb steep inclines. Their fur coloration allows them to blend in with their environment allowing for protection against predators. They can use their horns for protection/defense.)*

What problems might the mountain goat face without these adaptations?

*(Answers may include: Without specially shaped hooves and strong limbs they would not be able to scale large inclines to live in mountainous areas. If their fur coloration was different or had a patterns it might not allow them to blend in with their environment making them more easily spotted by predators. Without their horns they wouldn’t be able to protect/defend themselves from attacks except by running away.)*

Do you think these adaptations would enable this animal to survive in a habitat with opposite conditions? Why or why not?

*(Answers may include: If the mountain goat lived in a hot climate with no mountains, its coat might not be as useful to its survival because it might get too hot and not blend in with its surroundings as well. Strong limbs, hooves and horns might still help it protect itself by running or defending itself.)*

What does that tell you about the relationship between adaptations and environments?

*(Answers may include: The environment that an animal lives in helps shape the adaptations that allow it to survive in that environment.)*

Draw the animal in its environment. Label its adaptations.

*(If you cannot draw, then list the adaptations of the Mountain Goat in its environment.)*

*(Answers may include: White fur, hooves, horns)*