



## North America Virtual Field Trip #1

### On the Trail: Meet the Animals of North America

The activities in this guide are designed to deepen student understanding of animal adaptations. Students will participate in a virtual field trip to Smithsonian's National Zoo in Washington, D.C. During the virtual field trip, students will learn about the unique animals of North America and how they have adapted to the continent's many unique ecosystems. The pre- and post- field trip activities will provide opportunities for students to explore the concepts of animal adaptations, ecosystems, and endangered species.

### Overview

Topic: Animals of North America

Real World Science Topics:

- Animal adaptations
- Ecosystems of North America
- Endangered Species

Objective

- Students will be able to explain how animals have adapted to survive in the different ecosystems found in North America.

Materials Needed for Student Activities

- Timer
- Internet access
- Interactive white board or overhead projector
- Map of North American Ecoregions (see resources)
- Picture of North American beaver (see resources)
- Student Handout #1: North American Bio Blitz! (one per group)
- Student Handout #2: Virtual Field Trip: Animals of North America (one per student)
- Student Handout #3: Spotlight on North American Animals (one per student)

### Teacher Preparation

The North American continent encompasses a vast area. It includes Canada and Greenland to the north, and stretches south across the USA, Mexico, and Central America as far south as Panama. This includes a huge diversity of wildlife. The North American continent is defined by large ecoregions, also known as biomes, including woodlands, tundra, tropical forests, deserts, grasslands, marine systems, and more. Scientists have identified 15 unique ecoregions on the North American continent. Each of these distinct ecoregions is defined by its climate and other physical factors such as sunlight, rainfall, temperature, soil, wind and humidity. The specific combination of these physical attributes determines

the types of plants and animals that are able to grow and live in each ecoregion. Within each ecoregion, you will find plants and animals that have unique characteristics or adaptations. Adaptations are physical features or behaviors that help an organism survive in a unique place. Animals adapted to one ecoregion may not survive in a different ecoregion. For example, a polar bear, with its heavy fur and insulating fat, is adapted to survive the bitter cold of the tundra and could never survive the hot dry temperatures of a North American desert. It would overheat.

## Standards Met

Next Generation Science Standards  
Crosscutting Concepts of the Framework

1. *Patterns*. Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.

6. *Structure and function*. The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.

## Resources

A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas  
(<http://nextgenscience.org/next-generation-science-standards>)

Ecoregions of North America  
([http://www.eoearth.org/article/Ecoregions\\_of\\_North\\_America\\_\(CEC\)](http://www.eoearth.org/article/Ecoregions_of_North_America_(CEC)))

Smithsonian's National Zoological Park: North American Beaver  
(<http://nationalzoo.si.edu/Animals/AmericanTrail/animals.cfm#beaver>)

Smithsonian's National Zoological Park: Animals of the American Trail  
(<http://nationalzoo.si.edu/Animals/AmericanTrail/animals.cfm>)

## Pre-Field Trip Activity (30-40 minutes)

### North American Bio Blitz

Challenge students to a sixty second North American bio blitz! Explain that when researchers are trying to find out what animals live in a particular area they will conduct a rapid bio blitz where they collect and identify as many animals as possible in a set amount of time.

1. Warm Up: Explain that today students will participate in a one minute brainstorming bio blitz to compile a list of animals that live in North America. Break students in to "research teams" and assign each group to a particular area of North America (Canada, Western US, Central US, Eastern US, Southwestern US, Mexico, etc.) Provide each "research team" with a copy of Student Handout #1. Ask each team to outline on the map the area of North America where they will conduct their mental bio blitz. Instruct each team to designate a recorder. At the sound of the buzzer, team members will begin brainstorming animals that live in their designated region. The recorder will write them next to the map on Student Handout #1. Stop the time after 60 seconds. Ask one member from each group to share their list with the class.

2. Next ask each group to think about the area where their list of animals lives. Ask them to work together to generate a brief description of their research area and its defining physical characteristics. For example: It is a desert. It is hot during the day and cold at night. It gets very little rain, etc.

3. Reinforce that North America is ecologically very diverse and made up of many different ecosystems. Project a map of North American ecoregions using an interactive white board or overhead projector (see resources). Explain that scientists have defined fifteen ecoregions, or biomes, on the North American continent. Highlight on the map the location of the major ecoregions of North America. Explain these ecoregions have different climates and physical conditions that make them unique. The animals that live in these ecoregions are adapted to these climates and conditions.

- Arctic Cordillera
- Tundra
- Taiga
- Hudson Plains
- Northern Forests
- Northwestern Forested Mountains
- Marine West Coast Forests
- Eastern Temperate Forests
- Great Plains
- North American Deserts
- Mediterranean California
- Southern Semi-Arid Highlands
- Temperate Sierras
- Tropical Dry Forests
- Tropical Humid Forests

Ask students to identify the ecoregion(s) found in their area of focus. Students might be surprised to learn that their designated study area might contain more than one ecoregion!

*Grade 3-5 Adaptation: Instead of focusing on ecoregions, center younger student attention on their local North American environment and the conditions where their local wildlife lives. Ask them to describe the physical characteristics of the place where they live. Is it hot and dry? Cold and snowy? Does it rain a little or a lot? Is it a forest, grasslands, or desert? Etc.*

4. Show students a picture of a North American beaver, or project an image of a beaver using an interactive whiteboard or overhead projector (see resources).

Ask students, “Where does this beaver live?” Students might be surprised that beaver can be found in most of North America’s ecoregions with the exception of the desert. Explain that even though a beaver has a wide range, it is highly specialized to living in ponds, lakes, rivers, marshes, streams, and wetlands.

Ask students “How is this beaver adapted to its environment?” Engage class in a brief discussion and encourage students to describe how the physical characteristics of a beaver help it survive. Use the following information to support the discussion.

*A beaver’s teeth never stop growing. They use their incisors, the large front teeth, to cut down saplings and trees along the edge of the water.*

*A beaver's lips are behind their incisors so that their mouth won't fill with water when they work underwater.*

*Beavers have dexterous front feet that they use like hands to grasp sticks and twigs. They also have strong digging claws.*

*Their webbed hind feet are used for swimming and diving.*

*Their large flat tails are used as a rudder for steering while swimming and are used as a prop when the beaver is felling trees on land*

*Beavers also have specially adapted eyes that allow them to see underwater*

5. Wrap up: Ask each student to select one of the animals they contributed to their team's 60 second bio blitz. Explain that they will be the team expert on this animal. As an expert, ask them to think about how their animal is adapted to its environment. Ask them to share their ideas with their team.

*Grade 3-5 Adaptation:* Help your students learn more about an animal local to your area and its adaptations. Select an animal that is found in your local area and one with which your students are familiar. Share a photo of the animal with your class. Hold a class brainstorming session on how this animal is adapted to its environment. If time permits, allow students to select their favorite animal from your local environment and fill in what they know about their animal on a separate handout.

## **Virtual Field Trip: Meet the Animals of North America**

During the virtual field trip, students will join animal care staff LIVE from Smithsonian's National Zoo in Washington, D.C. and learn about a wide range of animals from North America, including wolves, bald eagle, and sea lions. Students will also learn how these animals have adapted to their environments, why they are important, and the threats to their survival.

Before joining the virtual field trip, distribute Student Handout #2. Explain that students should use the table provided to organize their notes on each animal presented by the field trip experts.

Following the virtual field trip, ask students to share something new or interesting that they learned about the animals featured in the virtual field trip.

*Grade 3-5 Adaptation:* Introduce your class to the animals listed on the handout prior to the virtual field trip. Ask them to share what they know about each animal. Following the field trip, complete the handout as a class activity.

## **Post-Field Trip Activity (60 to 90 minutes)**

Remind students that many animals in North America have special adaptations to live in particular regions and ecosystems. Often these adaptations limit where the animal can live. If their environment changes, they often struggle to survive. In order to ensure a future for these animals, researchers need to learn as much as possible about each animal and then share that information with the public. Explain that during this activity, your students will help to shine a spotlight on their favorite North American animal to help educate their classmates and community.

1. Ask students to return to the list of animals generated by their research team during the pre-field trip activity. Remind them that they are already the “expert” for one of the animals on the list. Distribute Student Handout #3. Ask the students to use the internet and/or library resources to learn more about their animal and complete a “field report” on their animal using steps 1-8 on Student Handout #3.

2. After students research their particular North American animal, ask them to each generate a list of ideas for educating their classmates and community about their animal. For example, your class might create a set of North American animal trading cards and share them with younger students. Individual students might use technology to create a public service announcement that could be shared during morning announcements; create a colorful brochure that could be distributed at the local library; or design new signs for North American animals found at the local zoo and share them with the zoo education department.

*Grade 3-5 Adaptation: Focus your students’ attention on local wildlife and use Student Handout #3 as a guide for creating a poster about their selected local animal. Students will present their posters to their classmates.*

## Student Handout #1: North American Animal Bio Blitz!

1. Outline the region on the map where your research team will conduct its bio blitz



2. List of animals found in our assigned research region:

## Student Handout #2: Virtual Field Trip: Meet the Animals of North America

Animal	Location	Adaptations	Threats
<i>Wolf</i>			
<i>Bald Eagle</i>			
<i>Sea Lion</i>			
<i>Other</i>			

## Student Handout #3: Spotlight on North American Animals

1. Name of Animal: \_\_\_\_\_

2. Location where the animal lives: \_\_\_\_\_  
*Mark on map below.*



3. Description of where the animal lives:

4. What does it eat? How does it get food?

5. Does the animal have predators? How does it protect itself?

6. How does it find a mate and reproduce?

7. Adaptations of the Animal

*Draw a picture of your animal and label the physical characteristics of the animal that help it survive in its environment.*



## **Student Handout #3: Spotlight on North American Animals (cont.)**

8. Is the animal endangered? If it is, explain why?

9. My ideas for educating my classmates and my community about this special animal are: