

Our Animal Neighbors

**Field Trip and Classroom Kit Overviews, Plus
Supplemental Activities**

**A Collaboration between the
Santa Cruz Museum of Natural History**

and

The UCSC Ken Norris Center for Natural History



Title: Our Animal Neighbors

Topic: Animal adaptations and interactions, identification of local species and habitats, and nature connection.

Why is this a relevant and interesting topic? Being able to identify local species and their specific adaptations for their habitats brings people closer to their native environment. It also helps children to make connections to the natural world and inspire them to care about their wild animal counterparts. Native animals are a critical aspect of ecosystems, their adaptations are indicative of how they live successfully in their environment.

Theme Statement: This field trip program will offer students the opportunity to get close to animals and interact with specimens. Students will learn how to identify native animals and discuss structure/forms that help them to survive. This will encourage them to connect with wildlife and build a compassionate relationship with the natural world.

Stewardship Goal: Visitors should create a concrete connection to the natural world through observation and identification, this will inspire interest in the conservation of fauna and their habitats.

Objectives:

1. Be able to correctly identify three native animal species.
2. Understand the broad concept of predator/prey relationships, specifically in the context of the relationship between a bobcat, jackrabbit, and red-tailed hawk.
3. Identify two different adaptations for specific animals and explain why they help the animal survive in their particular habitats.
4. Know what a habitat is, and recognize humans are animals living in their own habitat with these animals as their neighbors.

Next Generation Science Standards

	Kindergarten	First Grade	Second Grade
<i>Performance Expectations</i>	<p>K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.</p> <p>K-2-ETS1-1 Ask questions based on observations to find more information about the natural and/or designed world(s).</p>	<p>Relates to: 1-LS1-1 From Molecules to Organisms: Structures and Processes. <i>Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</i></p>	<p>2-LS4 Biological Evolution: Unity and Diversity. <i>Make observatinos of plants and animals to compare the diversity of life in different habitats.</i></p>
<i>Science and Engineering Practices</i>	<ul style="list-style-type: none"> - Asking Questions and Defining Problems - Planning and Carrying Out Investigations - Analyzing and Interpreting Data - Engaging in Argument from Evidence 	<ul style="list-style-type: none"> - Planning and Carrying Out Investigations - Analyzing and Interpreting Data - Engaging in Argument from Evidence - Obtaining, Evaluating, and Communicating Information - Scientific Knowledge is Based on Empirical Evidence 	<ul style="list-style-type: none"> - Planning and Carrying Out Investigations - Analyzing and Interpreting Data - Engaging in Argument from Evidence - Scientific Knowledge is Based on Empirical Evidence - Obtaining, Evaluating, and Communicating Information
<i>Disciplinary Core Ideas</i>	<p>LS1.A Structure and Function K-LS1.C: Organization for Matter and Energy Flow in Organisms K-LS1-1: All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow</p> <p>K-ETS1.A: Asking questions, making observations, and gathering information are helpful in thinking about problems</p>	<p>LS1.A Structure and Function 1-LS1.A: Structure and Function All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow 1.LS1.D Information Processing Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.</p>	<p>LS4.D: Biodiversity and Humans There are many different kinds of living things in any area, and they exist in different places on land and in water</p>

<i>Crosscutting Concepts</i>	<p>Patterns (K-LS1-1): Patterns in the natural and human designed world can be observed and used as evidence</p> <p>Interdependence of Science, Engineering, and Technology (K-ESS3-2): People encounter questions about the natural world every day</p>	<p>Patterns (1-LS1-2), (1-LS3-1): Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.</p> <p>Structure and Function (1-LS-1): The shape and stability of structures of natural and designed objects are related to their function(s).</p>	<p>Structure and Function (2-LS2-2): The shape and stability of structures of natural and designed objects are related to their function(s).</p>
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Common Core Standards Met During Program

	Kindergarten	First Grade	Second Grade
<i>Common Core State Standards Connections</i>	<p>ELA/Literacy</p> <p>SL.K.3: Ask and answer questions in order to seek help, get information, or clarify something that is not understood.</p> <p>Mathematics</p> <p>K.MD.A.2: Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference</p>	<p>ELA/Literacy</p> <p>(W.1.8): With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.</p>	<p>ELA/Literacy</p> <p>SL.K.3: Ask and answer questions in order to seek help, get information, or clarify something that is not understood.</p> <p>Mathematics</p> <p>K.MD.A.2: Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference</p>

Our Animal Neighbors is a comprehensive program that has been developed in tandem with Next Generation Science and Common Core Standards.

These standards encourage outdoor, experiential learning across multiple grade levels. The program utilizes different learning modalities to access a diverse audience. The concepts discussed will provide a comprehensive understanding of animal adaptations, predator/prey relations, and habitat needs. Standards are present throughout activities in the program to ensure maximum retention of information. Students will be given a foundation in ecosystem dynamics that will allow for continued understanding throughout the education system. Simultaneously, the program will connect the students to local environments to inspire self-directed learning and exploration.

Our Animal Neighbors Classroom Kit Outline and Supplemental Activities

Why do we provide the Classroom Kit?

This activity kit is designed to familiarize your students with topics presented in the “Our Animal Neighbors” field trip, and to provide a depth of experience and opportunity to apply knowledge after the trip. The activities within this kit will give your students a better understanding of such topics as **adaptations**, **habitat**, and **predator-prey relationships** using unique artifacts and hands-on exploration.

How does it work?

We recommend that these activities are done in the order that they are presented, for a more comprehensive understanding of relevant concepts. These activities can be adjusted to different age or learning groups by adjusting the level and amount of reading and writing, and choosing appropriate vocabulary. For example, if you feel that there are too many words for a younger age group, focus more on observational learning; included worksheets can be omitted. Conversely, if you feel as though your students could benefit from more written analyses, feel free to assign the extensional writing prompts provided with particular activities, which help to further understanding and scientific observational skills.

Classroom Kit Contents

1. Supplemental Activity Curriculum Descriptions
2. Visual Aids to support curriculum, including habitat photos, diagrams, and worksheets
3. Skulls and animal footprint molds to support curriculum, including examples of carnivores, herbivores, and omnivores.

List of Activities and concepts covered

1. **Animals In Their Habitat** - Habitats and adaptations
2. **Hunt Like a Hawk Game*** - Adaptations, food webs, animal interactions, camouflage
3. **Create A Creature*** - Adaptations, survival, habitats
4. **Track Detectives** - Tracks, making observations and comparisons, identifying patterns
5. **Skull Discovery** - Skulls, diet (herbivore, omnivore, carnivore), form and function

* These activities are described below. The Classroom Kit includes the visual aids and materials for all activities, but many can be recreated with materials in most classrooms.

Hunt like a Hawk Game

Learning Objectives

By the end of the activity, students will understand:

- The essential components to a food web, namely in predator-prey relationships
- That both predators and prey are necessary for a healthy and functioning ecosystem
- How animals use adaptations to help them survive, especially in the way they hunt or avoid being hunted
- What camouflage is, and how it is used by prey to avoid being hunted

That hawks are excellent predators, who use their adaptation of keen eyesight to effectively locate and kill prey

Key Terms

Predator: an animal that kills and eats other animals.

Prey: An animal that a predator eats.

Adaptation: something an animal *has* or *does* that helps them survive in their environment

Population: total number of animals in a certain place

Habitat: the natural home or environment of an animal, plant, or other organism. A habitat must include food, water, and shelter to help the animal or plant survive

Camouflage: the way an animal can hide by blending into their environment

Background Information

A hawk is a **predator**, who hunts and eats various animals to survive. An animal like a mouse, rabbit, or snake, is considered typical **prey** for a hawk.

In order to survive, many prey have **adapted** to be able to escape from predators using **camouflage**. Camouflage can help prey, like mice, insects, and rabbits, to remain hidden from their predators.

Predators can have trouble finding and catching well-hidden prey. Because their prey can blend in well with their surroundings, predators have special adaptations that help them find their prey. For example, a hawk has excellent eyesight that can help them find their prey, and an owl has excellent hearing to be able to hear prey.

Many animals that are highly predated (eaten often) will have many offspring. For example, one mouse can have about 100 pups (offspring) in a year, and insects can lay hundreds of eggs in their short life! Predators help the environment by keeping prey

populations low. For example, Barn swallows can eat up to 850 insects in a day! Predators can even help keep diseases from spreading, by eating sick prey animals.

Birds are important predators in many different **habitats**. One example of an important predator is a Red-Tailed Hawk, which is local to Santa Cruz and all of North America. Red-tailed Hawks eat mice, snakes, squirrels and rabbits, among other small animals.

Preparations

Materials:

- 5 laminated hawk pictures with string

Directions for the Hunt like a Hawk Game

1. *Hunting Like a Hawk*: Even the best camouflage can fail if a hidden animal suddenly moves and catches the predator's eye. In this game, we will demonstrate how movement can attract predator's attention.
2. Distribute 5 of the laminated hawk pictures with strings to random students. These 5 students will wear these pictures around their neck, and be the "predators" in this game.
3. The rest of the students will be the prey: have these students move about the room pretending to be small animals, such as a rabbit, mouse, squirrel, or snake.
4. When you call out "Hawk!" the prey must freeze. The hawks will then visually search for movement or sound; any student that moves even slightly must take his or her seat.
5. Afterwards, discuss with the class what would really happen in the wild. Why is camouflage alone not enough protection? What other **adaptation** must prey use to help protect themselves from predators? (Running/hopping, hiding, etc.)

Extensional writing prompt: Would you rather be a predator or prey? Why? Write about the good and bad things about being either a predator and prey. Be creative, you can think about a specific animal if you'd like!

Adapted from: Critter Camouflage Lesson Plan (www.scholastic.com); Predator-Prey Game (www.birdday.org)

Create a Creature

Learning Objectives

By the end of the activity, students will understand:

- How animals use their adaptations (often external parts of their bodies) to survive in their habitats
- How adaptations are specific to the habitat an animal lives in
- How some adaptations may work in some habitats, but not others
- That individual animals have traits that are recognizable as similar but can also vary in many ways.

Key Terms

Adaptation: something an animal *has* or *does* that helps them survive in their environment

Habitat: the natural home or environment of an animal, plant, or other organism. A habitat must include food, water, and shelter to help the animal or plant survive

Background Information

An **adaptation** is something an animal or plant *has* or *does* that helps them live in their **habitat** (a place where an animal lives). Many animals use adaptations to live in certain places, like the fur that polar bears have in order to live in cold places. Animals may also use their adaptations to be able to live in a *changing* habitat, like the way a bat hibernates (rests during the winter) during winter months.

Adaptations evolve over *long periods of time and many generations*. Animals are born with these adaptations, and pass it down to their babies. Many animals have similar adaptations, (for example, many animals can hear very well) and many animals have *unique* adaptations- or those that they do not share with many other animals (for example, the flying squirrel can fly without wings by using skin flaps!)

Preparations

Materials:

- Assorted recycled materials to build creatures (corks, pen caps, pipe cleaners, straws, bottle caps, film canisters, yarn, etc) and/or clay
- (optional) 5 habitat placards: desert, ocean, forest, grassland, arctic
- Create a Creature Challenge Card

Directions for Create a Creature game:

1. Discuss how animals use adaptations to survive in different ways and in different habitats. Ask students to share examples of adaptations that help animals find food, protect themselves from predators, and survive in a particular habitat.
2. Distribute one craft kit to each of 5 groups.
3. (Optional) Give each group a habitat card. If students are unfamiliar with their habitat, help them study the picture for clues about conditions and potential food: Are there places to hide? Are there a lot of plants? Are there things that might be challenging, like hot sun or battering waves? Alternately, review one habitat with the whole class, and have everyone create a creature for the same habitat.
4. Tell the students that they will try to create their own creature using the crafts they are given.
5. Their special task is to create an animal with adaptations that help them survive in their assigned habitat (or the one habitat for the whole class) . Their animal must have adaptations to help it get food, protect itself, and survive the specific challenges and conditions in their habitats. Display the Challenge Card for students to refer to as they create their creatures. Each of the craft materials can be used as different adaptations, so they can be creative in their creature creations.
6. After each of the groups have made their own creature, have the students present their animal to the class. What adaptations did they use for their animal? How does this help them live in their habitat? What will the animal do if their habitat changes?

Extensional writing prompt: Create a poem about an animal: For the first line write an animal's name, on the second line include 2 adjectives describing the animal, then 3 verbs, then 2 more adjectives, then finally one more noun that represents the animal.

Extensional activity: Students should keep their animals, but pass their habitats to a different group. How well would their animal survive in this new habitat? Allow students to argue their case: my animal would die..., my animal would still be able to find food..., my animal would do better, because....