



Wildlife Field Guide

Grade Level: 4-10
Length: 120 Minutes
www.pwsrcac.org/lessons

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NGSS Standards

4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Crosscutting Concepts

Patterns Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

Structure & Functions The way an object is shaped or structured determines many of its properties and functions.

Related Resources

Supporting Materials

<http://www.adfg.alaska.gov/index.cfm?adfg=educators.notebookseries>

Overview

A variety of animals rely on healthy habitats.

Objectives

- Students will identify several species of animals in southcentral Alaska or their local region.
- Students will recognize the major habitat needs of different animal species.
- Students will understand the biodiversity of southcentral Alaska or their local region.
- Students will understand the interdependence of living things in an ecosystem.

Materials

- ☐ Paper
- ☐ Pens or Pencils
- ☐ Markers, Colored Pencils, Crayons
- ☐ Glue or Tape
- ☐ Scissors
- ☐ AK Department of Fish and Game Wildlife Notebook (or online access)
- ☐ Field Guides and/or access to Online Resources and/or Access to Experts in the Community
- ☐ Whiteboard or Poster Board
- ☐ Dry-Erase Markers or Colored Markers.

Notes

Background

Southcentral Alaska is a haven for many species of wildlife: five species of salmon, bottom fish, shellfish and other invertebrates, marine mammals, terrestrial mammals, shorebirds, sea birds, migratory ducks, birds of prey, and terrestrial insects and other invertebrates. The crude oil that spilled from the *Exxon Valdez* in 1989 contaminated many coastal habitats, altering the life cycles, health, and feeding habits of a wide array of species. Despite the oil spill, many of these animals still utilize the rich habitats of southcentral Alaska. The biodiversity of the region is incredible and tied to the health of the ocean. This region is an excellent focal point for creating a wildlife field guide. However, if your school is located outside of southcentral Alaska, you may prefer to focus on habitats and species local to your area. You could also compare and contrast your habitats and species with those found in southcentral Alaska, or to compare and contrast the area affected by the *Exxon Valdez* oil spill with the area affected by the *BP/Deepwater Horizon* oil spill.

Preparation

Print a number of copies of the AK Department of Fish and Game Wildlife Notebook series (<http://www.adfg.alaska.gov/index.cfm?adfg=educators.notebookseries>). If you prefer not to print copies, prepare computers for students to access the series. Compile relevant field guides and bookmark a few pages of interest.

>>Teacher tip: If possible, bring in a guest speaker who can share about a number of local animals. This person could be a hunter, fisherman, biologist, naturalist, artist, or wildlife/fisheries manager or anyone else in the community that has expertise about animals. If you are creating the field guide over the course of multiple days, encourage students to ask their families, neighbors, and other local community members about the natural history of their animal. This helps students to draw on different types of knowledge and expertise and make connections within their communities.

Introducing the Lesson

Use a bubble diagram or other method to have the class brainstorm animal species and habitats students are familiar with. Encourage students to elaborate on their experiences exploring these habitats

and seeing animals. Ask them what they feel like when they see these animals.

Activity

1. Use a Venn diagram to compare and contrast animals found in terrestrial, intertidal, and marine habitats or to compare and contrast animal species that exist in south coastal Alaska and your region or the Gulf of Mexico. Discuss how habitat, abiotic factors (non-living things), and available resources determine what animals can live in an area.
2. If you are able to have a guest speaker, this is a great place in the lesson to incorporate that.
3. Provide copies of the AK Department of Fish and Game Wildlife Notebook series to each student or access it as a class online at: <http://www.adfg.alaska.gov/index.cfm?adfg=educators.notebooks> Hand out Field Guides as well. Pick a few species of animals and look them up as a class, calling on students to share facts about the animal like what they eat, where they live, etc. Take time to identify the external structures of these animals, as well as unique internal structures. Discuss how those structures function to support survival, growth, reproduction, and behavior for the organism. Focus both on individual structures as parts of the organism and how those parts function together in a system.

>>Teacher Tip: For example, you might point out the strong caudal fin (tail) on a salmon and ask students to identify the key functions of the caudal fin (main source of propulsion). Then you might point out the other fins, and ask what their functions are (stabilization, maneuvering, braking, balance, and steering). Together these fins function so that the salmon is able to swim in the direction(s) it wants to. Another great example of structure and function can be observed in the location of eyes on most terrestrial animals. Where the eyes are placed give a clue as to whether the species prioritizes being able to see forward or whether the species also must be able to easily see to the sides and behind, with less ability to see directly in front. Animals that are frequently preyed upon by carnivores and who eat things that don't require high visual acuity directly in front of the animal tend to have their eyes located more on the sides of their head, oriented outward. Moose, deer, and snowshoe hares are a great example of this. What other structures allow the prey to avoid being eaten? On the other hand, predators that must be able to closely observe the prey in front of them, such as wolves and lynx, tend to have their eyes located oriented forward. What other structures allow the predators to obtain food?

4. Ask students to identify the important components of a field guide. Write these characteristics on the board. Have students then make their own Wildlife Field Guide. Assign a unique species from the region to each student or allow students to choose their own species. Direct students to draw their animal, making certain the major characteristics are labeled and apparent. Direct them to label key external structures.
5. Next to each drawing, students should list the major characteristics, key external structures and their function, habitats, range, food source/prey, and predators for the species. If there are particularly important or unique internal structures, students can describe those too. The top of each field guide page should include the animal's common and scientific names. To extend the lesson, you may wish to have students research and include information on human uses of the animals and/or threats to the animals' health, including such things as habitat loss and pollution.
6. Have each student present their field guide page to the class. Compile the pages into a "Wildlife Field Guide," and make a copy available in the school or community library or post the pages online.

Wrap-up

Conclude the lesson with some dialogue or small activity to bring Discuss with students how their view of the region may have changed through this activity. Were there more animals than they thought? Explain that this field guide represents only a few of the living things in area. Can they think of living things that are missing? How long would it take to put together a comprehensive field guide? Ask students how many of these organisms might be affected by something like an oil spill or pollution.

Assessment

Have each student write a preface for the field guide that best describes the wildlife in the region and highlights some key and unique examples of how external and internal structures in these animal's function to support survival, growth, behavior, and reproduction. Direct them to include a description of at least two types of structures that are common across many animals with similar habitats or behaviors (for example, blubber in marine mammals, broad, flat tails in swimming animals, shells in intertidal organisms, claws and talons to grasp prey, etc.) and at least two types of structure

that they feel are particularly unique and interesting. Alongside the descriptions of these structures, they should explain their function. Evaluate their writing for a demonstration of understanding about the relationships of individual structures as parts that function to support the survival of the organism as a living system. Optional: Working in small groups, students should combine and refine the prefaces to create one. As a class decide which of these prefaces to use as the beginning of the book.

>>Teacher Tip: If you wish, you can also have students write in the preface about how these animals are connected to people and some of the challenges the wildlife face. If you are short on time, you can skip this assessment and evaluate students' individual wildlife pages instead. If writing a preface is not a good option for all students, instead facilitate small group discussions of key structures and functions of the animals in the region.

Wildlife Rescue Information Worksheet

Take all of these factors into consideration as you develop a strategy for wildlife rescue operations. Be prepared to defend your rationale.

COST What will be the cost of rescue, rehabilitation, and relocation? (It cost \$89,000 to rehabilitate one sea otter after the Exxon Valdez oil spill)	Upper Cost Limit	Lower Cost Limit
LOGISTICS Where will the facilities be located? What buildings could be used? Whose boats? What collection method will be used? How will staff be recruited and trained?	Facilities - 1 st Choice	Facilities – 2 nd Choice
	Boats – 1 st Choice	Boats – 2 nd Choice
	1 st Collection Method	2 nd Collection Method
	Training/Recruitment - 1 st Choice	Training Recruitment- 2 nd Choice
WEATHER What kind of weather might your crews encounter? How would this affect your recovery efforts? What weather is acceptable to work in, and what weather would force the suspension of operations?	Acceptable Weather Conditions - (How would you adjust?)	Weather Conditions Forcing Suspension of Operations
STRESS & HUMAN IMPACT Is it better to leave the impacted animals to fend for themselves, or to capture them and risk having them die from stress or disease? For many wild animals the trauma of human impact is often greater than most environmental impacts.	Negative Effects of Human Impact	Positive Effects of Human Impact