



Cactus near Devil Canyon Overlook
NPS Photo

Activity 3 Life Science

Adapting to Habitats Pete Sawtell

Bighorn Canyon is an especially diverse area. Within 70 miles, one can experience several extremely different habitats. A journey from the southern end of the canyon to the north showcases every habitat from the arid desert to the lush forests.

Beginning the journey in the south, one encounters an old-growth cottonwood riparian zone along the riverbanks. The water and cover of the cottonwoods creates a good habitat for deer, bald eagles, muskrats, ducks, geese, birds and lots of other animals.

Slightly farther north, an arid, desert type environment is home to the prickly pear cactus, sagebrush, and juniper bushes. Lizards, snakes, cottontail rabbits, bighorn sheep, and coyotes call this habitat home.

After leaving the desert, one enters a cooler

environment with Douglas fir and Ponderosa pine. Black bears, elk, and an occasional moose call this home.

The north end of the canyon opens up into a grassy plain. Pronghorn can be observed grazing among the rolling hills with hawks soaring overhead.

Often overlooked is the main habitat that stretches the entire length of the canyon, Bighorn Lake. The underwater habitat provides a home for many types of fish including walleye, bass, and catfish. Many plants and animals depend on the Bighorn Lake as part of their habitats as well.

Animals have to adapt in order to live in different habitats. Some animals are very

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Yucca at Horseshoe Bend S. Morstad



Juniper D. Cory

adaptable. The coyote, for example, can live in many types of environments. Others, like rainbow trout, can only live in a specific type of environment. They need cold, clear streams, with rocky bottoms for survival.

Animals aren't the only ones who have had to adapt to live in the Bighorn Canyon; people have lived here too, for over 10,000 years. Native Americans had to adapt to these environments, gleaning all of their food and medicine from the land. Native Americans would hunt wild game such as bison, deer, and antelope to provide themselves with meat. They would also gather and eat plants such as the fruit of the prickly pear cactus, yucca flowers, and seeds from limber pine. They would make medicine out of Juniper, Douglas fir, and many other plants. In fact Native Americans, traveling through this area had a use for just about every type of plant they encountered.

It doesn't matter if you are a Bighorn sheep, wild horse, plant or even a person; every creature in the Bighorn Canyon needs water to survive. People and animals are able to move around to find good sources of water, but plants cannot. A plant has to adapt to its surroundings.

The prickly pear cactus, a plant easily found in Bighorn Canyon, is very well adapted to a limited supply of water. One adaptation that the cactus has developed to help it go long amounts of time with a limited water supply is that they don't have leaves. If a plant has leaves, it will lose more water to the air. With smaller or no leaves a plant can maintain a higher level of moisture. Prickly pears

are very good at storing water in their stems and can go a long time without water. They also have broad, shallow root systems, so when it does rain, even for a short amount of time, they can suck up a lot of the available water. Cacti have waxy skin to seal in moisture. These are some of ways that cactus have adapted to life in a hot, dry climate.

Whether a plant, animal, or person, everything needs to have a place to live, a habitat. There are many types of habitats in Bighorn Canyon, and there are some plants and animals that are well adapted for one or more of those different homes.

Adaptations to Living



Science

Standards: Wyoming Science: Standard 1, Benchmark 5 & 6

Duration: On Site
A day long field trip

Off Site
Two hours
Class Size: Any

Objectives

Students will understand how plants and animal adapt to living in their habitats.

Vocabulary

Habitat: is a home for plants and animals.

Riparian Area: is a stream or riverside habitat.

Desert: is an arid land with few plants.

Forest: a wooded area with many trees.

Evergreen: is a tree or plant that keeps it leaves or needles all year round.

Adapt: is to adjust or change (to an environment).

Procedure

On Site

1. Stop at different areas in the park and discuss the different types of habitat.
2. Ask questions:
 - a. What types of animals might live here?
 - b. What plants live here?
 - c. What special adaptations do they have?
3. If you see any cactus, show the adaptations. Ask if they can remember any of the ways the cactus can survive in harsh environments.
4. Supplement flash cards for plants or animals that may not be seen while in the different habitat areas. Flash cards can be made using photos from the teacher supplement disc.

Off Site

1. Talk with the class about a habitat being a home.
2. Ask the students about their habitat? Ask them what we need to survive? (Food, water, shelter, etc.)
3. Make flash cards using photos of animals to discuss different habitats and adaptations they use.

Invent An Animal



Science, Art, Language Arts

Standards: Wyoming Science: Standard 1, Benchmark 3, 5, & 6
Wyoming Language Arts: Standard 3, Benchmark 1, 2, & 6
Montana Art: Standard 1, Benchmark 3 & 4

Duration: 2 hours – for discussion, drawing, and presentations

Class Size: Any

Objectives

The students will:

1. Identify specific adaptations that aid animals in survival.
2. Understand the special environment of Bighorn Canyon and its diverse habitats

Vocabulary

Ecosystem: is a large ecological unit or area where plants and animals live and interact with the abiotic factors of the physical environment.

Abiotic factor: is a characteristic of the physical environment such as temperature, humidity, slope, soil type, shade, and wind.

Community: are the living components of an ecosystem. The plants and animals forming the community are dependent upon one another.

Niche: is the role a particular organism plays within its community, its job.

Species: are organisms with shared characteristics, capable of interbreeding.

Carnivore: is an animal that eats meat.

Omnivore: is an animal that eats both plants and animals.

Herbivore: is an animal that eats plants.

Materials

1. A field guide to birds, mammals, and reptiles
2. Drawing paper
3. Colored pencils

Invent An Animal Cont.



Science, Art, Language Arts

Procedure

All organisms that live in varied habitats have physical, biological, and behavioral adaptations that help them survive in their environment. In this activity students will work collaboratively to create fictitious animals in order to understand adaptations that help wildlife survive.

1. Explain how physical, biological, and behavioral adaptations help plants and animals survive.
2. Ask the students to list examples of physical, biological and behavioral adaptations among plants and animals that help them to survive.
3. Divide the class into small groups.
4. Explain that each group will be designing or creating a new animal for the Bighorn Canyon Area.
5. One student in each group should be designated as the sketch artist. Another should keep a list of the special adaptations this creature will have to survive in Bighorn Canyon
6. Distribute field guides as reference material.
7. Have student choose a habitat from “Adapting to Habitats” and explain that the animal they invent must have adaptations that enable it to thrive in the habitat it has been assigned.
8. The following questions should be addressed:
 - Does your creature lay eggs? If so, how many eggs?
 - Does your creature give live birth? If so, when and how many are born each year.
 - Is your creature camouflaged? In what way does it blend into its habitat?
 - Is your creature a carnivore, omnivore, or herbivore? What does it eat?
 - Does it have enemies?
 - How does it protect itself?
 - Where does your animal live in its habitat? (example – a den, a nest, an open field)
9. Allow 15 – 20 minutes for the students to design their creature. Have them present their creature to the class and answer the above questions. Make sure that the students name their creature.
10. Have other students take notes and ask questions or make comments about the animals presented.
11. Hang the drawings in the classroom.