

DICKINSON COUNTY NATURE CENTER

GRADE 1 — “ANIMAL ADAPTATIONS”

Core expectations

1-LS1-1 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.

Activity Time

One 45-minute session

Contact

Environmental
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Program Alignment with Iowa Core Curriculum

Disciplinary Core Ideas

- **LS1.A: Structure and Function:** All organisms have external body 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, fruit — that help them survive and grow.
- **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.

Investigative questions

- How do animals find shelter?
- How do animals find food?
- How are different animals adapted to live in different environments?
- Could an animal survive in an unfamiliar habitat?
- What body features help animals live in their specific habitats?
- What behavioral traits help animals live in their specific habitats?

Investigative phenomena

- Students will use props to discover how different animal adaptations are useful in different environments.

Practices (SEPs)

- Students will make observations about animal ambassadors and their adaptations.
- Students will identify how animal adaptations have helped with human inventions.

Cross Cutting Concepts students will identify:

- Structure and function: The shape, color and function of an animal’s body parts aid in its survival in the wild.

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SIDE 2

Supplies

All supplies brought by the nature center unless otherwise arranged.

- Hand rakes
- Swim fins
- Barbed wire
- Bike helmet
- Camo T-shirt

Animal Ambassadors

- Teddy: Ornate box turtle
- Annie: Painted turtle
- Honey: Hedgehog

Background

Adaptations are special features that animals have developed to help them survive in the wild. An adaptation may be a physical change to an animal's body or it may be a behavioral change in how an animal acts in its daily life. These adaptations help animals find food, survive against predators, successfully reproduce, and care for their young.

Examples of adaptations include sharp beaks for tearing flesh, webbed feet for swimming, hard shells for protection, and staying awake at night for hunting. Each habitat is only suitable for animals that are adapted to live there. For example a frog would not survive in a dry climate with no water.

Throughout history, humans have observed and used animal adaptations to their advantage. Scientists and engineers have studied the way animals survive in their habitat and have used these adaptations to create innovative solutions to human problems. Some of these solutions include mimicking the tough shell of a turtle to create a helmet and imitating bats and other animals by using echolocation in boats and submarines. This process of searching for solutions to human challenges by observing patterns and strategies in nature is referred to as biomimicry.

Program outline

- 1) The naturalist will begin by having students try on different props and relate the props to different animal body parts or behaviors. Students will be asked what an adaptation is and the naturalist will help explain adaptations and why they are important — for instance, they help animals find food, protect themselves, and survive in their habitat. Students will then guess where animals with the adaptations represented by the props might live. Students will be asked different habitat scenarios about the students wearing the props: Could the student with swim fins for feet live in the prairie? Could the student with hand rakes for hands live in a river? Etc.
- 2) Following the initial activity, students will be introduced to three animal ambassadors and have the opportunity to touch and make observations about each animal. Students will be asked to pay close attention to the structure of the animal's external body parts and asked what functions those may serve. Where do these animals live? How do these animals find food? How do these adaptations help them survive in their habitat? Could Teddy the box turtle live in the same place as Annie the painted turtle? Why/why not?
- 3) Lastly, the naturalist will pull out the props again and talk about how scientists and engineers use animal adaptations to help them come up with new inventions or solutions to human problems. Can anyone think of other examples of things in their life that may have been mimicked from an animal adaptation? Examples may be: Planes-birds, drones-dragonflies, suction cups-gecko feet, Velcro-thistles, etc.