SKELETONS: Museum of Osteology

Amazing Animal Adaptations

Teacher Resource

Grade Levels: 3rd – 5th Grade

3rd-5th Grade Oklahoma Academic Standards (OAS)

3-LS1-1 From Molecules to Organisms: Structure and Processes
3-LS1-1: Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

3-LS2-1 Ecosystems: Interactions, Energy, and Dynamics
3-LS2-1: Construct an argument that some animals form groups that help members survive.

3-LS3-1 Heredity: Inheritance and Variation of Traits
3-LS3-1: Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

3-LS3-2 Heredity: Inheritance and Variation of Traits
3-LS3-2: Use evidence to support the explanation that traits can be influenced by the environment.

3-LS4-2 Biological Unity and Diversity
3-LS4-2: Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving and reproducing.

3-LS4-3 Biological Unity and Diversity
3-LS4-3: Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

3-LS4-4 Biological Unity and Diversity
3-LS4-4: Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.*

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

4-LS1-2 From Molecules to Organisms: Structure and Processes
4-LS1-2: Use a model to describe that animals' receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

5-LS2-2 Ecosystems: Interactions, Energy, and Dynamics

5-LS2-2: Use models to explain factors that upset the stability of local ecosystems.

Program Overview:

Amazing Animal Adaptations will familiarize students with a number of types of adaptations through hands-on observation of various specimens. The participants will work in teams to evaluate their specimens, determine what types of adaptations they exhibit, and then communicate their finds to the class.

Learning Objectives:

- Participants will successfully identify types of adaptations by examining a variety of specimens (skeletal and otherwise).
- Participants will successfully work in a team environment and communicate their observations to their fellow classmates.

Background:

Adaptation is a process of nature in which an organism becomes better suited to its habitat. Adaptations can be found throughout nature. In vertebrate species, these adaptations often affect the skeletal system. One obvious example of skeletal adaptation can be found in locomotion. Other types of adaptation can be seen in the mouths of animals

Vocabulary:

Adaptation: a process of nature in which an animal becomes better suited to its habitat

Habitat: soil, water, climate, plants and animals of a particular ecosystem

Carnivore: animals that primarily eat meat

Herbivore: animals that primarily eat plants

Omnivore: an animal that eats meat and plants

Predator: animals that attack and eat other animals

Prey: animals that are attacked and eaten by other animals

Vertebrate: animals with backbones

Mimicry: when an animal resembles its surroundings or another animal in appearance or behavior

Food Chain: the hierarchy of animals that eat one another – herbivores at base, going up and up to successively more elite predators

Camouflage: a type of adaptation in appearance which allows an animal to blend in with its surroundings

Exaptation: a feature that preforms a function that was not produced by natural selection for its current use

Defense: a behavior exhibited by an animal to protect itself from attack

Reference: visit the SKELETONS: Museum of Osteology Education web page at: http://skeletonmuseum.com/education

Recommended Readings:

Goodman, Susan E.
2001 *Claws, Coats, and Camouflage.* Millbrook Press, Minneapolis, MN.

Lundgren, Julie
2011 *Animal Adaptations.* Rourke Educational Media, Vero Beach, FL.

Markle, Sandra
2014 *What if You Had Animal Hair?* Scholastic Inc., New York, NY.

While at SKELETONS:

- Have students discuss how a particular adaptation benefits selected animals.
- Locate the Aye-Aye skeleton and discuss its adaptations.
- Visit the Bird Exhibit and discuss the different types of bird beaks and bird feet as examples of adaptations.
- Find the Bat Exhibit and discuss the adaptations of these flying mammals.
- Discuss adaptations needed for living an aquatic environment while visiting the Penguins, Manatees, and Bony Fish.
- Visit the Cetacean Exhibit (Dolphins, Whales, and Porpoises) and examine the baleen to explain how some of the largest animals on the planet eat some of the smallest prey.
- Examine the teeth of carnivores, herbivores, and omnivores throughout the museum to discuss tooth shape as an adaptation.
- Have students visit the exhibits to identify the various types of adaptations, such as locomotion.