SKELETONS: Museum of Osteology

To Tell the Tooth
Teacher Resource

Grade Levels: 1st - 2nd

1-2nd Grade Oklahoma Academic Standards (OAS)

1-LS1-2 From Molecules to Organisms: Structure and Processes
1-LS1-2: Read text and use media to determine patterns in behavior of parents and offspring that help offspring survive.

2-LS2-1 Ecosystems: Interactions, Energy, and Dynamics
2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.

2-LS4-1 Biological Unity and Diversity
2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.

Program Overview
To Tell the Tooth enables students to discover tooth adaptations that allow mammals to survive in a variety of ecosystems. Through the hands-on investigation of specimens your students will study the teeth of herbivores, carnivores and omnivores.

Learning Objectives:
- Participants will observe various animal skulls and examine their teeth.
- Participants will correctly determine if teeth indicate an herbivore or carnivore by matching the appropriate food with the corresponding skull.
- Participants will correctly use the terms herbivore and carnivore when describing different animals.
- Participants will effectively work with a team environment and communicate their findings within their group.

Background
Mammals, as well as some reptiles, amphibians and fish, have teeth. The teeth of an animal can tell you a lot about that animal's life. The type, shape and number of teeth an animal has can help determine its diet. If a mammal has long, sharp canines, it was most likely a predator. Canines are used for grabbing, holding and killing prey. Some meat eating mammals (carnivores) have sharp shearing cheek-teeth called carnassials. These teeth act like a scissor to cut through tough flesh and to break it into smaller pieces for swallowing and digestion. Examples of carnivores include cats, dogs and weasels.

Plant eating animals tend to have flat teeth specialized in chewing various parts of plants. Some plant eaters eat a variety of grasses (grazers), some eat twigs, leaves and berries (browsers) while others eat only specific plant parts (I.e. roots, fruit, etc.). In order to properly digest vegetation, an animal must chew its food to help break down the plant. Most herbivores have cheek teeth called molars. These molars help grind leaves, stems, grasses, fruit and even seeds before the animal swallows them. Examples of herbivores include deer, rabbits and cattle.

Some animals eat both plants and animals (omnivores) and have both types of teeth. Examples of omnivores include pigs, bears and humans.

Vocabulary

Adaptation: Changes in behavior and/or physiology of an animal to better suit it to its environment

Browser: Herbivores that primarily eat twigs, leaves and berries

Carnassial: A carnivore's cheek teeth specialized for shearing meat

Canine teeth: Teeth that are pointed and conical, located between the incisors and premolars

Carnivore: Animals that primarily eat meat

Dentition: An animal's teeth used to acquire food, for defense, grooming and display

Food Chain: The transfer of energy from one type of plant or animal to another

Grazer: Herbivores that primarily eat grasses

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

Herbivore: Animals that primarily eat plants

Incisors: The front cutting teeth located anterior to the canine teeth

Molars: The rear grinding/shearing teeth located posterior to the premolars

Omnivore: Animals that eat both plants and meat

Predator: Animals that attack and eat other animals

Premolars: Teeth located between the canines and molars used to hold prey, assist in cutting and/or grinding

Prey: Animals that are attacked and eaten by other animals

Shelter: Somewhere for animals to hide, sleep, raise young, etc.

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

Recommended Reading:

Gilbert, B. Miles
   1990   *Mammalian Osteology.* Missouri Archaeological Society, Columbia, MO.

Roest, Aryan I.
   1991   *A Key Guide to Mammal Skulls and Lower Jaws*. Mad River Press, Inc., Eureka, CA.

Searfoss, Glen
   1995   *Skulls and Bones*. Stackpole Books, Mechanicsburg, PA.

While at SKELETONS:

- Have students visit the exhibits to identify whether the animal is a carnivore, herbivore, or omnivore.
- Have students discuss tooth characteristics and what they tell about the animal's diet.
- Visit the Touch Table to hold and examine the teeth of many animals including a Black Bear, Coyote, Beaver, Bobcat, Deer, and Opossum.
- Have students look for the Tiger chasing the Blackbuck Antelope to see their predator-prey relationship in motion.
- Look at the Hoofed Animals Exhibit and discuss why eye placement is significant for Herbivores.