Animal Adaptations: An Appetite for Adaptations

Overview

A video introduction shows examples of an herbivore, a carnivore, and an omnivore. Students then make their own model eyes and ears so they can get a first-hand idea of how animals have adapted different eyesight and hearing to spot predators or sneak up on prey.

Guiding Question

What adaptations might an animal have to find and eat their food?

Objectives

Students will be able to explain how an animal's adaptations are related to what it eats.

Background

Animal adaptations are characteristics that allow animals to survive in their environments. There are different types of adaptations. Physical adaptations are how the animal's body functions or looks on the outside. Body parts (such as feet and ears) and body coverings (such as fur and scales) are physical adaptations. Physical adaptations also include changes in the cells, chemicals, and processes inside an animal's body. Behavioral adaptations are how an animal acts. Actions such as hibernating and communicating are behavioral adaptations.

Time: 15–20 minutes

Grade Level: 4

Vocabulary

- Adaptation
- Carnivore
- Herbivore
- Model
- Omnivore
- Predator
- Prey

Standards

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

CCSS.ELA-Literacy.W.4.1.B

Preparation

For this activity, the educator will need the following:

- Video: *Animal Adaptations: An Appetite for Adaptations* (3:56)
- A way to show the video to students
- 3 cups, paper or foam
- 1 marker
- scissors

For this activity, each pair of students will need the following:

- 1 copy of *Predator and Prey* (English | Spanish | Answer Key)
- 3 cups, paper or foam
- 1 marker
- scissors

EiE® Connections

Continue your classroom activities with these units:

Engineering is Elementary®

- *Designing Hand Pollinators*
- *Designing Model Membranes*
- *Seeing Animal Sounds*

Museum of Science Connections

Check out the *Mystery Skulls* virtual exhibit to see how animals' eyes and ears fit in with other structural adaptations.

Learn about the origin of visual adaptations from the Pulsar podcast episode "Where Did Eyes Come From?" and the diversity of human ears from "How Is an Ear Like a Fingerprint?"

Extend your exploration of adaptations to the plant world with the Sparks of Science video "Fascinating Carnivorous Plants."

You can make more observations of animals' adaptations in person at the *Live Animal Care Center* at the Museum of Science, Boston.

Family Connections

Continue the learning at home with EiE Families and STEM Events or Family STEM Activities from MOS at Home.

Animal Adaptations: An Appetite for Adaptations

Activity Instructions

These steps offer support for implementing the *Animal Adaptations: An Appetite for Adaptations* video introduction and follow-up activity with students.

1. Before showing the video introduction, discuss these questions

Q: What kinds of things do you like to eat?

A: Accept all responses. Point out items that are meat or animal products and items that are plants.

Q: What kinds of things do animals eat?

A: Accept all responses. Point out items that are meat or animal products and items that are plants.

2. Play the video *Animal Adaptations: An Appetite for Adaptations* (3:56). This video shows examples of an herbivore, a carnivore, and an omnivore that live at the Museum of Science, Boston, and discusses their adaptations.

watch video

3. After showing the video, discuss these questions:

Q: What are some adaptations that help keep animals safe and healthy?

A: Accept all responses. Possible responses include claws, large ears, or sharp teeth?

Q: Are eyes a structural or behavioral adaptation?

A: Structural adaptation.

Q: What would happen to an animal if it could not find and eat food?

A: A possible response is that it would die.

4. Distribute the *Predator and Prey* (English | Spanish) handouts and have each pair of students make observations about rabbits' and tigers' eyes and ears. Tell students that one thing they cannot observe from the picture is that rabbits can rotate their ears to face different directions.

5. Explain that students will now use a model to learn more about how animals' eyes and ears can help keep them healthy or safe. Tell students that a **model** is a representation of an object, system, or process.

6. Demonstrate how students can create a model of a predator's eyes and ears. Note that a **predator**, such as a tiger, is an animal that hunts and eats other animals. Cut the bottom off of two cups. Use a marker to label the cups "predator." Hold the cups to your eyes like binoculars to look through them. The top of the cups should be closest to your face. Then hold the cups facing forward in front of your ears and listen through them.

7. Have students work with a partner to create and test predator eyes and/or ears. They should record observations about what they can and can't see and hear on their handout.

8. Demonstrate how students can create a model of prey's eyes and ears. Note that prey, such as a rabbit, is an animal that is eaten by other animals. Cut one cup in half lengthwise. Use a marker to label the pieces "prey." Hold the cups to your eyes like binoculars so you can see through them. The top of the cups should again be closest to your face. Then hold the cups to your ears to help you hear. Rotate the cups in different directions like moving ears.

9. Have students work with a partner to create and test prey eyes and/or ears. They should record observations about what they can and can't see and hear on their handout.

10. After completing the activity, discuss these questions:

Q: How do a tiger's ears help it stay healthy?

A: Accept all responses. A possible response is that having forward-facing ears helps tigers hear and chase animals to eat.

Q: How do a rabbit's eyes help protect it?

A: Accept all responses. A possible response is that having eyes on the sides of their heads helps rabbits notice predators and escape before they get eaten.

Q: What adaptations might an animal have to find and eat their food?

A: Accept all responses. A possible response is that animals have both structural and behavioral adaptations to help them find and eat their food. Predators can have eyes and ears that help them catch prey. An animal's teeth or claws can help it access and chew its food. And an animal's actions, such as being awake at night, can keep it safe while it eats its food.

Glossary

Adaptation
a structure or behavior that animals or plants have to help them survive

Carnivore
an animal that eats meat

Herbivore
an animal that eats plants

Model
a representation of an object, system, or process

Omnivore
an animal that eats both plants and meat

Predator
an animal that hunts and eats other animals

Prey
an animal that is eaten by other animals