Animal Adaptations

Overview

Students will learn how different animals have developed structural and behavioral adaptations to survive. Students will work with a partner as they complete six stations about different adaptations. This lesson can be used prior to your visit to the Museum of Natural and Cultural History.

Objectives

Students will:

- Understand what adaptation is
- Understand what a structural adaptation is
- Understand what a behavioral adaptation is
- Describe which adaptations various animals developed

Vocabulary

- **Adaptation:** a change or the process of change by which an organism becomes better suited to its environment
- **Structural adaptation:** a physical feature of an organism that has changed over time
- **Camouflage:** something (such as color or shape) that protects an animal from attack by making the animal difficult to see in the area around it
- **Mimicry:** the superficial resemblance of two or more organisms that are not closely related
- **Behavioral adaptation:** something an organism does to survive
- **Hibernation:** when an animal spends the winter sleeping or resting
- **Migration:** when an animal moves from one area to another at different times of the year

Background Information

Plants and animals have lived in the wild for millions of years. In order to do so, they have developed adaptations to increase their chances of survival. An adaptation is a change or the process of change by which an organism becomes better suited to its environment. These adaptations can be structural or behavioral.

A structural adaptation is a physical feature of an organism that has changed over time. Often these develop due to the environment of the

Subject

Science

Grade

4th-8th

Time

45-60 minutes

Materials

- Station worksheets
- Pencils
- Pictures of animals with structural adaptations
- Pictures of animals with behavioral adaptations
- Labels: hibernate/migrate/hang out; behavioral/structural; camouflage/mimicry
- Pictures of animals with various adaptations (see examples in lesson)

Set Up

Six tables/spaces for each activity and 3-4 chairs around each table.

Standards (NGSS)

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-LS2-1: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

MS-LS1-4: Use argument based

animal. A bird has feathers to help it fly, bears have fur to keep them warm in the winter, and arctic marine mammals have blubber to keep them warm in the icy water. Camouflage and mimicry are other structural adaptations. These help animals blend in with their environment to avoid predators. A lizard's body can change color, a praying mantis looks like a leaf, and many butterflies blend in with the flowers or trees they land on.

A behavioral adaptation is something an organism does to survive. Animals do this as a reaction to the changes in climate in their environment. Bears, skunks, bats, and snakes will hibernate (go into a deep sleep) during the coldest months of the year. On the other hand, birds, deer, elk, and moose will migrate to warmer climates as the temperature drops.

Classroom Activity (40-50 min)

Intro: Ask students, "What is a habitat?" (a home or environment of living thing, where animals live, where plants live, etc.). Ask students to name some different habitats (grassland, forest, mountain, desert, marine, etc.).

Tell students many animals had to develop adaptations in order to successfully survive in these different habitats. Tell students an adaptation is a change or the process of change by which an organism becomes better suited to its environment. Show students pictures of different animals (giraffe, frog, elephant, etc.) and have them "guess" one of the adaptations each animal developed (giraffe = long neck, frog = long legs, elephant = trunk, etc.). Tell students adaptations can be sorted into two categories: structural and behavioral.

Tell students a structural adaptation is a physical feature of an organism that has changed over time. Tell students this could be a body part or a pattern on the animal's body. Tell students these patterns can be called camouflage (something that protects an animal from attack by making the animal difficult to see in the area around it) or mimicry (the superficial resemblance of two or more organisms that are not closely related).

Show students examples of different animals with structural adaptations and have students describe what the adaptations are (butterfly = camouflage, lizard =mimicry, bird = beak, stick bug = mimicry, etc.).

Tell students a behavioral adaptation is something an organism does to survive. Tell students they can be separated into two categories, as well: hibernation and migration. Tell students hibernation is when an animal spends the winter sleeping or resting. Tell students migration is when an animal moves from one area to another at different times of the year.

on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

MS-LS2-4: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-LS4-4: Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

Show students examples of different animals with behavioral adaptations and have students tell whether they hibernate or migrate (bear = hibernate, bird = migrate, bat = hibernate, etc.).

Divide students into pairs or small groups. Tell students they will work with a partner in different activity stations to further understand animal adaptations. Have the students bring a notebook and pencil to record their responses and observations to each activity.

Activity Stations:

Station #1-Compare/Contrast Adaptations

Students will look at five sets of photos of animals from the same families. They will compare and contrast the animals' adaptations. Ex: sea turtle and snapping turtle; pelican and albatross; frog and toad; gecko and lizard; etc.

Station #2-Behavioral or Structural Adaptation?

Students will divide pictures of animals into behavioral adaptation or structural adaptation. Students will record responses in notebooks to justify why each animal was placed in each category. Ex.: bear, skunk, goose, elephant, giraffe, etc.

Station #3-Hibernate, Migrate, or Hang out?

Students will divide pictures of animals into the three categories of hibernate, migrate, or hang out. Ex.: bear, skunk, bat, goose, hummingbird, elk, deer, squirrel, etc.

Station #4-Camouflage or Mimicry?

Students will divide pictures of animals into categories of camouflage or mimicry and explain why those animals fall into each category. Ex.: butterfly, stick bug, owl, moth, etc.

Extension

Beak Experiment: Students will experiment with different bird "beaks" to determine which beak is best for each food item. Students will use a toothpick, net, tweezers, spoon, scissors, and clothes pin to pick up various objects. The objects can be gummy worms, seeds, string, uncooked macaroni, grass, etc. Students will determine which beak works best for each food and why.

Conclusion (5-10 min)

Ask student groups to share some of their observations from the stations. Discuss with students some similarities or differences they experience in their observations. Ask students to share some challenges they faced when completing the activities. Ask students how they overcame them, and how they may react if faced with the same challenge again. Answer any remaining questions students may have about adaptation, structural adaptation, or behavioral adaptation.

Adaptations:

For larger classes, create 8 stations with the four different activities so students may complete each in smaller groups.

Included worksheets and images are suggested templates. Teachers are encouraged to adapt the resources to fit their specific classroom needs.