CINCINNATI ZOO & BOTANICAL GARDEN

Frisch's Outreach: Amazing Adaptations (Gr.1-3) Extensions

At a glance

This lesson will allow the students to explore what an adaptation is and why animals and people have them.

Goal

The lesson is designed to familiarize students with the many different adaptations of humans and animals and how they aid in survival.

Objectives

1. The students will be able to define the term *adaptation* and give three examples.

2. The students will be able to explain the importance of adaptations to an animal's survival.

3. Students will be able to describe specific physical and behavioral adaptations exhibited by humans (opposable thumb, large brain, etc.)

Theme

The adaptations that animals have help them survive and meet their basic needs in their habitat.

Sub-themes

1. Animals need four things to survive-food, water, shelter, and space in their habitat.

2. Animals depend upon their varying adaptations to help them meet their survival needs.

3. The adaptations of an animal that are infrequently or never used will be reduced or absent.

Academic standards

Ohio Science Academic Content Standards	*First Grade Standards* Life Sciences-1, 3, 4 Scientific Inquiry-1, 2 *Second Grade Standards* Life Science-1, 3, 5 Scientific Inquiry-1, 2, 3, 5 *Third Grade Standards* Life Sciences-2
Kentucky Core Content—Science	*Grades Primary through 4* SC-E-3.1.2, SC-E-3.1.3

Vocabulary

1. **Adapt**—Changing in structure, form, or habits to fit different conditions.

2. **Adaptations**—Something that helps an animal survive.

3. **Behavior**—Activity or change in relation to an environment; the way an organism acts in response to a stimulus.

4. **Biome**—A natural community of plants and animals that is largely controlled by climate.

5. **Defense**—Resistance to, or protection from attack.

6. **Display**—A means of attracting attention.

7. **Habitat**—Natural home or dwelling place of an organism

8. **Hibernation**—Spending the winter in close quarters, in a torpid or lethargic state.
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9. **Migration**—To pass periodically from one region or climate to another for feeding or breeding.

10. **Mimicry** --The superficial resemblance which some animals exhibit to other animals or to the natural objects among which they live; thereby, securing concealment, protection or the like.

11. **Movement**—Change of place, position or posture; particular act or manner of moving.

12. **Sense**—The faculty by which an organism is aware of an environmental change.

13. **Survival**—Living or continuing longer than something else.

Extensions

Direct each student to make or bring to class 1 or 2 pictures of animals that exhibit camouflage. Get as many different examples as possible and display them around the room where they can stay camouflaged. Discuss camouflage as an adaptation and develop this as a discussion of other adaptations.

Prepare a collection of smells by soaking cotton balls, putting objects in small closed containers, or covering cut fruit or vegetables with foil and poking holes in it with a toothpick. Have students close their eyes and guess, after sniffing, what the odor is. (You can use freshly cut grass, onion, banana, lemon, lime, garlic juice, perfume, spices, etc.) Discuss the importance of the sense of smell to the survival of various animals. Extend this to a discussion of other adaptations and their importance to survival. The class could suggest classroom experiments that would demonstrate specific adaptations (i.e. hearing, touch, eyesight, etc.)

Decide that you are a large grass-eating (herbivore) animal. Divide the class into groups. Assign a large herbivore to each group and ask them to decide which adaptations their animal needs to be able to eat the large amounts of grasses or leaves it requires. After research, each group can present its animal and adaptations. Stimulate discussion on the differences among the animals' adaptations.

Using tape, fasten the thumb to the palm of each student's hand. Have students try picking up nuts or seeds, writing their names, cutting out paper on a line, buttoning or unbuttoning buttons, etc. Students could also try to construct a bird's nest of twigs, grass, and string without using their thumbs. Discuss the importance of the opposable thumb, to human survival. Is the thumb as important as a bird's beak in terms of survival?

Assign a different animal to each student. Each student must be able to tell, after doing research, how their animal would defend itself from cold wind, predators, hunger, drought, heat, et al. Discuss whether these are physical or behavioral adaptations.

Create a new animal! Using clay, crayons, or paint create a brand new animal. Describe what the animal looks like, and what its habitat is like. Be specific about its Amazing Adaptations!

My How You Have Changed! Draw yourself as an animal with unique adaptations. Make sure your friends can tell it is you! What can you do now that you have those Amazing Animal Adaptations?

Resources

Books:

Attenborough, David. The Trials of Life: A Natural History of Animal Behavior. Ted Smart. 1995.

Bekoff, Marc. Encyclopedia of Animal Behavior. Greenwood Press. 2004.

Goodall, Jane. In the Shadow of Man. Houghton Mifflin. 1983.

Masson, Jeffrey Moussaieff. When Elephants Weep: The Emotional Lives of Animals. Random House. 1995.

McCarthy, Susan. Becoming a Tiger: How Baby Animals Learn to Survive in the Wild. Harpercollins. 2004.

Websites:

ALA's Great Websites for Kids: Animals
http://www.ala.org/gwstemplate.cfm?section=greatwebsites&template=/cfapps/gws/displaysection.cfm&sec=1

Awesome Library – Kids
http://www.awesomelibrary.org/Classroom/Science/Animals/Animals.html

Awesome Library – Teachers
http://www.awesomelibrary.org/Classroom/Science/Animals/Animals.html

Cincinnati Zoo & Botanical Garden
www.cincinnatizoo.org