

## SCHOOL TOUR: AMAZING ANIMAL ADAPTATIONS (or How Do They Do That?)

### TEACHER GUIDE

Grades: 3<sup>rd</sup> 5<sup>th</sup>

Program Length: 2 hours

**Focus Concept:** *Animals are adapted to their environments in many different ways.*

**OBJECTIVES:** Students will

1. Define the term “adaptation” and give an example
2. Describe 3 physical and/or behavioral adaptations of beavers
3. Describe 3 adaptations used by prey animals
4. Describe 2 adaptations used by predators
5. Describe how an adaptation helps an animal survive

#### Common Core Standards Correlated

Area	Strand	Standard	Standard Numbers
English Language Arts	Speaking/Listening	Comprehension & Collaboration	3.SL.1, 3, 6 4.SL.1 5.SL.1
English Language Arts	Language	Conventions of Standard English	3.L.1 4.L.1 5.L.1

#### Next Generation Science Standards Correlated

Physical Science	Life Science	Earth & Space Science
	3-LS3-1, 3-LS3-2, 3-LS4-2, 4-LS1-1	

#### Illinois Learning Standards Correlated

Learning Area	Goal	Standard	Benchmark
Science	11	B	2b
	12	A	1a
		B	1b, 2a, 2b

#### BACKGROUND

An adaptation is a characteristic an animal or plant has that helps it survive in its environment. An adaptation can be physical or behavioral. A physical adaptation is something an animal **has**, such as specialized body parts. A behavioral adaptation is an activity or something an animal **does**, such as when a rabbit freezes when it detects a predator. Rabbits also tend to run in a zigzag pattern to throw a predator off course. During this program, students will learn about various physical and behavioral adaptations of some animals found in central Illinois.

#### SUPPLEMENTAL ACTIVITIES

The following activities are intended to provide ideas to be used before or after the field trip. Some are more appropriate for older or younger students. Feel free to adapt the activities to match your students' ability level. While doing activities, remind students that *not all adaptations are physical*. Some are behaviors (something an animal DOES) and that they should think about these during discussions, brainstorming, or research.

**NOTE:** Although the program will focus on animal adaptations, plants also have special adaptations for survival in their environments. You may adapt an activity to include plant adaptations if desired.

1. **Vocabulary:** Familiarize your students with some of the vocabulary words at the end of this guide. Depending on how far along you are with your unit, some of the words may be more familiar to the students than others. Many of them will be used during the program.
2. **Adaptation Dress-up:** (Do this AFTER the field trip. This might also require some student research.) Remind the students how one of them was dressed up as a beaver to demonstrate its adaptations for its watery environment. Now that the students are nearly experts on adaptations, have them brainstorm some adaptations of other animals living in various environments and what they could use to represent those adaptations if they were going to dress someone up as that animal. Possible examples include arctic, desert, or rainforest environments. For example, what coloration would be best for an Arctic animal? (Think about Arctic foxes, polar bears, snowy owls.) What kind of foot adaptations would it need for walking on snow? (Look at the foot of a lynx.) How does the animal keep warm? What would a desert animal need to survive? What about an animal that spends its life in the rainforest canopy? After they have brainstormed or researched the adaptations, ask them what items they could use to represent them if they were going to dress up as that animal.
3. **Think Small:** Remind students that even the smallest organisms are adapted to their environments. Ask them to think of some organisms that are smaller than their fists (mouse, vole, spider, worms, insect, etc.) and consider their adaptations. For example, what special adaptations does a spider have to make a home or get food? (Spinnerets to make a web.) How do bees communicate where to find nectar? (Waggle dance) How do some butterflies survive winter? (Some migrate; some overwinter as caterpillars.) There are other fascinating insect adaptations to look at such as bombardier beetles and ant lions. Don't forget to consider adaptations of small underground mammals, or tiny birds such as hummingbirds.
4. **Research Projects:** Generate a list of animals living in a variety of Illinois ecosystems – forest, prairie, wetland, etc. Have each student choose one of the organisms from that list and research how it is adapted to survive in its environment. What kind of home does it have? What does it eat? What eats it? (Is it a predator or a prey animal?) Could it survive in one of the other ecosystems? If so, how? If not, why not? [If adapting the activity for researching a plant, how does it defend itself? (For example, thorns) How does it survive extreme dry (prairie) or extreme wet (wetland soil) conditions? How is it adapted to reproduce if animals eat a lot of its seeds?]
5. **Seasonal Adaptations:** Animals that live in Illinois must adapt to the changing seasons. Lead a classroom discussion about how animals survive winter. Do they stay in Illinois in winter? If so, how do they survive the cold? (Stay active, grow warmer fur, make a warmer home, hibernate, overwinter in a different life stage, etc.) If they do not stay in Illinois, what do they do? Where do they go? Why?
6. **Adaptation Collage:** Using pictures from magazines or the internet have students find pictures of animals exhibiting adaptations and put them together in collages. Or create one large collage or bulletin board for the classroom. Add to it as students' knowledge of adaptations grows.
7. **Human Adaptations:** Humans also have adaptations to survive. Lead a classroom discussion of human adaptations. Humans share some animal adaptations, and have some that are unique to humans.

## VOCABULARY

**Adaptation:** A physical or behavioral characteristic that helps an organism survive in its environment.

**Behavioral adaptation:** Something that an organism DOES (a behavior) that helps it survive.

**Binocular vision:** Both eyes focus on a single object.

**Camouflage:** A color or shape that enables an organism to hide, or blend in with its environment.

**Ecology:** The study of how living and nonliving things interact in the natural environment.

**Food chain (or web):** The order in which things are eaten; the order in which energy is transferred between trophic levels.

**Habitat:** Where an animal lives and finds survival requirements such as food, water, shelter, and space.

**Mimicry:** A form of protective coloration (an adaptation) where an otherwise harmless animal looks like a harmful animal in order to protect itself.

**Monocular vision:** Focusing on a object through only one eye (each eye focusing on something different).

**Physical adaptation:** A characteristic that an organism HAS (is born with) that helps it survive.

**Predator:** An animal that hunts and eats other animals for food.

**Prey:** An animal that is eaten by a predator (another animal) for food.

**Raptors:** Birds of prey – eagles, hawks, falcons, owls.

**Talon:** Large, strong, curved, sharp claws raptors use to catch and kill prey.