

# Adaptation Exploration in your classroom

## Pre- and Post-Visit Activities

An adaptation is any behavior or characteristic that helps an individual survive and reproduce.

### Teacher Objectives:

Students will know...

1. Animals have adaptations that help them obtain and process food and water, as well as avoid enemies or predators.
2. Animals are uniquely adapted to survive in the climatic conditions of the environment in which they live.
3. Animals have adaptations that allow them to move around in their environment.
4. The difference between a behavioral and a physical adaptation.

### Pre-Visit Activities:

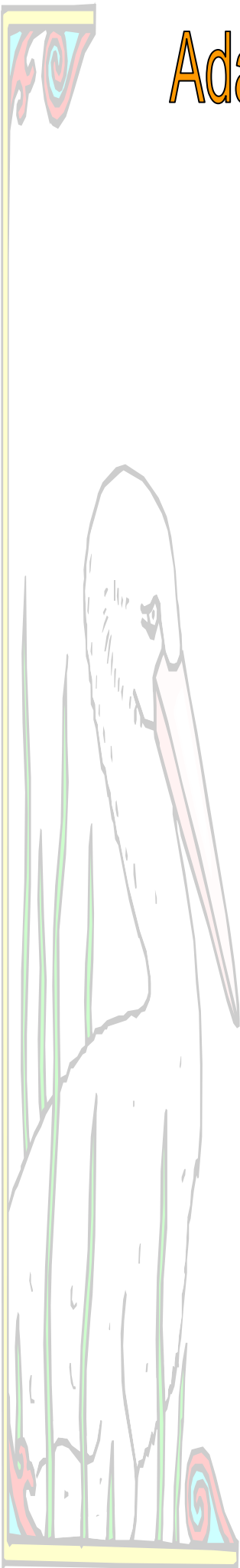
#### What Are These Thumbs For, Anyways? (Grade 2-5)

- Have students try to come up with the definition for an adaptation.
- Then talk about how we adapt to living in different environments.
- “Pack a bag” to go somewhere far away (i.e. the Arctic or Australia). What would the weather be like? What would they need to pack? How does different clothing help us adapt?
- What are some “behavioral” and some “physical” characteristics that humans have that help them to survive?
- Have students imagine life without one of these adaptations and write a story about a day without \_\_\_\_\_ (ex. opposable thumbs). How would they compensate for this loss?

**Standards: Science 3.1, 3.3, and 3.4, Reading and Writing 2 and 4**

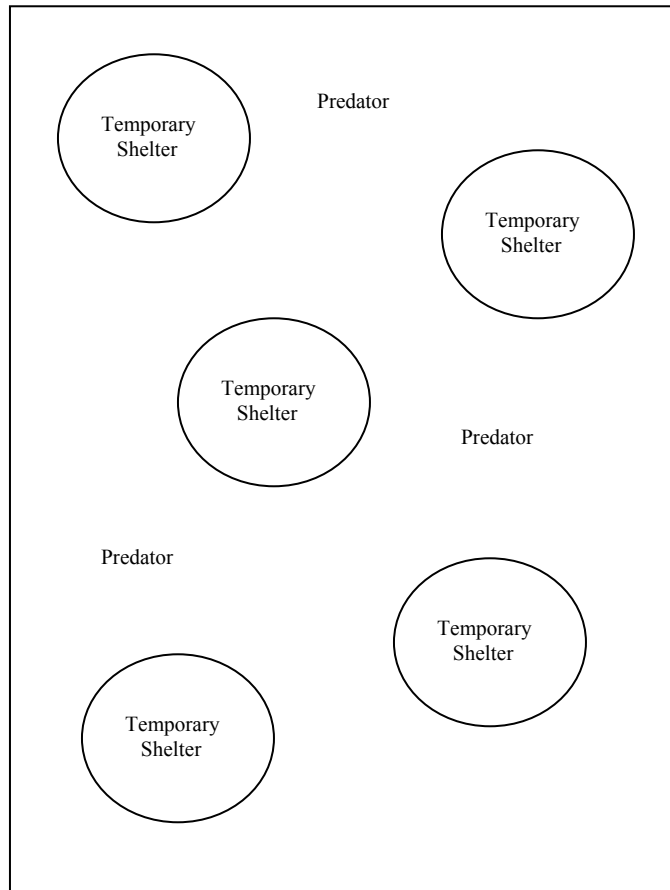
#### 1. Catch Me If You Can (adapted from “Quick Frozen Critters” in *Project Wild*) (Grade K-3)

- Talk about the differences between predators and prey.
- What are some adaptations that may help predators catch food or keep prey from being eaten?
  - Some prey behaviors are signaling to others, fight or flight, running for cover, or freezing to the spot where they are in hopes that they won’t be seen if they don’t move.
  - Some predator behaviors could be silently sneaking up on prey, running as fast as possible to catch prey, or working in a group to surround and capture prey.
- After a short discussion, divide students into predators and prey. This activity works best with at least 10 students. There should be 4 or 5 prey animals for each predator.
- Label predators with something bright like orange vests or fluorescent ribbons so that they are easy to distinguish from the prey animals.



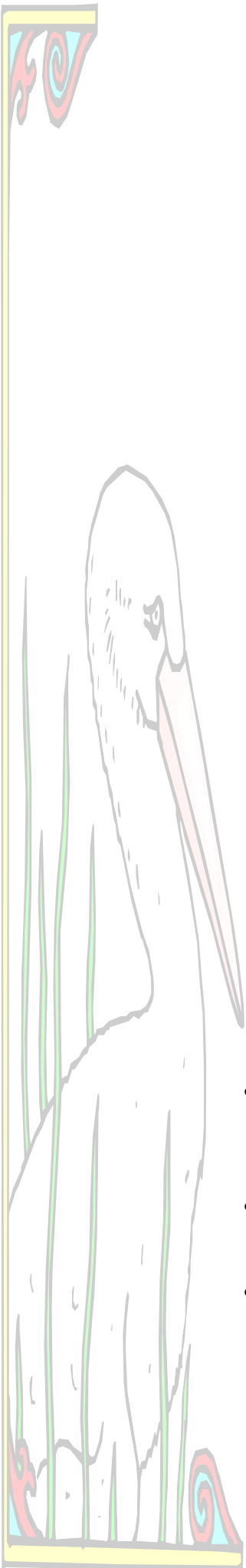
- Supply 3 food tokens (cardboard or brightly colored pieces of paper) per prey individual. You will also need hula-hoops or pieces of string in the shape of circles to create shelter for prey.
- This activity requires a large amount of space (i.e. gymnasium or open yard). Set up the space like this...

**\*\*\*\*Food Tokens\*\*\*\***



**Permanent Shelter** (prey start here)

- Explain to students that the predators need to obtain six food tokens and the prey animals need to obtain three food tokens to survive. Also, prey animals can only pick up one food token at a time before returning to their permanent shelter.
- The only way the predators can obtain food tokens is by capturing the prey individuals and taking theirs. After prey animals are captured, they should sit down.
- Prey animals can use a few different behavioral adaptations to avoid being caught: they can freeze when the predators get within 5 feet, they can warn others that predators are near, they can try to outrun the predator, or they can hide in the temporary shelters.



- Do a few rounds switching predator and prey individuals. Start and end rounds with something loud, like a whistle. At the end of the activity, engage students in a discussion about why some of them survived and some didn't. Talk about the different adaptations they used.
- Possible animal pairs you could use (choose one): prairie dog and hawk, rabbit and coyote, deer and mountain lion. Or, pair the lesson with an area of the world that you are studying (ex. Lion and zebra).

**Standards: Science 3.1, 3.2, and 3.4**

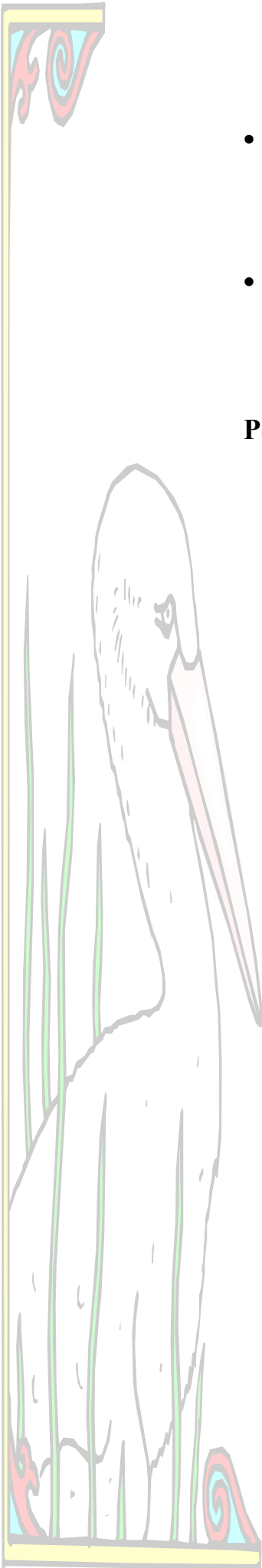
### Post-Visit Activities:

#### Animal Architects (Grade 2-8)

- Now that students know all about animal adaptations, have some fun and be creative!
- Give students numerous recycled materials such as egg cartons, baby food jars and pipe cleaners, as well as something like clay/model magic as a base.
- Randomly pass out descriptions of different ecosystems and have students design an animal that would be able to survive in that specific environment, using adaptations that they have learned about.
- After they are done creating their animals, have them present to the class by ecosystem. Talk about the similarities that students came up with, as well as the differences.
- Which architect created an animal that would be mostly likely to survive, and why? The class could vote on it.

#### Ecosystems:

- ❑ Your environment is harsh. The ground is very barren because it is so hot and dry all the time. The only kinds of vegetation that can survive are things like cacti and tumbleweed. The soil is hard and sandy. It is too hot to be out during the day.
- ❑ Your environment is very extreme. Temperatures are low and not many plants can survive here, besides moss, lichen, dwarf shrubs, and some grasses. It is a very mountainous region with rocky soil. There are a few large lakes nearby, but they are frozen for most of the year. It snows at least 6 months out of the year.
- ❑ Your environment is underwater, but not very deep. There is a lot of algae as well as an abundance of coral and other fish to feed on. Your environment is very productive because a lot of sunlight can get through the clear water.
- ❑ Your environment is very wet and lush. There is a lot of vegetation because of the enormous amounts of rainfall it receives each year. There are a lot of very tall trees, as well as many animals that you share your space with. A lot of the plants have berries, fruits, or nuts growing on them.
- ❑ Feel free to duplicate these or come up with your own ideas.



## Standards: Science 1, 3.1, 3.4, Reading and Writing 4

### **Beak-a-licious!** (Grade 2-6)

This is a matching activity in which students put their knowledge of adaptations to the test.

- Have ready some pictures of birds with different beaks (this could be made into a worksheet).
  - ❑ *toucan* – fruit-eater
  - ❑ *owl* – eats meat
  - ❑ *hummingbird* – drinks nectar out of flowers
  - ❑ *duck* - sifts mud and water for food
  - ❑ *sandpiper* – uses its long bill to probe the sand/mud for insects/animals
  - ❑ *kingfisher* – catches fish with its long slim beak
  - ❑ *woodpecker* – sharp for chiseling wood, accompanied by long barbed tongue for pulling insects out
  - ❑ *cardinal* – stout and sharp for cracking seeds
  - ❑ *swallow* – small, wide beak for catching insects in flight

Feel free to duplicate these or come up with your own examples.

- Set up stations with different beaks (i.e. chopsticks, fondue fork, straw, nutcracker, tongs, etc.) and the different foods they go with.
- Students can rotate stations, trying to “catch” their lunch.
- After they finish the stations, give them the worksheet of different birds you’ve created or hold up the pictures at the front of the class.
- Have students figure out what the birds would eat according to their beak adaptations. Which station represented each bird?

**Standards: Science 1, 3.1, and 3.4**

