

# Habitats and Adaptations

## 6-8 Pre-Activity

### Lesson Summary

Students explore the importance of their adaptations and the adaptations of other animals through a series of activities.

### Objectives

Students will be able to identify physical adaptations of their own

Students will be able to identify adaptations on other animals

Students will be able to infer the purposes and importance of different adaptations

### Essential Question

What is an adaptation and how do they help with survival?

### Materials

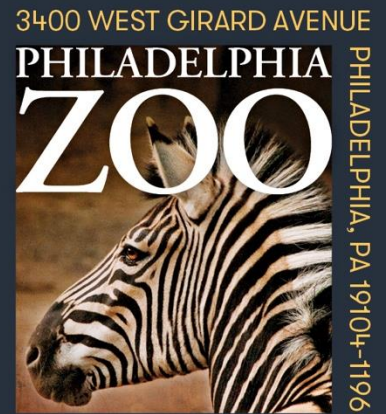
- A few random objects
- Scrap paper for manipulating
- Shoe with laces (can be from students)
- Something to measure time: stopwatch, phone timer, etc.
- Something to make a starting line: sticks, string, tape, etc.
- Something to mark a spot: post-it notes, piece of tape, etc.
- Something to measure length: tape measure, ruler, yardstick, etc.
- Tape or glove (optional)
- Scrap paper for notes (or worksheet such as provided at the end of the lesson)
- Writing utensils

### Prep

1. 1 Week before: Gather all materials and determine best location to complete various activities.
2. 1 Day before: Print out worksheets as needed (1 for each student)
3. 1 Hour before: To allow students to test their speed, find and mark a starting line. Then measure feet away and mark a finishing line.

### Key Terms

- **Habitat:** the natural environment of an animal or plant, where that living thing can find their food, water, shelter, and space
- **Competition:** the process of trying to get something that others are also trying to get
- **Ecosystem:** a community of living things, together with their environment
- **Adaptation:** features that an organism has developed that helps them meet their basic needs, survive, and multiple in their habitat
- **Behavioral Adaptation:** inherited behaviors of an organism that helps the success of the animal, such as searching for food, mating, or vocalizing
- **Physical/Structural Adaptation:** physical features of an organism that helps the success of the animal, including shape, covering, or armament



- **Physiological/Functional Adaptation:** special functions within the animal that helps the success of the animal, such as regulating temperature or making venom
- **Basic needs:** the absolute minimum resources necessary for long-term physical well-being and survival
- **Survival:** the ability to stay alive, especially through hard conditions
- **Predator:** an animal that hunts other animals for food
- **Prey:** an animal being hunted, caught, and eaten by another animal

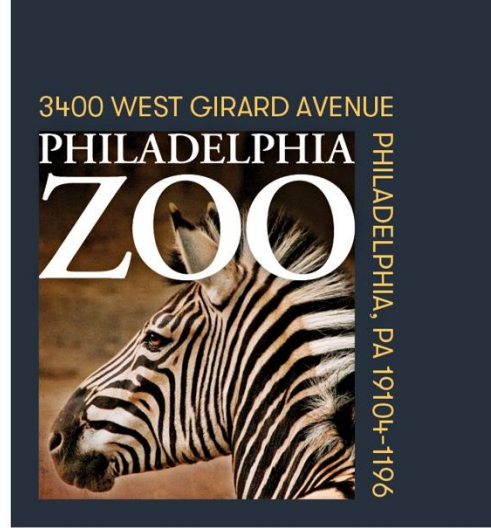
## Background

All animals require food, water, and shelter in order to survive. Where an animal finds these basic needs are within their habitat. There are many different habitats, and they are characterized by physical and biological features. For a population of animals living in the habitat, there is competition amongst the individuals for these needed resources available.

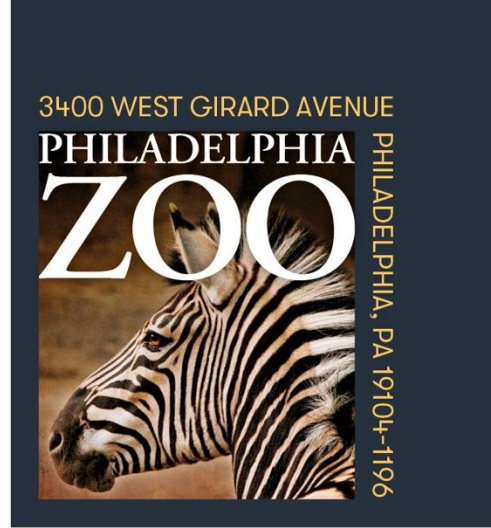
An adaptation is a trait that helps an organism survive and succeed in the habitat that they live in. They help the animal obtain its basic needs while. Adaptations can include physical traits and structures, like body color and wings, as well as behavioral traits, like migration. If an animal is relocated to a different kind of habitat, its adaptations would not necessarily be suited for survival, and could possibly cause harm to its success.

## Implementation

1. Excite: Ask students to share some of the tools that they have that help them to survive. If students defer to mentioning external tools, such as cars or clothes or even power tools, encourage them to consider what tools on our bodies could help us to survive. This might include hair (that protects us from the sun and environment), eyes (that helps to understand our surroundings, and get food or keep an eye out for danger), etc.
2. Explore: Ask students to consider thumbs. What kind of things do thumbs allow people to do? Answers may include eating, drinking, communicating through texting, finding enrichment such as playing video games, - anything that involves grasping or pinching.
3. Split the students into groups and invite them to take turns completing the following tasks as normal, using all fingers and thumbs available.
  - Picking up an object from the floor
  - Writing your name with a pencil
  - Folding a piece of paper 5 times
  - Trying your shoes in a double knot
  - Twisting a door knob to open the door
4. Then invite students to complete the same tasks without using thumbs. If needed, tape or a glove can be used to hold the thumb in place against the hand. For a challenge, have students time how long each activity takes with and without using thumbs to compare the amount of time it takes to do these tasks.



5. Ask students to consider how and why thumbs are important to our survival. Responses might include that thumbs allow us to grab things easier and quicker. This can be especially important for us and other animals to meet our basic needs – grabbing materials to build a shelter, grabbing foods to put it in our mouths, grabbing water, etc.
6. Explain: Share with the group that many animals, including many primates like humans, have opposable thumbs. Thumbs and other physical features are examples of physical adaptations that - physical features that help us stay safe and healthy in their environments.
7. Ask students to share some other physical adaptations they might be familiar with - either on us or on other animals.
8. Share with students that there are different type of adaptations, too. Behavioral adaptations are behaviors of an organism that helps the success of the animal, such as searching for food, mating, or vocalizing. Ask students to provide some other examples of behavioral adaptations that they might be familiar with.
9. Elaborate: Invite students to exemplify some behavioral adaptations, by taking turns at the following activities and measuring:
  - High Jump: Jump as high as you can with your arms up, and mark where your fingertips hit with a post-it or piece of tape. Measure the height.
  - Long Jump: Stand at the starting line and jump as far as you can in front of you. Measure the distance between the starting marker and the spot you land on.
  - Speed: Stand at the starting line with a stopwatch ready. Run as fast as you can, and count how many seconds it takes to run from the starting line to the distance marker.
10. Once students have completed the activities, ask students to share what the highest records were for each of the challenges and determine the highest record for the class.
11. Then compare their records to animals by sharing that kangaroos have the highest jump and are able to jump 30 feet off the ground, snow leopards can jump the farthest and are able to jump a distance of 49 feet, and cheetahs run the fastest and can run up to 110 feet per second (or 75 miles per hour). Ask the students why it might be important for these animals to have these behavioral adaptations, and why it might be less important for us. Responses may pertain to hunting prey or staying safe from a predator, both aiding in the animal’s survival.
12. Evaluate: Ask students to discuss how adaptations can support an animals survival and to provide examples.



### Expansion

Invite students to research specific behavioral adaptations of a chosen animal, and consider why they are important.

### Curriculum References

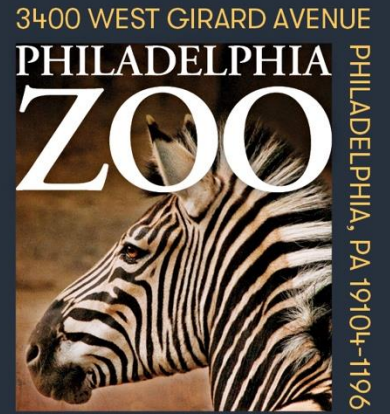
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Name: \_\_\_\_\_

Date: \_\_\_\_\_

Animals have different adaptations that help them meet their basic needs. These adaptations may be physical or physiological features that the animals have or behavioral adaptations that the animals exhibit.

Explore some of the adaptations we have and how those compare to the features of different animals by trying out the challenges below.



Challenge	Amount of time taken while using thumb	Amount of time taken without using thumb
Pick up an object from the floor		
Write your name with a pencil		
Fold a piece of paper 5 times		
Tie your shoe in a double knot		
Twist a door knob to open the door		

How could physical adaptations like thumbs be helpful to survival? \_\_\_\_\_

\_\_\_\_\_

Challenge	Your Record	Animal Record
High Jump		30 ft high Kangaroo
Long Jump		49 ft long Snow Leopard
Speed		110 ft per sec Cheetah

How could behavioral adaptations such as jumping high, jumping far, or running fast be helpful to survival?

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