

Habitats & Adaptations

3-5 Pre-Activity

Lesson Summary

Students consider what tools may be able help us to survive in our habitats. Then students combine different features animals have to survive to create a new animal, and determine what kind of habitat this animal would be most successful in.

Objectives

Students will be able to identify features that humans have to survive

Students will be able to define adaptation

Students will be able to consider how adaptations help an animal get its basic needs and survive in its habitat

Essential Question

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

Materials

- Reference sheet (provided at end of lesson)
- Scrap paper
- Writing utensils
- Coloring utensils

Prep

1. 1 day before: Print reference sheets for students. Prepare as many sets of as there will be students or groups.

Key Terms

- **Habitat:** the natural environment of an animal or plant, where that living thing can find their food, water, shelter, and space
- **Basic needs:** the absolute minimum resources necessary for long-term physical well-being and survival
- **Tundra:** a large plain with freezing or very cold weather
- **Desert:** a very dry, sandy area with few or no plants growing in it
- **Grasslands:** a flat, open plain covered with grass and few trees
- **Forest:** a large area of land covered with many trees and other plants
- **Rainforest:** a dense forest, mostly found in tropical areas, that receives a large amount of rain all year long.
- **Adaptation:** features that an organism has developed that helps them meet their basic needs, survive, and multiply in their habitat
- **Physical/Structural Adaptation:** physical features of an organism that helps the success of the animal, including shape, covering, or armament
- **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

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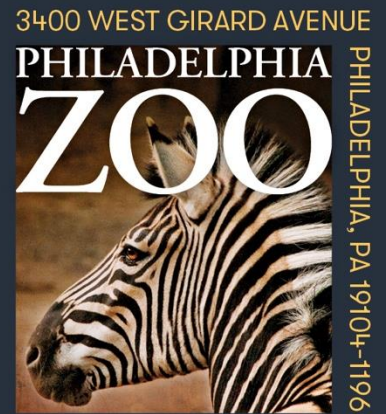
Background

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.

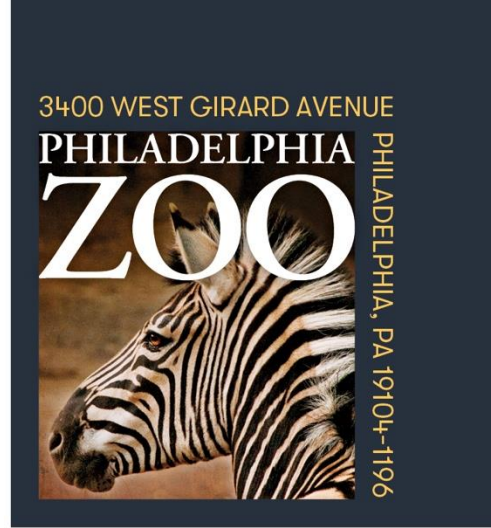
An adaptation is a trait that helps an organism survive and succeed in the habitat that they live in. They help the animal obtain its basic needs. Adaptations can include physical traits and structures, like body color and wings, as well as behavioral traits, like migration. If an animal is relocated 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 think about what are some tools they use to be happy and healthy in their habitats. Clarify that this isn't specifically what makes them happy and healthy, but instead what allows for them to get these things. Responses may include refrigerators, coats, water fountain – anything that would help us get food, water, shelter, or space.
2. Explore: Ask students to identify if there are any tools on our bodies that would allow us to meet our basic needs of food, water, shelter, and space. Have students work in groups to come up with a list, including an explanation of how that characteristics helps in our survival.
3. Invite groups to share out. As groups share, record their responses in 4 unlabeled columns/groups. One group should reflect features that help living things to find and eat food, such as fingers, teeth, etc. Another group should reflect features that help living things move around, such as legs, feet, etc. A third group should reflect features that help living things find friends, such as eyes, arms, etc. A last group should reflect features that help living things to stay protected from weather or predators, such as hair, skin, etc.
4. Explain: After the students have shared out, explain that all living things have features that helps them to survive in their habitat, and meet their basic needs. These features are called adaptations.
5. Share with students that adaptations might help an animal do a few different things: they might allow the animal to find and eat food, they might help the animal to move around in its habitat, they might help the animal finding friends and/or a mate, or they might help the animal stay protected.
6. Return to the list of features previously shared by the students. With the information they provided, ask them to label each group of features by if they help us to find food and eat, move, find friends, or stay protected.
7. After the class has done so, reiterate how each of these adaptations are important for our survival and support our ability to live in our habitat in different ways.
8. Elaborate: Clarify that with students that adaptations can look very different depending on the animal and their habitat. Share with students that they will be exploring this further by creating an animal, specifically a bird, with different combinations of adaptations.



9. Show the students the reference sheet they will be using. Instruct the students that they will be choose one adaptation from each of the 3 groups included: beak shape, feather coloration and pattern, and specialized feet. Each of these adaptations have a purpose and description provided, as well as an example animal that has that specific adaptation. After students have chosen which adaptations they want their animal to have, they will use a separate piece of paper to draw a bird that combines all 4 adaptations. First, they'll draw the bird's body with colored feathers you decided on, then add the beak type that you choose, then, add the specialized feet. (A demonstration of choosing the features and using these characteristics to draw an animal may be beneficial).
10. Pass out the reference sheet, scrap paper, and coloring utensils.
11. As students finish drawing their bird, ask them to draw the habitat where they think it would best be able to survive with its given features. Then, ask the students to give their animal a scientific name.
12. Evaluate: Ask students to share the features of the bird they have created, including identifying and explaining its adaptations. Ask the students to describe how this kind of bird is adapted for survival in its habitat.



Expansion

Invite students to then create an animal that would be adapted to living in their own community and environment. They should consider similar features including mouth shape, coloration, food, shelter, and other characteristics.

Curriculum References

3.1.3.A2, 3.1.4.A2, 3.1.5.A2, 3.1.4.A5, 4.1.3.A, 4.1.4.A, 4.1.5.A, 3.1.3.C1, 3.1.5.C1, 3.1.3.C2, 3.1.4.C2, 3.1.5.C2, 4.1.3.C, 4.1.4.C, 4.1.5.C, 4.1.3.D/4.5.3.D, 4.5.4.D, 4.5.5.D, 4.1.5.A, 4.1.3.D, 4.4.3.C, 3-LS2-1, 3-LS4-3, 4-LS1-1, 4-LS1-2, 3-LS4-2, MS-LS1-5, MS-LS3-1, 5-PS3-1, 5-LS2-1, 3-ESS2-2

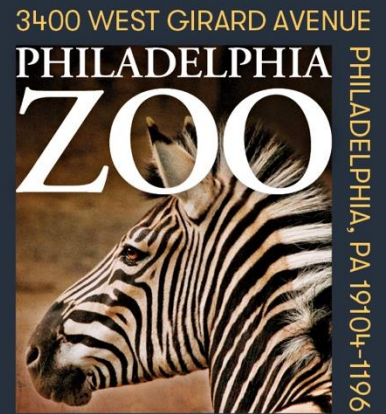


Additional Resources





Choose one adaptation from each of the 3 groups below (one type of beak shape, one type of feather coloration and pattern, and one type of specialized feet).

Then, on a separate piece of paper, draw a bird that combines all 3 of these features. First, draw the bird's body with the chosen colored feathers. Then add the beak type selected. Then, add the specialized feet.


Afterwards, draw the habitat where this bird would live, and give it a name.






Beak Shape

| Large, curved beak | Long, straight beak | Wide, flat beak | Short, curved beak |
|---|---|--|---|
|  |  |  |  |
| To grab and eat fruit from trees | To pick up small, quick moving prey like insects | To collect food out of the water | To crack foods like nuts or seeds |
| Ivory-billed Aracari | Sihek | Blue-billed teal | Blue and Gold Macaw |

Feather Colors and Patterns

| Earth-toned Colors | Bright Colors | Countershading | Bold Patterns |
|---|---|---|---|
|  |  |  |  |
| To blend in with the habitat while staying still and hidden, such as in trees | To be stand out and be noticeable to friends and family, with bright colors | To blend in with light, hard to see from above or below, with lighter colored bellies | To confuse predators while moving, such as with spots mimicking watchful eyes |
| Barn Owl | Caribbean Flamingo | Humboldt penguin | Great Argus Pheasant |

Specialized Feet

| Anisodactyl feet | Webbed feet | Zygodactyl feet | Talons |
|---|--|---|---|
|  |  |  |  |
| To grab and balance on branches, with 3 long toes in the front and 1 in the back | To swim and paddle in water, with 3 connected toes in the front, 1 small toe in the back | To climb trees, with 4 short toes, 2 in front and 2 in back, with sharp, curved nails | To grasp and capture prey, with 3 toes in front and 1 in back with large, sharp nails |
| Crested Coua | Madagascar Teal | Red-whiskered Bulbul | Bald Eagle |

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