



TEACHER GUIDE

ADAPTATIONS AND THE ENVIRONMENT GRADES 3-5

COMMON MISCONCEPTIONS

- **Adaptations happen quickly.**
Physical adaptations happen over many generations of plants and animals. An individual animal's body doesn't change to adjust to its environment.

PREREQUISITES

Coming into this lesson, students need to have an understanding about what a habitat is (the environment where an animal lives, eats and reproduces), and that adaptations can be physical, behavioral, or both. They should also have some understanding of predator/prey relationships. Keep in mind that humans are also animals, and also have adaptations.

ADAPTATIONS

An adaptation is a characteristic of a living thing that helps it survive in its environment. At the upper elementary level, students begin by exploring adaptations that different living things have to help them survive, by allowing them to obtain food, protect themselves, and reproduce within their environments. This early discussion of adaptations leads to more in-depth understanding of change over time, genetic variation of traits, and natural selection as students move into middle and high school. At this level, when we state that “animals adapt to their environments” we actually mean that different types of animals have specialized over long periods of time. It is important for educators to understand how adaptations occur even though it is not at the forefront of this activity, because student misconceptions about adaptations at this level could lead to misconceptions about the other concepts later.

Animal characteristics do not change simply because an individual is moved to a different environment. Instead, as the animal's environment changes, those individuals with favorable characteristics are better equipped to survive and reproduce, leading to more animals with those favorable adaptations. It is a process that occurs over many, many generations. How those adaptations came about is something students will learn about later in their schooling - at this level the focus is on what the animal adaptation is and how it can help the animal survive in its environment.

BIRD BEAKS

Bird beaks are often discussed when talking about animal adaptations. Bird beaks were key for Charles Darwin's work on natural selection. Although Darwin and his work are not referenced at this level, bird beaks still provide an accessible route to understanding how animal adaptations help different types of animals survive in their environments. Examples given in the video include:

- Finch—tiny beaks, tiny seeds
- Pelican—large pouch like beak to scoop up fish
- Hawks and eagles—sharp hooked beaks to eat small animals

The DIY investigation is a classic activity to help students understand how different characteristics provide advantages or disadvantages for obtaining food.

