

# Variation and Adaptation

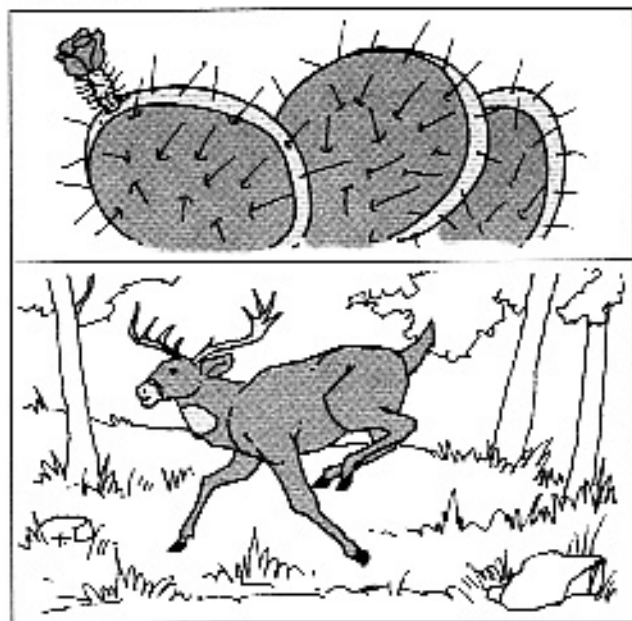
How do species adapt to their environment?

A **variation** is an inherited trait that makes one individual different from other individuals of its species. Variation results from the mixing of genetic material that takes place during sexual reproduction. It can also result from **mutations**, permanent changes in an organism's DNA.

Some variations are helpful to the organism. For example, a bird with a beak strong enough to crack open a hard walnut shell might be better able to get food than a bird with a weaker beak. A variation that helps an organism survive and reproduce is called an **adaptation**. Adaptations include body structures and behaviors. Gills and fins are examples of **structural adaptations** that enable fish to live in water. Gills absorb oxygen from the water, and fins make it possible for fish to swim. Camouflage is a structural adaptation that helps an organism blend into its environment. The stripes on a tiger's fur blend in with tall grass, which helps the tiger sneak up on its prey.

The ability to build nests and migrate from one part of the world to another are **behavioral adaptations**. Behavioral

adaptations enable birds to survive and raise young. Nests help protect eggs and young hatchlings. By migrating to warm regions during certain times of the year, birds avoid cold, lack of food, and other hardships of winter.



The spines on a cactus are a structural adaptation that helps protect the plant from being eaten. Running away from unusual sights or sounds is a behavioral adaptation that helps a deer avoid being captured by a predator.

## Show What You Know

List three adaptations you have and how each one helps you survive in your environment.

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