

Enrichment**LESSON 1**

Animal Adaptations for Extreme Climates

An adaptation is a characteristic that makes it possible for an animal species to survive and reproduce in a particular place and in a particular climate. If individual animals die without reproducing, then the species will not survive. Some individuals might not have a particular survival characteristic. But if the species has it, then the species will survive.

Extreme Climates

The two most extreme climates on Earth are extremely cold (polar climates) or extremely hot (desert climates). Humans are not adapted to either of these climates. That is, we cannot live there without some external facility to protect us from the cold or heat. Other animals make their homes in these climates.

Most animals are able to survive only within a specific range of temperatures called their range of tolerance. Polar bears are tolerant of much lower average temperatures than koala bears are. The temperature inside the bodies of most organisms depends on the temperature of the environment. The temperature inside the bodies of mammals and birds stays warm regardless of the temperature of the environment. Special adaptations and ranges of tolerance are required by both types of organisms.

Applying Critical-Thinking Skills

Directions: *Respond to each statement.*

1. **Compare** physical adaptations to climate with behavioral adaptations to climate.
2. **Assess** how humans might become adapted to living without clothing or manufactured housing in the natural world. Identify a climate in which humans could survive without the amenities of modern human society. Explain how they could survive.

Adaptations to a Desert Climate

Lack of water and extreme heat create survival challenges for animals that live in the desert. Desert species have developed physical and behavioral characteristics that help them survive and thrive in a desert climate.

Most animals try to avoid the extreme daytime heat by being active only at night. They sleep during the day in a shady place or in a burrow that they seal shut. Desert foxes, skunks, snakes, and most rodents avoid extreme heat in this manner. Some animals, such as jackrabbits, have long legs and ears that dissipate heat from their bodies. Owls and nighthawks pant with their beaks open to dissipate heat. The desert ground squirrel goes into a state of estivation—a type of summer hibernation—in a burrow to sleep through the hottest part of the summer.

Acquiring water or conserving body moisture is another profound challenge to desert survival. The adaptations for accomplishing this are as varied as the animals. The desert toad remains dormant deep in the ground until the spring rains fill the short-lived desert ponds. Then it digs out, breeds, lays eggs, and soaks up moisture before the ponds evaporate. Many desert creatures get their water from desert plants, such as cacti.