

Chapter 34 Animal Behavior**Summary****34–1 Elements of Behavior**

Behavior is the way an organism reacts to changes within its body or in its environment. Behaviors usually occur when an animal reacts to a stimulus. The specific reaction to a stimulus is a response. Animals detect stimuli with their sense organs. When an animal responds, the nervous system and the muscles work together to produce the behavior.

Animal behavior is important to survival and reproduction. Some behaviors are controlled by genes. They are influenced by natural selection. Organisms with a certain behavior may survive and reproduce better than organisms without the behavior. Over time, most individuals in the population will have that behavior.

Some behaviors are innate. These behaviors are fully functional the first time they are performed. Examples of innate behaviors are the suckling of a newborn mammal and the weaving of a spider web.

Learning is the way animals change their behavior as a result of experience. Animals learn in different ways. These include habituation, classical conditioning, operant conditioning, and insight learning.

Habituation is the simplest way in which animals learn. In habituation, an animal's response to a stimulus decreases or stops when the animal is neither rewarded nor harmed for responding. Ragworms, for example, will stop retreating to their burrows every time repeated shadows pass overhead.

Classical conditioning occurs when an animal makes a mental connection between a stimulus and a good or bad event. One famous example was described by Ivan Pavlov. Pavlov discovered that if he rang a bell when he fed his dog, the dog would begin to salivate whenever he rang the bell.

In operant conditioning, an animal learns to behave in a certain way in order to receive a reward or to avoid punishment. Operant conditioning is also called trial-and-error learning because it begins with a random behavior that is rewarded.

Insight learning is the most complicated form of learning. In insight learning, an animal applies something it has already learned to a new situation. Insight learning is found most often in humans.

Most behaviors are the result of innate behavior and learning combined. One example of this is imprinting. Newborn ducks and geese have an innate urge to follow the first moving object they see. They are not born knowing what that object will look like. The newborn must learn from experience what object to follow.

34–2 Patterns of Behavior

Many animal behaviors occur in patterns. These patterns often follow the natural cycles of day and night, seasonal changes, or moon phases. Examples of cycles of behavior include dormancy, migration, and circadian rhythms. Circadian rhythms occur in a daily pattern, like sleeping at night and going to school during the day.

Animal behaviors also help animals reproduce. Courtship behaviors help an animal find a healthy mate. Some courtship behaviors involve an elaborate series of rituals. Most rituals have specific signals and responses.

Animals have social behavior whenever they interact with members of their own species. Many animals form societies. A society is a group of related animals of the same species that interact closely and often cooperate with one another. Termites form societies. So do zebras, wild dogs, and primates. Animal societies use their strength in numbers to improve their ability to hunt, protect their territory, guard their young, and fight rivals.

Some animal behaviors help prevent others from using limited resources. These behaviors help protect territories. A territory is the area occupied and protected by an animal or group of animals. Territories contain resources, such as food, water, and shelter, that an animal needs to survive and reproduce.

Competition occurs when two or more animals claim the same territory. During competition, an animal may use threatening behavior, or aggression, to gain control over the other animal.

Communication is the passing of information from one animal to another. Animals use many different ways to commu-

nicate. Animals with good eyesight often use visual signals such as movement and color to communicate.

Animals with a well-developed sense of smell produce chemicals called pheromones. These chemicals affect the behavior of other members of the species, to mark a territory, for example.

Animals with strong vocal abilities communicate with sound. Birds, toads, crickets, and dolphins use sound to communicate.

Language is the most complicated form of communication. Language combines sounds, symbols, and gestures according to sets of rules about word order and meaning. Only humans are known to use language.