

SECTION 1-3

SECTION SUMMARY

Interactions Among Living Things

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Guide for Reading

- ◆ How do an organism's adaptations help it to survive?
- ◆ What are the major types of interactions among organisms?
- ◆ What are the three forms of symbiotic relationships?

Every organism has some unique characteristics that enable it to live in its environment. In response to their environment, species evolve, or change over time. The changes that make organisms better suited to their environment occur by a process called **natural selection**. Individuals whose characteristics are best suited for their environment tend to survive and produce offspring. The offspring inherit those characteristics and also live to reproduce. Individuals that are poorly suited to the environment are less likely to survive and reproduce. The poorly suited characteristics may disappear from the population over time. The results of natural selection are **adaptations**, the behaviors and physical characteristics of species that allow them to live successfully in their environment.

Every organism has a variety of adaptations that are suited to its specific living conditions. These adaptations create a unique role for the organism in its ecosystem. An organism's particular role, or how it makes its living, is called its **niche**. A niche includes the type of food the organism eats, how it obtains this food, which other species use it as food, when and how the organism reproduces, and the physical conditions it requires to survive.

Some adaptations involve how organisms interact. There are three major types of interactions among organisms: **competition, predation, and symbiosis**. **Competition** is the struggle between organisms to survive in a habitat with limited resources. **Predation** is an interaction in which one organism kills and eats another organism. The organism that does the killing is the **predator**. The organism that is killed is the **prey**. Predators have adaptations that help them catch and kill their prey. Prey organisms have adaptations that help them avoid being caught and eaten. Predation can have a major effect on the size of a population.

Symbiosis is a close relationship between two species that benefits at least one of the species. The three types of symbiotic relationships are **mutualism, commensalism, and parasitism**. **Mutualism** is a relationship in which both species benefit. **Commensalism** is a relationship in which one species benefits and the other species is neither helped nor harmed. **Parasitism** involves one organism living on or inside another organism and harming it. The organism that benefits is called a **parasite**, and the organism it lives on or in is called a **host**.

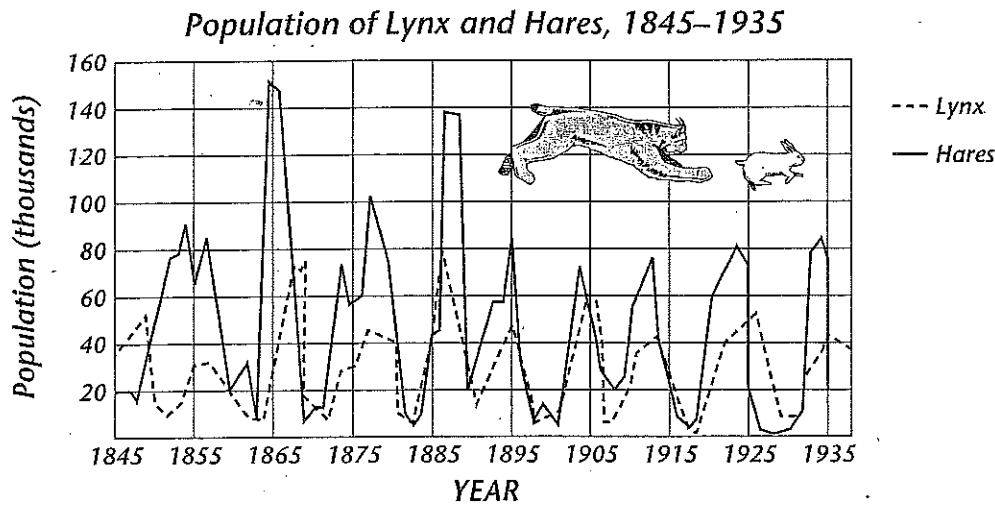
SECTION 1-3 REVIEW AND REINFORCE

Interactions Among Living Things

◆ Understanding Main Ideas

Answer the following questions on a separate sheet of paper.

1. How does natural selection produce adaptations in a species?
2. What is an organism's niche?
3. How do adaptations enable organisms to reduce competition for food and other resources?



The graph above shows how the population sizes of lynx and snowshoe hares changed over time. Use the graph to answer questions 4–7.

4. When the hare population increased, what happened to the lynx population? Why?
5. How do you think an increase in the lynx population affected the hare population? Why?
6. What other factors could have caused a decrease in the hare population?
7. Predict what happened to the two populations between 1935 and 1945.

◆ Building Vocabulary

Respond to the following items on a separate sheet of paper.

8. Define the terms *predation*, *predator*, and *prey* in your own words. Give an example of a predator-prey relationship. Identify the predator and the prey.
9. Name and describe the three types of symbiotic relationships.
10. Define the term *competition*.