

Chapter

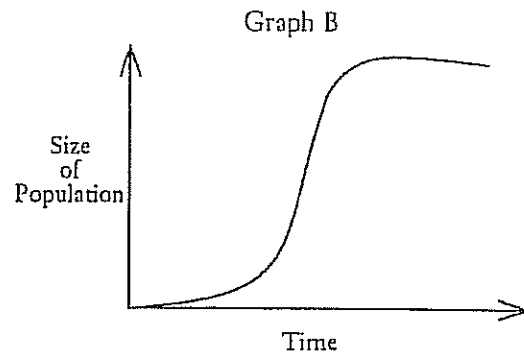
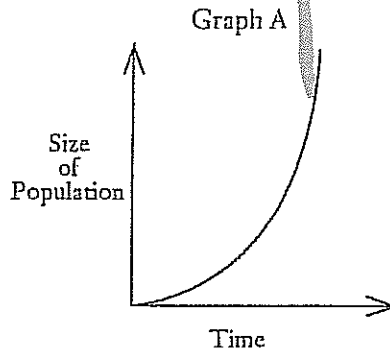
4 Population Biology

Reinforcement and Study Guide

Section 4.1 Population Dynamics

In your textbook, read about the principles of population growth.

Refer to Graphs A and B below. Answer the following questions.



1. What type of population growth is shown in Graph A? Explain this type of growth.

exponential; the population keeps growing at an increasing rate

2. Which graph shows the most likely growth of a squirrel population living in a forest? B

3. Which graph shows a population's growth under ideal conditions? A

4. Why don't populations of organisms grow indefinitely?

There is a limited number of resources in the environment & organisms have to compete for them

Use each of the terms below just once to complete the passage.

grows carrying capacity below births
above under deaths exceed

The number of organisms of one species that an environment can support is called its

(5) carrying capacity. If the number of organisms in a population is (6) below the environment's carrying capacity, births (7) exceed deaths and the population

(8) grows. If the number of organisms rises (9) above the carrying capacity of the environment, (10) deaths will exceed (11) births. This pattern will continue until the population is once again at or (12) under the carrying capacity.

Section 4.1 Population Dynamics,
continued

Circle the letter of the choice that best completes the statement.

13. The most important factor that determines population growth is the organism's
a. social pattern. b. carrying capacity.
c. reproductive pattern. d. feeding pattern.
14. Organisms that follow a rapid life-history pattern
a. have short life spans. b. have small bodies.
c. reproduce early. d. all of the above
15. Organisms that follow a slow life-history pattern
a. have small bodies. b. mature rapidly.
c. reproduce slowly. d. all of the above
16. A limiting factor that has an increasing effect as population size increases is
a. temperature. b. habitat disruption.
c. drought. d. competition.

In your textbook, read about how organism interactions limit population size.

Answer the following.

17. The snowshoe hare is a primary source of food for the Canadian lynx. Explain how the lynx population size changes when the hare population increases.

As the predator, the lynx population can grow when there are more hares (prey).

18. Explain how the change in the lynx population size affects the hare population.

More lynxes will result in more hare deaths, which decreases the hare population.

19. What is the relationship between the lynx and the hare called?

Predator-prey

20. When does competition decrease the size of a population?

if there aren't enough resources (happens in logistic growth)

21. What can cause an organism to exhibit stress, and what symptoms of stress can lead to a decrease in population size?

an organism can be stressed by a lack of resources (including competition or natural disaster) or the presence of a predator