Review and Assessment

Organizing Information

Identifying Main Ideas Copy the graphic organizer about determining population size onto a separate sheet of paper. Then complete it and add a title. (For more on Identifying Main Ideas, see the Skills Handbook.)

Main Idea

There are four main ways to determine the size of a population.

Detail	Detail	Detail	Detail
a. ____?____	b. ____?____	c. ____?____	d. ____?____

Reviewing Key Terms

Choose the letter of the best answer.

1. A prairie dog, a hawk, and a badger all are members of the same
   a. niche.
   b. community.
   c. species.
   d. population.

2. All of the following are examples of limiting factors for populations *except*
   a. space.
   b. food.
   c. time.
   d. weather.

3. In which type of interaction do both species benefit?
   a. predation
   b. mutualism
   c. commensalism
   d. parasitism

4. Which of these relationships is an example of parasitism?
   a. a bird building a nest on a tree branch
   b. a bat pollinating a saguaro cactus
   c. a flea living on a cat's blood
   d. ants protecting a tree that produces the ants' only food

5. The series of predictable changes that occur in a community over time is called
   a. natural selection.
   b. ecology.
   c. commensalism.
   d. succession.

If the statement is true, write *true*. If it is false, change the underlined word or words to make the statement true.

6. Grass is an example of a <u>biotic factor</u> in a habitat.

7. <u>Immigration</u> is the number of individuals in a specific area.

8. An organism's specific role in its habitat is called its <u>niche</u>.

9. The struggle between organisms for limited resources is called <u>mutualism</u>.

10. A parasite lives on or inside its <u>predator</u>.

Writing in Science

Descriptive Paragraph Use what you have learned about predators and prey to write about an interaction between two organisms. For each organism, describe at least one adaptation that helps it either catch prey or fend off predators.

Discovery CHANNEL SCHOOL

Populations and Communities
Video Preview
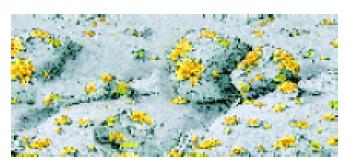Video Field Trip
▶ Video Assessment

Review and Assessment

Checking Concepts

11. Name two biotic and two abiotic factors you might find in a forest ecosystem.

12. Explain how plants and algae use sunlight. How is this process important to other living things in an ecosystem?

13. Describe how ecologists use the technique of sampling to estimate population size.

14. Give an example showing how space can be a limiting factor for a population.

15. What are two adaptations that prey organisms have developed to protect themselves? Describe how each adaptation protects the organism.

Thinking Critically

16. Making Generalizations Explain why ecologists usually study a specific population of organisms rather than the entire species.

17. Problem Solving In a summer job working for an ecologist, you have been assigned to estimate the population of grasshoppers in a field. Propose a method and explain how you would carry out your plan.

18. Relating Cause and Effect Competition for resources in an area is usually more intense within a single species than between two different species. Suggest an explanation for this observation. (*Hint:* Consider how niches help organisms avoid competition.)

19. Classifying Lichens and mosses have just begun to grow on the rocky area shown below. Which type of succession is occurring? Explain.

Math Practice

20. Inequalities Review the two inequalities about population size on page 16. Then revise each inequality to include immigration and emigration in addition to birth rate and death rate.

Applying Skills

Use the data in the table below to answer Questions 21–24.

Ecologists monitoring a deer population collected data during a 30-year study.

Year	0	5	10	15	20	25	30
Population (thousands)	15	30	65	100	40	25	10

21. Graphing Make a line graph using the data in the table. Plot years on the horizontal axis and population on the vertical axis.

22. Interpreting Data In which year did the deer population reach its highest point? Its lowest point?

23. Communicating Write a few sentences describing how the deer population changed during the study.

24. Developing Hypotheses In Year 16 of the study, this region experienced a very severe winter. How might this have affected the deer population?

Lab zone Chapter Project

Performance Assessment Review your report and graph to be sure that they clearly state your conclusion about the effects of crowding on plant growth. With your group, decide how you will present your results. Do a practice run-through to make sure all group members feel comfortable with their parts. After your presentation, list some improvements you could have made in your experimental plan.