

Chapter 3

Communities and Biomes

Reinforcement and Study Guide

Section 3.1 Communities

In your textbook, read about living in a community.

Determine if the statement is true. If it is not, rewrite the italicized part to make it true.

- The *interactions* of abiotic and biotic factors result in conditions that are suitable for some organisms but not for others. _____
- Food availability and temperature can be *biotic factors* for a particular organism. _____
- A limiting factor is any biotic or abiotic factor that *promotes* the existence, numbers, reproduction, or distribution of organisms. _____
- At high elevations where the soil is thin, vegetation is limited to *large, deep-rooted* trees. _____
- Factors that limit one population in a community may also have *an indirect* effect on another population. _____
- Tolerance* is the ability of an organism to withstand fluctuations in biotic and abiotic environmental factors. _____
- A population of deer would become *larger* as conditions move away from optimal toward either extreme of the deer's range of tolerance. _____
- Different species may have different ranges of tolerance. _____

In your textbook, read about succession: changes over time.

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

climax	primary	decades	succeed
pioneer	succession	species	slows down

The natural changes and (9) _____ replacements that take place in the communities of ecosystems are known as (10) _____. It can take (11) _____ or even centuries for one community to (12) _____, or replace, another. When new sites of land are formed, as in a lava flow, the first organisms to colonize the new area are (13) _____ species. This colonization is called (14) _____ succession. The species inhabiting the area gradually change. Eventually, succession (15) _____ and the community becomes more stable. Finally, a mature community that undergoes little or no change, called a (16) _____ community, develops.

Chapter
3**Communities and Biomes, *continued*****Reinforcement and Study Guide****Section 3.1 Communities,
*continued***

For each item in Column A, write the letter of the matching item in Column B.

Column A

- _____ 17. Sequence of community changes where soil is formed, allowing small, weedy plants to inhabit the area
- _____ 18. Sequence of community changes occurring as a result of a natural disaster, such as a forest fire
- _____ 19. A stable, mature community with little or no succession occurring
- _____ 20. An example of a biotic limiting factor affecting a community of organisms
- _____ 21. An example of an abiotic limiting factor affecting a community of organisms

Column B

- a. a severe drought
- b. primary succession
- c. amount of plant growth
- d. secondary succession
- e. climax community

The statements below describe the secondary succession that occurred within an area of Yellowstone National Park. Number the events in the order in which they occurred.

- _____ 22. Grasses, ferns, and pine seedlings inhabited the area.
- _____ 23. Annual wildflowers grew from the bare soil.
- _____ 24. A fire burned thousands of acres of land.
- _____ 25. A climax community of lodgepole pines developed.
- _____ 26. Bare soil covered the area.

CHAPTER 3

Study Guide

Section 1: Community Ecology

In your textbook, read about limiting factors.

Complete the table by checking the correct column(s) for each limiting factor.

Limiting Factor	Abiotic Factor	Biotic Factor
1. Temperature		
2. Rainfall		
3. Predator		
4. Soil chemistry		
5. Prey		
6. Plant nutrients		
7. Oxygen		
8. Sunlight		
9. Climate		
10. Producers		

In your textbook, read about ecological succession.

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

abiotic factors

climax community

ecological succession

ecosystems

fire

lava flow

pioneer species

primary succession

secondary succession

(11) _____ are constantly changing. Both (12) _____ and biotic factors change in every ecosystem. One type of ecosystem change, called (13) _____, results in one community replacing another over time. This process might begin on bare rock, such as a(n) (14) _____. The process begins when (15) _____ begin living on the rock. This process is called (16) _____. The mature community that eventually forms is called the (17) _____. Sometimes that community is destroyed by a(n) (18) _____. A new community will replace the destroyed one through the process of (19) _____.

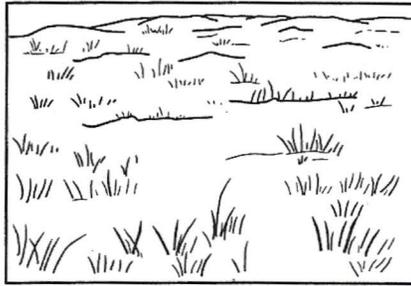
Study Guide, Section 1: Community Ecology continued

In your textbook, read about primary succession.

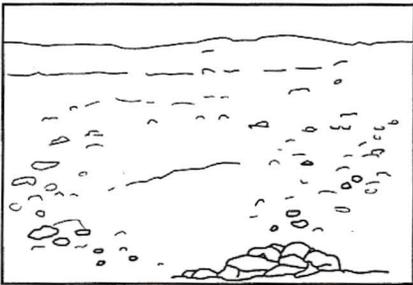
Number the pictures below in the order in which they occur, showing the changes that take place during primary succession.



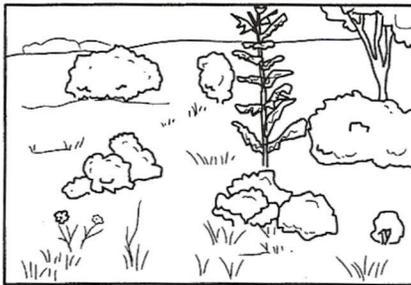
20. _____



22. _____



21. _____



23. _____

In your textbook, read about secondary succession.

Respond to each statement.

24. Name the material that is present for secondary succession that is not present for primary succession.

25. Cite two reasons why secondary succession is faster than primary succession.

26. Recall the name for the mature community that develops in secondary succession.

Worksheet
4

Secondary Succession

Reteaching Skills

Use with Chapter 3, Section 3.1

As you work on this exercise, remember that plants compete for sunlight, nutrients, and water. The transparency shows what biologists predict will happen at Yellowstone Park in the years following the most extensive forest fire in its history. About 45 percent of the park burned.

1. a. After the fire, what resources remained in Yellowstone?

b. How are these resources different from those found in an area such as a lava flow, where no life existed before?

2. In the first stage of secondary succession, grasses and wildflowers abound. Why do these plants flourish where there used to be forest?

3. Why will shrubs grow before trees?

4. For a time, the major plants in Yellowstone will be yellow pines, which will ultimately be replaced by lodgepole pines. What does this tell you about yellow pines and lodgepole pines? Explain your hypothesis.

5. Once lodgepole pines are established, the forests of Yellowstone Park will not change radically again. What is the term for the lodgepole pine community?

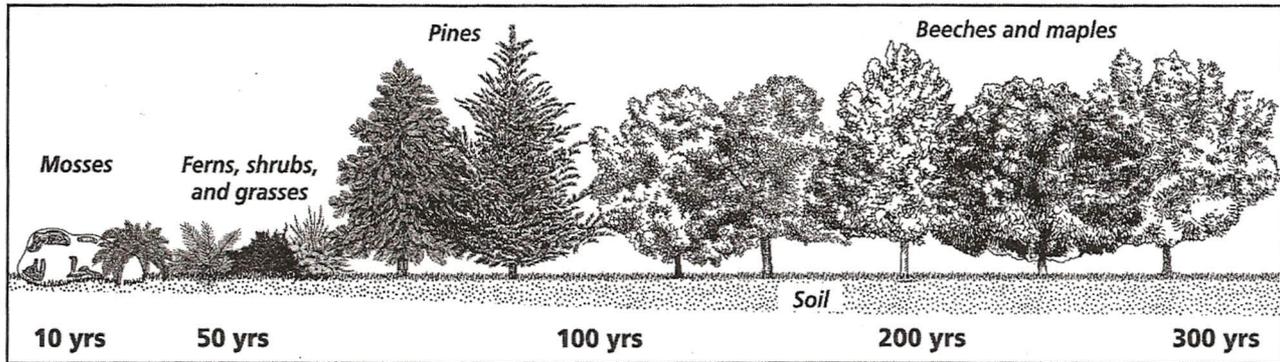
6. a. Elk, large herbivores that live in the Yellowstone area, eat mainly grasses. In winter, they eat twigs and needles from small trees and shrubs. Explain what may happen to the elk population during the first 10 years after the fire.

b. What may happen to the elk population during the following 15 years?

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Chapter
3**Communities and Biomes****Content Mastery****Get the Big Picture**

Use the picture below to answer the questions that follow.

Succession in a Plant Community

1. What type of plants were the first to grow in this community?

2. What types of plants were the first to grow in soil?

3. What types of plants were the last to grow in this community?

4. Why did it take many years for trees to grow in this community?

Chapter 3

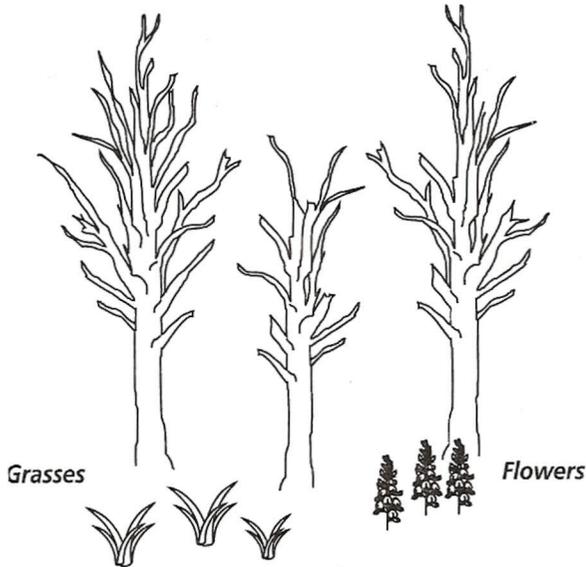
Communities and Biomes, *continued*

Content Mastery

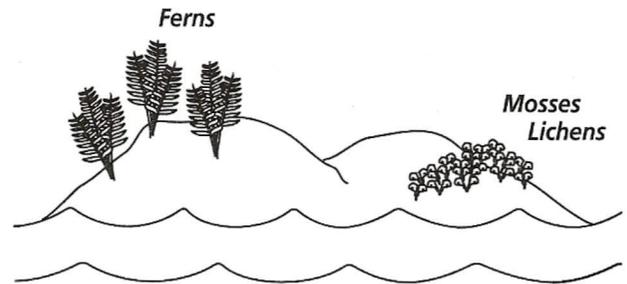
Section 3.1 Communities

Study the Pictures

A. Burned Forest



B. New Island



Look at the pictures and read what is in the boxes. Then use the pictures and definitions to answer the questions.

Primary Succession
 This happens when organisms start to live in a new place.

Secondary Succession
 This happens when organisms start to live again in a place that had been destroyed by a flood, fire, or other natural disaster.

1. Which picture shows **primary succession**? Explain your answer.

2. Which picture shows **secondary succession**? Explain your answer.

3. **True or false?** Primary succession happens after a grassland is destroyed by a flood.
