Name Date Class

Section 3.1

# Communities

## Before You Read

This section discusses organisms and how they are affected by where they live. Think about the kinds of plants and animals you see around you. On the lines below, list as many types of plants and animals you can think of that live in your community. Think of an organism that would have trouble surviving where you live. Write its name below, too.

## Read to Learn

**STUDY COACH**

Mark the Text **Identify the Main Point** Highlight the main point in each paragraph. Highlight in a different color an example that helps explain the main point.

### Life in a Community

A community is made up of populations of organisms that live in a common area. For example, weeds, beetles, worms, and bacteria might live in someone's lawn. In that same lawn, there would also be moisture and soil. This lawn community is made up of populations of organisms and abiotic factors. They all contribute to the life of the lawn. The factors these populations share create their environment.

Different combinations of living and nonliving factors interact in different places around the world. They form communities where conditions may be good for one form of life but not for another.

Reading Check

1. Anything that limits an organism's ability to live in an environment is called a _____

### What is a limiting factor?

Anything that limits an organism's ability to live in a particular environment is known as a **limiting factor.** For example, in most mountain areas, there is a timberline. Trees cannot grow above the timberline. It is too high, too cold, too windy, and the soil is too thin.

Something that limits one population in a community can have an indirect effect on another life form. A lack of water could cause grass to die in an area. If an animal group living in that area depends on grass for food, its population could decrease as a result.

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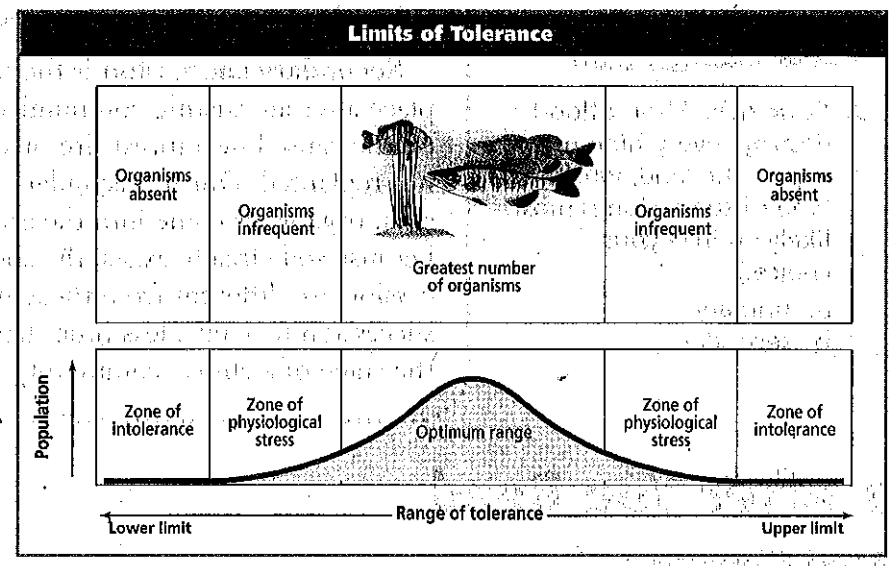
## What is the range of tolerance?

The ability of living things to survive the changes in their environment is called **tolerance.** An organism reaches its limits of tolerance when it gets too much or too little of an environmental factor. For example, corn plants need warm, sunny weather and a regular supply of water. If these conditions do not exist over a long period of time, the plants may survive, but they will not produce a crop.




The figure above shows the range of tolerance for organisms. Notice that in the zones of intolerance, the corn plants would not grow. In the zones of stress, the crop would be poor. The corn plants grow the best in the optimum range.

## Succession: Changes over Time

**Succession** (suk SE shun) is the process of gradual, natural change and species replacement that takes place in the communities of an ecosystem over time. There are two types of succession—primary and secondary.

Reading Check

**2.** What is succession?

## What is primary succession?

**Primary succession** takes place on land where there are no living organisms. For example, when lava flows from a volcano, it destroys everything around it. When it cools, land forms, but there are no living organisms in the new land. The first species to live in such an area is called a pioneer species. Decaying lichens, along with bits of sediment in cracks and crevices of rock, make up the first stage of soil development. Gradually, other life forms take hold. After some time, primary succession slows down and the community becomes stable. Pioneer species eventually die. Once little or no change occurs, the community is called a **climax community.** A climax community can last for hundreds of years.

### Think it Over

3. **Conclude** After a flood destroys everything growing on the land, which type of succession is most likely? (Circle your choice.)
   a. primary
   b. secondary

### What is secondary succession?

**Secondary succession** is the pattern of changes that takes place after an existing community is destroyed. The destruction can be caused by a forest fire or when a field is plowed over and not replanted. During secondary succession, as in primary succession, organisms come into the area and change gradually. But, because soil already exists, the species involved in secondary succession are different from those in primary succession. Secondary succession may take less time than primary succession to reach the stage of a climax community.

# After You Read

## Mini Glossary

**climax community:** a stable community that undergoes little or no change

**limiting factor:** any biotic or abiotic factor that restricts the existence, numbers, reproduction, or distribution of organisms

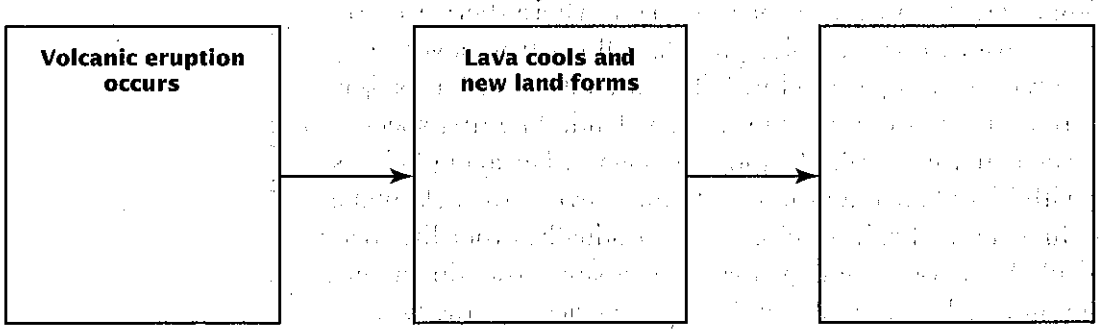
**primary succession:** colonization of barren land by pioneer organisms

**secondary succession:** sequence of changes that take place after a community is disrupted by natural disasters or human actions

**succession (suk SE shun):** the orderly, natural changes that take place in the communities of an ecosystem

**tolerance:** the ability of an organism to withstand changes in biotic and abiotic environmental factors

1. Review the terms and their definitions in the Mini Glossary above. Highlight the three terms that deal with changes in an ecosystem. Then circle the term that refers to a situation in which there are few or no changes.
2. Use the flowchart below to help you review what takes place after a volcanic eruption. Fill in the blank box.



Section 3.1

## Communities, *continued*

3. Column 1 lists new concepts that you learned about in this section. Column 2 gives an example of each concept. Draw a line from each concept to its correct example.

| Column 1 | Column 2 |
|---|---|
| 1. limiting factors | a. the first organisms to grow on a new patch of cooled, hardened lava |
| 2. pioneer species | b. weeds and wildflowers beginning to grow in a field after a corn crop is harvested |
| 3. tolerance | c. ability of mosquitoes to survive in very different conditions all over the world |
| 4. climax community | d. cold temperatures and high winds that prevent tree growth in mountain areas |
| 5. secondary succession | e. an old forest that has not had any fire damage in over 200 years |

Visit the Glencoe Science Web site at **science.glencoe.com** to find your biology book and learn more about communities.