Learning Target: I can describe and explain how primary and secondary succession occurs.

Ecological Succession Reading for Meaning Activity

Ecosystems are constantly changing in response to natural and human disturbances. As an ecosystem changes, older inhabitants gradually die out and new organisms move in, causing further changes in the community. This series of predictable changes that occurs in a community over time is called ecological succession. Ecological succession is slow and gradual; it occurs over a period of many years.

As ecological succession occurs, types of species (both plants and animals) present in a community will change in response to changing environmental conditions. Examples of such environmental conditions include fires, climate change, and human activities, such as clearing forests in order to plant farm fields.

1. Why are ecosystems constantly changing? _____
2. What happens as an ecosystem changes? _____
3. What is ecological succession and how long does it take? _____
_____
4. The types of species that live in an environment is based on... _____
_____
5. What are some examples of environmental conditions that would cause changes in an ecosystem? ___
_____

There are two types of ecological succession – primary and secondary succession. Primary succession is the establishment of a community in an area of bare rock that does not have topsoil. For example, suppose a lava flow alters an ecosystem. The lava hardens to form bare rock. Usually, lichens begin to grow on the rock first. Because lichens and some mosses are among the first organisms to appear, they are called pioneer species.

Pioneer species secrete acids that help break down rocks. As pioneer species die, their decaying organic materials mix with small pieces of rock. This is the first stage of soil development. Small weedy plants begin to grow in the soil. These organisms die, adding to the soil. Seeds brought by animals, water, and wind begin to grow. Eventually, enough soil forms to support trees and shrubs.

It might take hundreds of years for the ecosystem to become balanced and achieve equilibrium. When an ecosystem is in equilibrium, there is no net change in the number of species. New species come into the community at about the same rate that others leave the community. This is a climax community – a stable, mature community in which there is little change in the number of species.

6. What is a pioneer species? Give an example of one. _____
_____
7. What major contribution do pioneer species provide in the development of an area? _____
_____
8. What is a climax community? _____
_____
9. What factors lead to a community becoming a climax community? _____
_____

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Disturbances such as fire or flood can disrupt a community. After a disturbance, new species of plants and animals might occupy the habitat. Over time, the species belonging to the climax community are likely to return. Secondary succession is the orderly and predictable change that takes place after a community of organisms has been removed but the soil remains. Pioneer species begin the process of restoring a habitat after a disruption.

10. What is secondary succession? _____

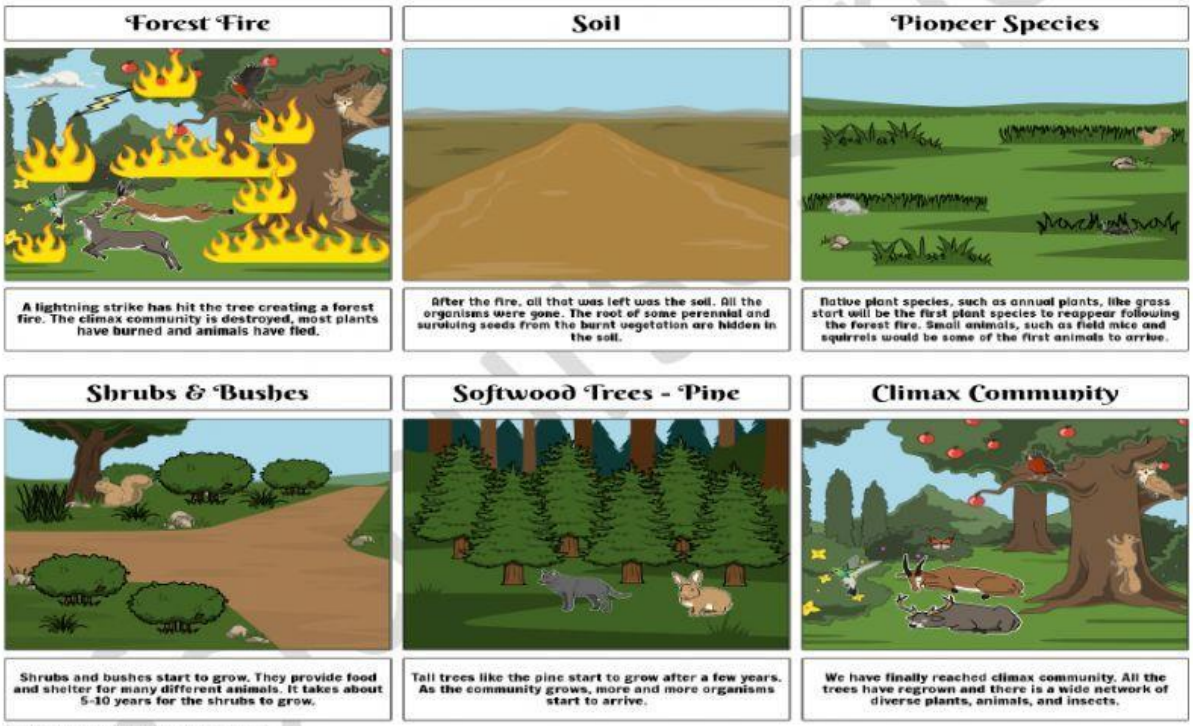
_____

11. Name at least 5 that can lead to secondary succession. _____

_____

12. What is the difference between primary and secondary succession? _____

_____



Directions: Analyze the diagram above to answer the following questions.

13. What lead to ecological succession in the diagram above? _____

14. What are the first organisms to show up after ecological succession? _____

15. How can a fire be beneficial to ecosystems and communities? _____

_____

16. What is a climax community made up of? _____

_____

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