



STUDENT GUIDE

Part I: Ecological Succession

Earth is not a static place; it is constantly changing. Natural forces like volcanoes or glaciers can cause an entire landscape to change, and with that, the living things, too. Sometimes these changes are caused by human activity. When there is a major change in an ecosystem, there is a process that happens to re-establish the species in that area. This gradual process of change and species replacement is called ecological succession.

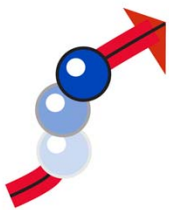
There are two main types of succession, primary and secondary. Primary succession occurs on surfaces where there is no soil. Plants, animals, or other organisms have not lived there. Succession begins on bare rock. For example, a glacier is a huge body of ice that can move. As it moves, it scours the land beneath it, leaving behind exposed rock. For plants to move into that area, soil must be formed first. Soil formation may take years, and the first plants to the area will be very small. The first organisms to establish themselves are called a pioneer species. Examples of pioneer species are lichens and mosses.

Secondary succession is a more common type of succession. This occurs where soil is still present. Human activity or natural disasters such as forest fires or storms can cause secondary succession.

In both primary and secondary succession, the environment will go through gradual changes over many years, with new species replacing existing ones. Eventually, the environment will reach its final stage and become stable. This is called a climax community.

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Part I: Ecological Succession, continued

Here is an example of succession close to home. The picture below shows a wildfire in Bastrop County, Texas, that occurred in the summer of 2011. This event was the costliest and most destructive fire in the history of Texas. The devastating fire scorched 32,400 acres of land, taking four-story tall pines, snakes, wildflowers, and thousands of other species with it. Even with all the destruction, ecologists have an opportunity to study succession in action. Foresters in the area state that the Lost Pines forest in Bastrop County will eventually regenerate, but this process will be slow. It won't happen within the lifetime of the people who live there. Already new grasses have emerged, along with small wildflowers. Insects are back on the scene for pollination. The climax community is many years away, but the process of succession is moving forward.



Complete the questions in Part I of your Student Journal.





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Part II: Succession Stations

Procedure:

1. Proceed through the six Succession Stations using the Student Reference Sheets your teacher has provided for you.
2. Read each Succession Station Student Reference Sheet and answer the questions in your Student Journal.

Part III: Field Investigation and Technology Connections

1. Follow all of your teacher and school rules for conducting this outdoor field descriptive investigation. Use a digital camera and take pictures and record examples of succession around your school campus. Identify areas in the ecosystem around your school campus that have been affected by an event. These events can be human caused or natural catastrophic events.
2. Create a slideshow presentation with the examples you collect. For each example place a text box that lists how the ecosystem has been affected. List the abiotic and biotic factors you observe in the ecosystem. Describe the current stage of succession, and discuss how the biotic factors will change over time as succession continues.
3. Your teacher may have your group present this project to the class. Alternatively, you may find other examples of events that have disrupted habitats using the internet.
4. Answer the questions in Part III of your Student Journal.

Complete Parts II and III of your Student Journal. Complete the Reflections and Conclusions.

