

## APES- Ecological Succession Activity

Name: \_\_\_\_\_

**Purpose:** After studying this material you should be able to:

- *Describe an ecosystem and explain how the biological community interacts with its environment*
- *Explain the role of disturbance in (natural and managed) ecosystems and its relationship to succession*
- *Explain what primary succession is and give some real world examples*
- *Explain what secondary succession is and distinguish it from primary succession*
- *Describe how living components in the ecosystem change nonliving components during succession*

**Directions:** *Read all directions thoroughly and make sure to read the overview and objectives. Answer all questions below on a separate piece of paper, and be sure to visit all the web links as indicated. When visiting the web links, make sure you read all the information and look over the images, and answer any associated questions.*

### **Ecological Succession- Overview:**

*From the Latin, Succedere, to follow after*

*“Change in the species composition of a community over time”*

- **Primary Succession-** follows the formation of new land surfaces consisting of rock, lava, volcanic ash, sand, clay, or other exclusively mineral substrate
  - This means that there is NO SOIL present
  - Soil is a mixture of mineral material, decaying organic material, and living organisms
- **Secondary Succession-** follows the destruction or partial destruction of the vegetation area by some sort of disturbances, like a fire, windstorm, or flood that leaves the soil intact
- **Pioneer Species-** initiate recovery following disturbance in both primary AND secondary successions

**Pioneers “pave the way” for later colonists by altering the biotic and abiotic environment**

- *soil stabilization*
- *soil nutrient enrichment (organic matter and biological nitrogen fixation)*
- *increased moisture holding capacity*
- *light availability*
- *temperature*
- *exposure to wind*

Species composition tends toward a **CLIMAX COMMUNITY** through succession

The climax community describes an end product of succession that persists until disturbed by environmental change. Succession occurs at large scales involving higher plants and animals, but may involve microbial communities on a smaller scale

**Visit the Link:** [http://geowords.org/ensci/imagesbook/04\\_03\\_succession.swf](http://geowords.org/ensci/imagesbook/04_03_succession.swf)

*Answer the following questions on a separate piece of paper*

1: How is primary succession different from secondary succession?

*Primary is all new land, while secondary soil is already present.*

2: What impact do humans have on succession?

*Humans can affect the succession in several different ways, one of them could be by making the succession restart.*

### **Forest Primary Succession:**

<http://tecalive.mtu.edu/meec/demo/PrimarySuccession.html>

3: What causes this primary succession? List at least two other examples of primary succession you can think of.

*Volcano eruptions: Lava.*

*Elevation and subsidence*

4: What are the 1<sup>st</sup> species to arrive after the succession event?

*Grasses and small plants.*

5: How does the rate of secondary succession compare to primary succession? Why do they differ? Explain.

*By 50 years.*

*Secondary has soil that is already present. It makes*

### **Secondary Succession:**

8: Fire is one cause of secondary succession. List at least 4 other examples of secondary succession.

*An abandoned farmland.*

*.renewal of a crop after harvesting.*

*.forest renews after logging*

*volcanic eruption*

9: Imagine a lawn on campus or in someone's yard. Are there any examples of succession there now? If no one maintained it for five years, what might it look like?

What would it look like after 10 years? 50? 100?

*Yes, It would be secondary because soil is already there and some small plants and grass is stabilizing. The number of plants and vegetation would increase because after the grass it would make new type of soil creating long live plants, that would attract bigger animals. After 10 years there would be bigger predator, 50 trees, and 100 the place would be completely new.*

