

Speedy Succession

5th Grade

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References:

- <http://sftc.cas.psu.edu/forest%20lessons/succession.htm>

Benchmarks:

SLC 17A: Students will identify how plant and animal species are affected by changes in an ecosystem over time (succession, change and maintenance of habitats, interrelationships).

Objectives:

Students should identify how a pond ecosystem could change into a prairie or grassland ecosystem. Students should identify pioneer and climax species. Students should recognize that succession can take up to 100 years or more to change one ecosystem into another.

Materials:

- 2 liter soda bottle
- Water
- Seeds
- Aquatic plants
- topsoil

Preparation: Turn a 2 liter bottle on its side and cut a wide opening. Leave the cap on! Place about 2 inches of topsoil and three inches of water in the bottle. Add some aquatic plants.

Initial Demonstration:

Show the students the ecosystem you have created. What kind of an environment would this be in nature? (A pond or a swamp). Have the students observe what kind of life they see in the bottle. Ask the students what will happen to this ecosystem over time.

Target Observations:

- There are some plants in the bottle.
- They probably need a lot of water.
- There is dirt and water.

Target Model:

- The pond may dry up. It may stay the same.
- The pond may get more plants in it. A real pond might get fish.

Procedure:

Tell the students you are going to fast-forward time by adding some things to this bottle every day. You will add seeds and a little dirt and some water. Where would these things come from in nature? (Wind might blow in sand or seeds. Rainfall might bring water).

Set the bottle in the sun so that it can have some warmth. Be sure not to cover the opening so that the water can evaporate. Each day, throw in some seeds. Sunflower seeds might be a good choice. Do not water the bottle for the first week. (Drought). Add just a pinch of sand or topsoil to the bottle. Periodically, have the students observe the bottle. After two weeks, take note of changes in the bottle. Has the pond dried up? How are the aquatic plants doing? Are there any new kinds of plants?

Target Revised Model:

- Over time, ecosystems can change from one kind to another.

Procedure:

Ask the students if they have ever seen a vacant lot. What kinds of plants are growing there, if any? (usually just small weeds). What kind of soil exists in vacant lots? (Usually concrete or gravel). If students are not familiar with vacant lots, have them consider side walks or driveways where weeds have started to intrude. Could a tree grow in these places? What kind of soil do trees need? How long does it take for a tree to grow? What would happen to a vacant lot if no one ever did anything with it? How long would it take for the lot to be completely covered with weeds? (maybe a couple of years). How long would it take for it to be completely covered with trees? (dozens of years).

Target Revised Model:

- The types of plants living in an ecosystem depend on the kind of soil, how much water is present, etc.
- Some plants take longer to grow than others- this leads to an ecosystem that changes over time (from fast-growing plants to slower-growing ones)

Summary:

Ecosystems change over time. We call this succession. They change because some species grow faster than others, but also because of conditions like drought.

Name _____ Room _____ Date _____

Speedy Succession

Original Ecosystem _____

Plant types: _____

Animals that could live here: _____

Observations of seeds:

Date _____

Date _____

Date _____



Original Ecosystem _____

Plant types: _____

Animals that could live here: _____

Pioneer Species:

Climax Species: