
Successful Succession

Overview

This lesson and related activities are designed to give students hands-on experience in observing and describing the role of ecological succession in ecosystems.

Grade: 7

TEKS

Scientific Processes

7.1 A

7.2 A, B, C, D, E

7.3 B

7.4 A

Science Concepts

7.12 D

Vocabulary

Ecological succession

Climax community

Materials

Journals

Digital cameras

Computers

Software for building slide shows such as

PowerPoint or

HyperStudio

Downloadable Sheets

*Forest Fire Information Cards

*Cloze Procedure

*Flow Chart

Pre-Eastman Classroom Activities

Before Class Begins:

1. Label the four corners of the room with one of the following signs: Strongly Agree, Agree, Strongly Disagree, and Disagree.
2. Make four copies of the Forest Fire Information Cards, one for each corner.
3. Copy the Cloze Procedure for Succession, one per student.
4. Copy the Flow Chart, one per student.

Lesson:

1. The teacher should make the statement, "All forest fires are bad." Students will then go stand in the corner that best represents their feelings about this statement. Allow students time to share their thoughts in each corner and then have a spokesperson defend each position.
2. Give each group a Forest Fire Information Card to read and discuss. Students will then be allowed to move to a new corner if their views have changed. Allow them to defend their new choice using specific examples or facts from the cards.
3. Explain to students that there are times when an environment will change drastically and that ecological succession is the orderly replacement of native species over time.
4. Students will complete the Cloze Procedure Activity on Succession in pairs. They will use pre-existing knowledge to predict the reasons for and stages of ecological succession.
5. As a class, go over and discuss the Cloze Procedure Activity. Have students create a flow chart of the Stages of Succession to use in the forest.

Successful Succession

In The Field

Prior to leaving the school, make sure you have:

- Digital cameras
- Journals
- Pens or pencils
- First Aid Kit

In the forest, students will be observing different stages of succession. Guide students to a variety of locations within the forest that are examples of different stages of succession. In each area, allow students enough time to observe and record data regarding the plants and animals in that location. They should take pictures of each area and record observations in their journals.

Successful Succession

Post-Eastman Classroom Activities

Students will use the pictures and recorded data made in the forest to create an oral presentation on ecological succession. This presentation should include examples of the stages of succession as well as information regarding the role of succession in the forest environment. A sample rubric for grading follows:

RUBRIC

VISUAL ELEMENTS

| | |
|------------------------------------|-----------|
| Minimum of 10 slides | 20 points |
| Pictures of 4 stages of succession | 20 points |

NARRATIVE ELEMENTS

| | |
|--------------------------------------|-----------|
| Evidence to support the four stages | 20 points |
| Discussion of the role of succession | 20 points |

| | |
|--------------------|------------------|
| PRESENTATION STYLE | <u>20 points</u> |
|--------------------|------------------|

| | |
|-------|------------|
| TOTAL | 100 POINTS |
|-------|------------|

FOREST FIRE INFORMATION CARDS

Forest fires:

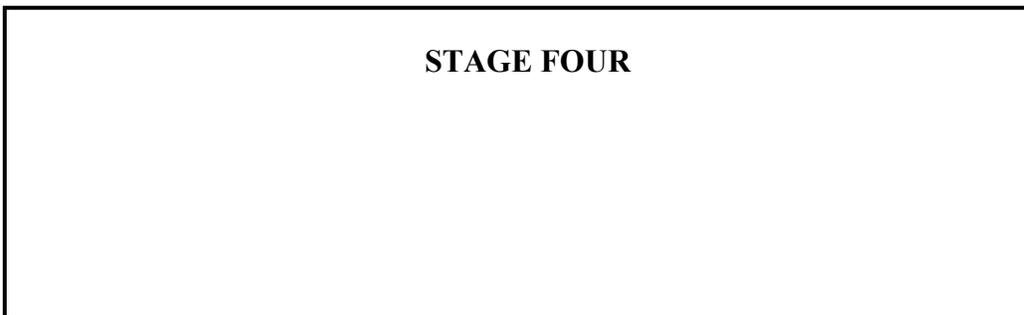
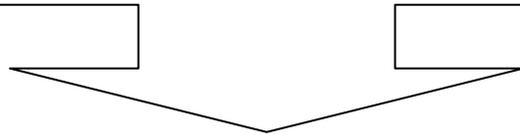
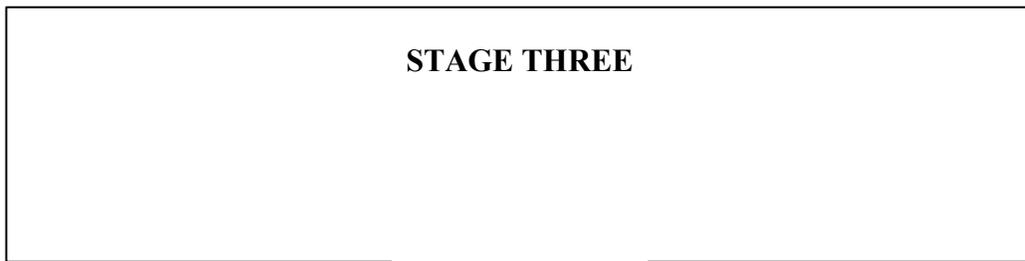
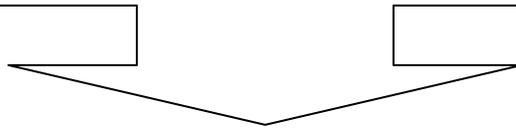
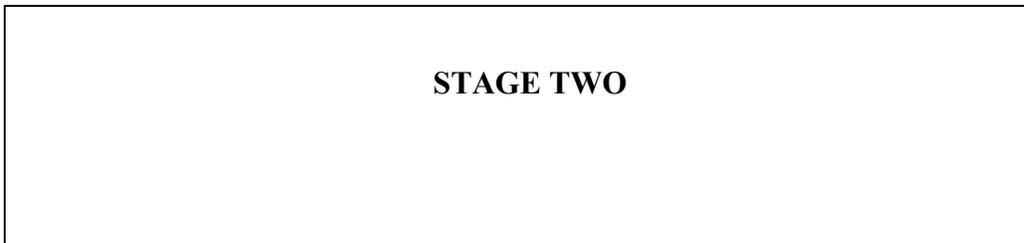
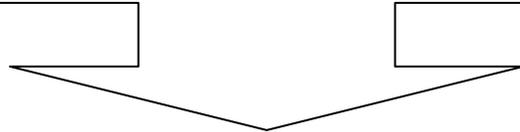
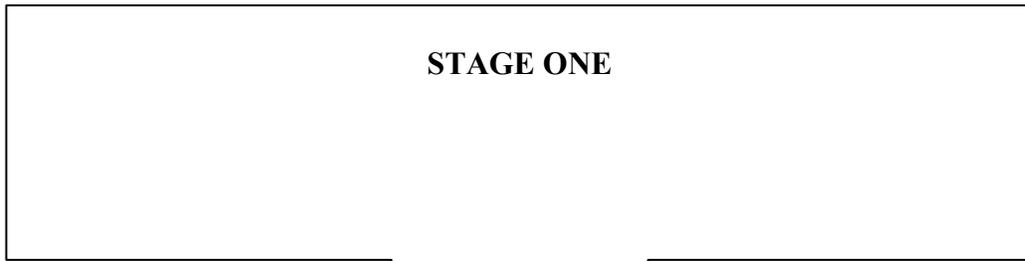
- clear the way for new growth by opening the forest canopy for sunlight.
- cost over \$600 million per year.
- cover the ground with ash that is rich in calcium, phosphorus, and other minerals.
- can enhance natural wildlife habitats.
- can control insect population and disease.
- clear undergrowth reducing the probability of future fires.
- allow some trees to get the intense heat needed to open their cones and release seeds.
- endanger homes, property, and human life.
- are used to clear a logged area for planting of new trees.
- can destroy natural wildlife habitats.

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FOUR STAGES OF SUCCESSION



FOUR STAGES OF SUCCESSION

STAGE ONE

Grasses and weeds grow and scatter seeds.
Insects, worms, and birds return.
Lasts about 5 years

STAGE TWO

Dense shrubs, vines, and non-woody short plants
Rabbits, snakes, skunks
Lasts about 10 years

STAGE THREE

Pine and other fast-growing trees
Owl, squirrels, foxes

STAGE FOUR

Hardwood trees
Climax community
Many species of plants and animals

SUCCESSION CLOZE PROCEDURE

NOTE: This answer key contains possible answers for each blank. There are other viable choices for many of the blanks.

Occasionally a forest environment can be destroyed by natural disasters such as fires, diseases, floods, or the actions of humans. When the plants are destroyed, many animals lose their habitat. However, some animals are able to survive by leaving the area or burrowing underground. Succession is a term used to describe a type of natural regrowth that occurs in these situations.

In the first stage of succession, grasses and weeds begin to grow and scatter seeds. Insects, worms, and birds begin to return. This stage lasts about five years.

As these plants begin to die and decay, valuable nutrients are added to the soil. This fertile ground enables the shrubs, vines, and other non-woody plants to flourish. Animals such as rabbits, snakes, and skunks find shelter in this ground cover. This simple environment continues for about ten years.

As the soil deepens, pine and other fast-growing trees spring up, providing habitat for animals such as owls and squirrels. The trees also block sunlight to the shrubs and vines below. The decay of those plants further deepens the soil.

In the last stage, hardwood trees such as oak and hickory grow. They eventually replace the pine trees. The dead pine trees provide homes for many animals as well as mosses and mushrooms. Unless it is destroyed by another natural disaster or human intervention, there will be no more changes in this habitat. A community that does not undergo further succession is called a climax community.

SUCCESSION CLOZE PROCEDURE

Use your current knowledge of nature and the forest environment to fill in the blanks below.

Occasionally a forest environment can be destroyed by natural _____ such as fires, _____, _____, or the actions of _____. When the _____ are destroyed, many animals lose their _____. However, some animals are able to survive by _____ the area or _____ underground. _____ is a term used to describe a type of natural regrowth that occurs in these situations.

In the first stage of succession, _____ and _____ begin to grow and scatter _____. _____, _____, and _____ begin to return. This stage lasts about _____ years.

As these plants begin to die and _____, valuable _____ are added to the soil. This fertile ground enables the _____, _____, and other _____ plants to flourish. Animals such as _____, _____, and _____ find shelter in this ground cover. This simple environment continues for about _____ years.

As the soil deepens, _____ and other fast-growing trees spring up, providing _____ for animals such as _____ and _____. The trees also block _____ to the shrubs and vines below. The _____ of those plants further deepens the _____.

In the last stage, _____ trees such as oak and hickory grow. They eventually replace the pine trees. The dead pine trees provide _____ for many animals as well as _____ and _____. Unless it is destroyed by another _____ or human intervention, there will be no more _____ in this habitat. A community that does not undergo further _____ is called a climax community.