



Playground Greenup Lesson Plan

Overview

Children will document changes in the playground vegetation during the year by making drawings or taking digital photographs of grass, trees, bushes, weeds, and other vegetation. Children will learn how the color of vegetation changes during different seasons by turning brown in the winter (brown-down) and green in the spring (green-up). Children may also learn that some plants are evergreen.

Suggested Lesson Sequence	Please see the Seasonal Changes module description.
Lesson Level	Intermediate
Science Connections	<ul style="list-style-type: none"> · School playgrounds are accessible areas for children to observe changes in vegetation over time. · Children will observe the "green-up" and "brown-down" of vegetation on the playground. · Children may recognize that some plants are evergreen and some are deciduous.
Technology Connections	<ul style="list-style-type: none"> · Children will learn how to take a picture with a digital camera (optional).
Lesson Assessment Tools	<ul style="list-style-type: none"> · Assessment and Standards Table (Word) · Assessment Activity Description (below) · Extensions for Authentic Assessment (below)

Materials

- Playground Photos/Drawings Summary Sheet ([Word](#))
- Crayons and paper, or digital camera (optional) for documenting playground color changes
- Computer with large display or projection device (optional) to display digital photos to the class

Vocabulary

Deciduous: A type of plant that grows green leaves in the spring and summer, but then the leaves turn yellow and brown in the fall and often drop to the ground

Evergreen: A type of plant with leaves that stay green throughout the year

Procedure

I. Assessing Prior Knowledge

Begin a discussion with your students about plants. Ask your students to list some plants they know that have green needles or leaves throughout the entire year, and to list other plants whose leaves turn brown or yellow in the fall. Make a list of the two types of plants on the board or on chart paper. Introduce the two vocabulary words now, asking the students to decide which list would go with which word.

II. Contextual Preparation

Because you will be making observations later in the lesson from outside the school, get the children thinking about your school's outside environment by asking them to identify which of the plants on their list they would be able to see on or around the playground. How many of the plants are evergreen? How many are deciduous? Based upon this information, ask students to predict how plants on their playground (or in the immediate surrounding area) will change colors over the course of a year.

III. Student Activities

1. Using a digital camera or crayons and paper, children may take pictures or make drawings of their playground site during different seasons or times of the year to document changes in vegetation color. For example, children may record changes in the color of grass and weeds on the playing field, or how deciduous trees lose their leaves in the fall. With the photographs or drawings, children will document how the color of vegetation changes during different seasons by turning brown in the winter (brown-down) and green in the spring (green-up).
2. Regardless of whether children document the color changes using digital photographs or hand drawings, the teacher may assist them in keeping a master record of the observations using the [Playground Photos/Drawings](#) activity sheet. Be sure to record the date, time, and location where the drawings or photos are made. If drawings are used to document the changes, you may encourage students to construct a scrapbook of their drawings through time. *(Note: If using a digital camera, after you or the children take pictures of the playground, the digital photos should be uploaded to a computer. These photos can then be displayed in a side-by-side manner in many programs. Often, they can be labeled with captions and arranged to make a "digital scrapbook".)*
3. Repeat steps 1) and 2) at several times over the course of the school year. Each time, have

students return to the same locations to make their observations (either photos or drawings). You may wish to organize the photos or drawings in a way such that the scrapbooks can be viewed by the entire class.

4. In class discussions, children should describe how their photos or drawings reveal changes in their playground vegetation as the seasons change. These photos may show vegetation turning brown or yellow during the fall and winter (referred by scientists as senescence, or a "brown-down" of vegetation) and then greening up in the springtime. Some photos or drawings may reveal evergreen vegetation, which remains green throughout the year.

IV. Assessment

1. Questions for Class Discussion

a. What living things can you see in your pictures (or drawings)?

Answers will vary.

b. What non-living things can you see in your pictures (or drawings)?

Answers will vary.

c. What colors do you observe in the living and non-living things shown in your photos (or drawings)?

Answers will vary

d. How do the colors within your photos (or drawings) compare over the course of the seasons?

Children should notice that the color of deciduous plants change during the year (e.g. green to brown to green) and evergreen plants remain green. They should also notice that non-living objects may change color (e.g. snow turns the ground white!) or may keep the same color (such as playground gravel) over time.

e. What do your photos show about how plants change during different times of the year?

The photos should show how the plants lose their leaves or how the grass changes color.

f. What time of year do you notice changes in the deciduous plants' colors from green to brown (brown-down)?

Exact dates will vary.

g. What time of year do you notice a change in the plants' colors from brown to

green (green-up)?

Exact dates will vary.

h. Make an estimate: What amount (or fraction) of plant material in the photos is evergreen, and what amount (or fraction) is deciduous?

Answers will vary.

i. Why do you think some plants change color during the seasons, and others do not?

This is an advanced question designed to have the students speculate and hypothesize. The environmental changes that occur in the winter often cause plants to draw nutrients ("vitamins") from their leaves, back into their stems. When these nutrients are mostly removed from the leaves, the leaves change their pigment composition (color) and may drop to the ground or die. The loss of green color is due to loss of the green pigment called chlorophyll. In the springtime, additional nutrients are needed to make new green leaves. In the case of evergreen plants, needles or leaves are retained for several years in a row. Because of this, evergreen plants typically do not need as many nutrients from the soil to make new leaves as do deciduous plants. As a result, evergreen plants can often live well on nutrient-poor soils such as sands and rock.

2. Wrap-up. At the conclusion of this lesson, children should be able to document changes in vegetation on the playground using a digital camera or color drawings. Children should be able to describe how their photos (drawings) reveal changes in the color of plants during different seasons. Children should also be able to distinguish between deciduous and evergreen plants, and speculate on why deciduous plants change colors during the year.

Lesson Extensions for Authentic Assessment

1. Have students conduct further research on the differences between evergreen and deciduous plants. They may conduct their research at the library or on the Internet. Students may write a short report of a particular evergreen or deciduous plant, including details about its life history and geographic location.
2. Scientists often use drawings or digital photographs when they conduct field work outside. Design a scientific expedition with your students and make a list of the drawings and photographs you would want to make in order to assist with your observations and measurements. You might develop a class play where the class acts out the scientific expedition as a group. Many scientific field experiments have been documented on the Internet for further exploration by your students.
3. Have children think about how the playground is similar to or different from the vegetation in the surrounding area. How have plants been changed by the playground?

Students may write an illustrated story to explain their reasoning.