



Forest Ecology

Class Outline

Brief Synopsis: Students will use various tools to measure the living and non-living elements that contribute to three forest ecosystems around Eagle Bluff. Through an interactive game and the collection of their own data, students will learn about forest succession, including discovering which stage of succession the three forests fit in to. The class will conclude with a look at Minnesota's forest past and future.

Outcomes:

1. Students will give examples of living and non-living components for a given ecosystem.
2. Students will gather accurate data from several forests using various tools.
3. Students will conclude which stage of succession a given forest is in, through careful data collection and observation.
4. Students will be able to list ways humans impact forests in positive and negative ways.

Outline:

I. Ecology Triple-Link (30 minutes)

Students are given a card with either a picture and name of an ecosystem or a list of three elements that can be found in a specific ecosystem. Students need to match the picture to the description of the ecosystem. The discussion at the end introduces the idea that ecosystems are unique because of not only what lives there, but the non-living elements as well.

II. Succession Progression (40 minutes)

This activity illustrates how the non-living elements (sunlight, soil depth, soil temperature, and water) influence what living things can survive in an ecosystem and how each part can impact the other over time. If left undisturbed, this interrelationship creates a generally predictable pattern of change called succession. In a hardwood forest the different stages of succession are called *pioneer*, *transitional*, and *climax*.

III. Field Research (90 minutes)

Working in four research teams, students utilize a variety of tools to measure the non-living components (soil depth, temperature, moisture level, and light level) as well as the living trees. Students will measure an example tree several different ways to estimate the age of trees for that forest type.

IV. Forests Past and Future (20 minutes)

After the stages of succession are determined for the forests around Eagle Bluff, we will look at the larger picture of the forest in Minnesota and how they have changed in the past. Students will discuss choices humans have to influence changes for these forest in the future.

Quick Facts

Class Length: 3 hours

Ages: Designed for 5-8th grade

Season offered: April–October

Time outside: 2 hours

Hike length/physical activity:
1 mile hike, moderate physical level.

Pre-requisite/prior knowledge:
No special skills required

Minnesota Academic Standards:
Science: 4.I.B.2-3, 5.I.B.1-2, 5.III.A.2,
6.I.B.1-4, 6.II.C.4, 7.I.A.2,
7.I.C.1-4, 8.I.B.1

Math: 4.I.A.5, 4.II.A.1-4, 4.II.B.1-7,
4.IV.A.1, 5.I.A.5, 5.II.B.1-7,
5.IV.A.3, 6.II.B.3-4, 6.V.C.2,
7.II.B.1, 7.V.B.1

Language Arts: 4.I.B.1, 4.III.A.1-5,
5.I.B.1, 5.III.A.1,2&4, 6.I.B.1,
6.III.A.1-2, 7.I.B.1, 7.III.A.1-2,
8.I.B.1, 8.III.A.1-2

Social Studies: V.A.I.1, V.C.IV.3,
V.D.I.2, V.D.V.1