Change in Nature
Kindergarten-1st Grade

This project uses digital photography to document seasonal change and long term ecological change at different locations at Cedar Tree Neck. Specific areas of interest are the red pine forest, and the beech tree grove. A Google Map hosts photos taken at pre-specified locations. Teachers from multiple schools and grade levels can visit one time (or more) to take photos, share their photos and student observations, and eventually create a sequential collage of digital imagery. To help students understand longer term ecological change, students might return to this project to observe change in a place over the course of their entire school career.

Massachusetts Science and Technology/Engineering Standards- 2013	
K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment. [Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digging holes in the ground and tree roots that break concrete.] K-LS1-2(MA). Recognize that all plants and animals have a life cycle: a. most plants begin as seeds, develop and grow, make more seeds, and die;	
MVYPS Priority Standards • Students will use skills of inquiry to engage in the scientific process • Describe the four seasons & the changes in weather, and the effects they have on the life cycles of plants and animals • Recognize that people and other animals interact with the environment through their five senses.	
Big Ideas/Enduring Understandings 1. We make close scientific observations using many senses. When we do so, it leads us (and scientists) to make predictions and ask more questions. 2. The same place can look very different as seasons change. 3. Long term change in nature sometimes follows a predictable order.	**Students will know...Concepts** 1. Trees and plants signal the onset of autumn by changing leaf color and losing leaves. This coincides with shorter days and colder nights. 2. There are two main groups of trees called deciduous and evergreens. 3. Trees and plants may look bare in the winter, but many have seeds and later buds. 4. When plants are planted in an area with weather they are not accustomed to, they are more likely to be killed by diseases.
Essential Questions How do trees and plants help us know what season it is? What do trees and plants look like in different seasons?	**Students will be able to...Skills** 1. Sort photos of natural areas in different seasons based on observations of color, leaf cover, presence of flowering plants, and weather. 2. Put photographs of changing natural areas in a logical order that shows progressive decomposition or decay and renewal.

Before You Visit

Each school will receive a kit that includes materials and instructions for the following activities:

Preview the Cedar Tree Neck Google Map: ***see Google Earth Lessons link on Curriculum Materials page.***

Pre-Assessment Performance Task
Have students draw a tree on an 8.5 by 11 in piece of paper.
Assess detail in the drawing- does it have leaves, buds, flowers, seeds, color?
Does the tree show characteristics of different seasons?

Seasonal Photograph Sorting Activity:
Kit includes 16 photos of island trees, habitats, animals, and water bodies across multiple seasons. These may be used with the whole group or small groups to conduct simple sorts and discussions, such as:

- Group some photos that are similar and some that are different. Explain how they are similar or different.
- Sort the photos by season.
- Sort the photos by color.
- Sort the photos by differences and similarities in landscape or habitat.

Observation Game:
Lay out the Seasonal Photos. Give students a chance to look at them all together. Then, cover them with a blanket, and have students close their eyes while you remove one or two photos. See if they can guess which one you removed. This can also be done with objects from nature (pinecones, acorns, sticks, shells, rocks, leaves, etc.).

Sequencing Activity:
Kit includes sets of cards with photos showing the progression of a decaying tree and one of a changing freshwater pond. Have students work in small groups or partners to put the cards in order following a logical sequence. Discuss their observations of what is changing from one picture to the next.

On the Trip

Photographing Landscapes:
At Cedar Tree Neck, hike to any of four pre-marked locations on the property to take photographs and make observations. This can be done as a whole group, or small groups can start at different locations and rotate. At each location, the group takes a photograph, and discusses the following questions. ***See Discussion Recording Sheet on Change in Nature page.***

- What colors do you see?
- What do you smell?
- What sounds do you hear?
- Describe the leaf and plant cover. How far can you see? How much sky can you see?
- Are there any signs of people-- cut trees, carvings on trees, etc.?
- What do you think it will look like in 3 months?
- What do you think it will look like in 10 years?
- What are you surprised to see?
- What questions do you have?

Photographing Trees: Students can also choose trees or leaves to take close up photographs of. Print them back at school and use for sorting or identification activities.

After You Visit

Post landscape photos and type observations to Google Map. This can be done by teachers or in collaboration with older students.

Post Assessment Performance Task
Have students draw a tree again on an 8.5 by 11 in piece of paper.
Assess detail in the drawing- does it have leaves, buds, flowers, seeds, color?
Does the tree show what season it is?

Complete **The Important Thing About Cedar Tree Neck** sheet as a group or individually and return to SMF (see bottom of Curriculum Materials page for link)

Extensions:

- On the field trips, use the Explorer Backpack materials to reinforce concepts of living and non-living, sensory observation, tree identification, or bird identification.
- Post observations of signs of spring or migrating animals to Journey North (www.learner.org)
- Find more Seasonal Observation activities, collaboration opportunities with other schools, data collection protocols, and performance tasks with The Globe Program (www.globe.gov).