Seed Dispersal

Lesson Author: Amy Hosier

School or Agency: St. Anne Wetland Education Outreach Project

Grade Level(s): 4 -12

Science Topic: plants, dispersal

Summary

Plants use several methods to disperse seeds: wind, water, and animals. Each plant species improves the likelihood that the seed will survive and germinate. Seeds have adapted the mechanism of wind dispersal by either having "wings" or by being so light weight that they float. Plants that live close to moving water will grow close enough to drop their seeds so that the current carries the seeds to a different location. Fruiting plants rely on animals to eat the fruit and disperse the seeds (sometimes these seeds have a coating that allows for easier passage through the digestive system and the passage through the digestive system needed for germination). Some use the ability to attach to animal for transportation by using hook-like extensions that grasp the fur.

This exercise will teach children how trees reproduce and survive by seed dispersal mechanisms, as well as, how to identify different species of trees.

Core Content

NS.K-4.1: Science as Inquiry

NS.K-4.3: Life Science

Objectives

1) Students will be able to understand seed dispersal mechanisms as a reproductive strategy to increase chance of survival of the offspring.
2) Students will identify trees and seeds by using a field guide.

Materials

For Nature Trail

- plastic baggies
- pencil

- paper
- measuring tape
- markers/flags
- identification key (optional)/or link below

For Classroom

- seeds collected
- observation sheet
- stop watch
- pencil
- paper

Procedures

St. Anne's Wetlands

1) Explore the St. Anne's Nature Trail and discuss the different types of plants that are in the area.
2) Have children split up into groups (1 group per station) and investigate a defined area. As children work together, have them collect seeds of different types of plants that are located within their area (not too many of same species).
3) Have them take note of what they look like and how they might have been dispersed.
4) Have the children draw what their area looks like, including rocks, trees (living and dead), animals observed, etc.

Classroom

1) Take collection of seeds back to the classroom and separate them by dispersal mechanism.
2) For each group, discuss characteristics of the seeds that make them unique to the method of dispersal. (wing(s), color, width, weight, sticky, etc.)
3) For wind dispersal
    a. Have the children drop a seed from a set height

b. Time how long it takes for it to land on the table.

c. Repeat this process with each seed

4) For water dispersal, give children a small container of water, which seeds sink or which ones float?

5) Next have children weigh each seed and record the weight.

6) Discuss how the weight of a seed can affect how far they are able to disperse compared to others.

7) Which seeds might "hitch a ride" on animal fur? List their characteristics.

Extensions

- For higher grade levels, before coming to the wetlands discuss how to identify plants by their seeds. (see resource below)
- Split children into groups and assign an area. Have them randomly measure an area 5' x 5' area and mark with flags. Have students collect and identify the seeds they find before returning to the classroom. Let them check their work when they return to class.

Assessment Techniques

Evaluations

1) Did the seeds found come from deciduous or coniferous trees?

2) What kinds of seeds were found (type of dispersal)? Identify the plant they came from.

3) What method of dispersal do you think these seeds use? Why?

4) Wind dispersal experiment: Which wind dispersal seeds took the longest/shortest time to land?

5) Based on the time from #3, which seeds might travel the furthest from their parent?

6) What makes the fruiting seeds unique?

7) How far do you think each type of seeds would be able to travel using their dispersal mechanism?

8) What is an advantage of long distance seed dispersal?

9) Sink/Float experiment: Which would be a better adaptation for water dispersal?

10) Would it be beneficial for fruiting plants to use water dispersal?

Resources

Kentucky Trees.
http://www.uky.edu/Ag/Horticulture/kytreewebsite/majorheaders/kytreeshome.htm

(main types of plants found at St. Anne's: Spice Bush, Pawpaw, Cottonwood, Sycamore, Pin Oak, Tulip Poplar, Beech Trees)

Kentucky Division of Forestry.
http://www.forestry.ky.gov/programs/education/

Arbor Day Foundation. http://www.arborday.org/trees/whattree/WhatTree.cfm?ItemID=E61a