

Seed Dispersal Strategies

Teacher's Guide

Subject: Integrated Science (Life; Earth-Space)

Topic: Seed dispersal strategies

Summary: Students will examine various plants and look for features associated with sexual and asexual reproduction.

After completing the field lab, students will be able to:

Objective(s):

1. Identify and describe common seed dispersal strategies
2. Determine the primary seed dispersal strategies for five different seeds
3. Identify and describe the advantages and disadvantages of different seed dispersal strategies

Ecosystem(s): Pinelands? Hammocks? or Scrub?

Equipment:

- Tape measure
- Magnifying glass
- Stopwatch
- Measuring rod
- GPS receiver
- Ladder
- Bucket of water

Background:

- Vocabulary: Seed Dispersal, sexual, asexual reproduction.
- Reference Material: Seed Dispersal http://www.countrysideinfo.co.uk/seed_dispersal/index.htm
Wind Dispersal <http://waynesword.palomar.edu/plfeb99.htm#gliders>
Seed Story <http://www.ecologycenter.org/tfs/pdf/2002winter/seedstory.pdf>
- Equipment Training: GPS

Procedure (Engage; Explore; Explain)

1. Engage the students by asking a specific question that gets to the heart of the activity: Plants can disperse their seeds by wind, water, animals, explosions, and fire. What advantage might one approach have over the other? Use the students' answers to ascertain what they already know, clarify any misconceptions, and then ask them to formulate their own hypothesis relating to their own expectations of the outcome of the lab.
2. Fill-in your own hypothesis on the top of the student data sheet.
3. Students should collect seeds from a given area and test them. In the event that seed availability is limited, group leaders should pre-collect seeds.
4. In your pre-determined area, complete the observations and measurements identified in the student data sheet. For a more advanced group, remove the set of measures and have the students come up with their own tests or measures to determine how the seed is dispersed.
5. After completing the lab, allow the students to answer the discussion questions as a group and explain their answers relating them to the concepts, processes and skills associated with the activity. Students should record their answers individually. At this time, facilitators can introduce/explain the specific concepts and explanations in a formal manner.

Sunshine State Standards:

Science: SC.D.1.3.3,4; SC.D.2.3.2; SC.F.1.3.1; SC.F.2.3.1-3; SC.G.1.3.2-4; SC.G.2.3.4; SC.H.1.3.4; SC.H.2.3.1

Language Arts: LA.A.1.3.3; LA.C.1.3.1, 4

Mathematics:

Social Studies: SS.A.6.3.2; SS.B.2.3.6, 9

Seed Dispersal Strategies

Student Data Sheet

General Information

Full Name:		Date:	
School (teacher):		Time:	
Latitude:		Longitude:	

Student Hypothesis and Rationale

If a seed is covered by a fleshy fruit, then it is probably dispersed by (choose one: wind, water, animals, fire, or explosions) because . . . _____

Field Observations/Measurements/Data

Seed	Location (Height above ground)	Weight (flesh to seed ratio)	Floats or sinks (after 30 seconds in water)	Wings and Air resistance (drop time)	Heat survival (torch test?)	Pod with "seam"	Hooks or 'Stickiness' (burlap or wool cloth test)	Dispersal Strategy (wind, water, animal, fire, explosion)

Seed Dispersal Strategies

Assessment

1. Did you notice any relationship between the height of the plant/seed and likelihood that it was dispersed by “sticking” to animals with hooks?

2. Did any of the seeds seem to have more than one dispersal mechanism?

3. Do your data support your hypothesis? Whether your hypothesis is supported or not, what can you infer from your observations, measurements, and results?

4. In a dense tropical rainforest, what seed dispersal mechanisms do you think would be more common? Less common?

5. Seeds of the saw palmetto were purported to have medicinal value. Later people began collecting the seeds sometimes illegally. How might the collection of a valuable seed product found in the wild be managed to ensure its benefits are obtained, while ensuring that the plant will continue to survive?

Portfolio Journal Prompt

Seeds often travel great distances. Imagine yourself as a seed with multiple dispersal mechanisms. Describe your journey through Florida. Before you begin writing, think about the characteristics associated with each dispersal mechanism and try to include each in your particular seed and its journey.

Seed and Pollen Dispersal

Reference Chart



Wind Seed Dispersal



"Hitchhiker" Method

Animal Seed Dispersal



Animal Seed Dispersal



Fire Seed Dispersal



Red Mangrove Seed
Water Seed Dispersal

regular



dried



Explosive Seed Dispersal