

SEED SURVIVAL

OBSERVE AND IDENTIFY AND MODEL SEED DISPERSAL TYPES

2nd Grade NGSS Correlations:

- [LS2.A](#): Interdependent Relationships in Ecosystems
 - [2-LS2-2](#)
- [ETS1.B](#): Developing Possible Solutions
 - [2-LS2-2](#)
- [ETS1.B](#): Developing Possible Solutions
 - [K-2-EST1-2](#)

Pre-Trip Information:

- [What is a Seed? NewsELA Article](#)
- [Seed Dispersal Song \(Video\)](#)
- [Seeds and Seed Dispersal Video](#)

Materials:

- Seed specimens
- Seed dispersal example cards
- Seed survival worksheets, pencils, and clipboards
- Cilantro seeds
- Biodegradable planters
- Soil pellets

Objectives:

- Investigate a variety of seed dispersal techniques
- Observe seeds in a natural environment
- Design a seed to meet a specific dispersal challenge

Introduction:

All living things have a lifecycle, which includes everything from birth to death, including reproduction. How do plants reproduce? Many plants produce **seeds**, which are plant **embryos** (baby plants) enclosed in a protective outer coating with some nutrients that will help them grow. If the seed can find a good spot (where it has food, water, oxygen, and space) it will sprout.

However, plants can't move much, can they? A fully grown tree can't get up and walk around to find a nice place to set its seeds down, can it? So how do plants make sure their seeds can move around and

find a good place to grow? Over time, plants have had to develop (or **evolve**) different ways to **disperse** (spread or scatter) their seeds so that they have the best chance of finding a good location.

There are a few types of ways that plants disperse their seeds:

- **Gravity** –grow heavy and fall to the ground (example photo: peach)
- **Wind**- have adaptations that help seeds float or flutter to the ground (example photo: dandelion)
- **Water**- float on the surface of moving water (example photo: coconut)
- **Animals**- are ingested (example photo: blackberry), ‘hitch hike’ on (example: velcro plant) or carried by an animal (example photo: acorn) to a new location
- **Ballistic**- (typically a pod) explodes and scatters seeds in every direction (example photo: jewel weed)

Many seeds use multiple types of dispersal to get the maximum distance from their parent plant. For example, a coconut grows into a heavy fruit that eventually falls to the ground (gravity dispersal). Since the coconut tree naturally grows on beaches or near water, when the fruit drops to the ground there is a good chance it is very close to some sort of water. If it rolls into the water, it will then it will float along (water dispersal) until it is deposited on land again, possibly thousands of miles away from the parent plant.

Explain that we are going to observe several different types of seeds from plants that are found in this area, are going to search for seeds in nature, and then are going to be challenged to create their own seed using one of these types of seed dispersal.

- Divide students into groups of 4 or 5. This will be their group for the duration of the activity.

Activity (part 1):

- Distribute seed specimen boxes around the tables (or other activity space).
- Have students spend about 5 minutes moving around the tables and looking at the different local and non-local seeds.

Activity (part 2):

- Have students get together with their groups and give them 5-10 minutes and a designated area (e.g. the pavilion to the orchard) in which to search for seeds in nature.
- Remind students that they should not pull anything living from the ground or off a tree, but to observe the seeds, the trees, etc. without disturbance as much as possible.

Activity (part 3):

- Give each student a half page worksheet, clipboard and colored pencils.
- Explain that they are going to design their own seed. Either have them choose a dispersal type, or assign one dispersal type for the whole group.

- Explain that they can be as creative as they like, so long as their seed meets the dispersal type. For example, a wind dispersed seed could have something like helicopter rotors, or a water dispersed seed could have little air pouches like swim floaties.
- Give students 5-10 minutes to draw their seed.
- Have a few students share their seeds with the group.

Discussion:

- Ask: Why are there several different ways that seeds disperse? How does this help plants survive and reproduce?
- Ask: Was it easy to spot seeds in nature?
- Ask: Was it easy to design your own seed?
- Ask: Do you think it is easy for a plant to reproduce successfully?

Post-Trip Activity (to be done in class after the trip)

- Have students build a 3D model of the seed they designed using regularly found classroom materials (construction paper, pipe cleaners, glue, etc.). Have them present their seed to the rest of the class. ([2-LS2-2](#), [SEP.2](#), [SEP.8](#), [SL.2.6](#))
- Have students bring in a toilet paper roll to create their [own biodegradable planter](#). Plant seeds in the classroom and observe them growing for a few weeks. Measure sprout growth, draw pictures of the sprout each day, etc. ([2-LS2-1](#))