**NGSS Lesson Planning Template**

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| **Grade:** **2** | **Topic: Interdependent Relationships in Ecosystems** | **Lesson (number/title):** **3** |
| **Brief Lesson Description: *Introduction/Foundational Lesson***Students will be expected to understand seed dispersal. |
|  **Performance Expectation(s):** 2-LS2-2: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. |
|  **Specific Learning Outcomes:*** Students will be able to explain how seeds are dispersed.
* Students will create a model that mimics seed dispersal.
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| **Narrative / Background Information** |
| **Prior Student Knowledge:**N/A |
| **Science & Engineering Practices:**Develop a simple model based on evidence to represent a proposed object or tool. | **Disciplinary Core Ideas:**Plants depend on animals for pollination or to move their seeds around. | **Crosscutting Concepts:**The shape and stability of structures of natural and designed objects are related to their function(s). |
| **Possible Preconceptions/Misconceptions** |
| **LESSON PLAN – 5-E Model** |
| **ENGAGE: Opening Activity – Access Prior Learning / Stimulate Interest / Generate Questions (20 minutes)**1. In student groups of 2-4, make a list of all the ways humans travel. Tell students to make the list as long as they can! Encourage them to be creative – dog sleds, hot air balloons…
2. Have students share their answers with the whole class.
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| **EXPLORE: Lesson Description – Materials Needed / Probing or Clarifying Questions (45 minutes)**1. Tell students they will be learning about how seeds travel.
2. Explain to students that a seed has a baby plant inside it, and for it to grow, it needs to land in a place where it will receive water and nutrients from the soil, and where it won’t have too much competition from other plants for these needs. Say to students: “But seeds can’t walk, so how do you think they are able to travel away from their parent plant?”
3. Explain that seeds travel in different ways. Show students a dandelion flower and ask if anyone knows how the seeds of this plant can travel (blow on it to demonstrate).
4. Ask students how they think other kinds of seeds could travel.
5. Explain to students that seeds can travel by floating on water, latching on the fur of animals, stored or eaten and then deposited, or ejecting them so that they fall far from the parent plant.
6. Watch the video on seeds to illustrate some of the examples: <https://www.youtube.com/watch?v=buZV0h4vfmQ>
7. Put students in groups of four.
8. Have each group fold a large piece of paper in half, then into thirds, creating six sections. Have them write the following words, one in each section: Soaring, Velcro, Edible, Floating, Explosive, and Unknown.
9. Hand each group of students an envelope of seeds. Have them look at the seeds carefully and sort them into the boxes on their paper where they think it belongs. They can throw the seeds in the air to see if they fly; stick them to their socks, try to float them o the water in the bin, and do further investigations. But they should NOT taste any of the seeds! Remind them that any given seeds might travel in more than one way.
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| **EXPLAIN: Concepts Explained and Vocabulary Defined**1. Bring the class together. Ask groups to share how they think each seed travels, and what evidence they used. Discuss as a whole class
2. Explain that the word for seed travel is dispersal.
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| **ELABORATE: Applications and Extensions (30 minutes)**1. Take a walk around the garden or other outdoor environments to collect seeds. Look carefully at each to guess how it might travel.
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| **EVALUATE:** **Formative Monitoring (Questioning / Discussion):*** Assess through classroom discussions, exploration observations.

**Summative Assessment (Quiz / Project / Report):*** Have students use their new knowledge to create a model of how a seed would be dispersed.
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| **Elaborate Further / Reflect:** * OPTIONAL: Have students collect seeds at home to bring back to class and share.
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**Materials Required for This Lesson/Activity**

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| **Quantity** | **Description** | **Potential Supplier (item #)** | **Estimated Price** |
| **1 per group** | **A variety of seeds that travel in different ways. \*** | **IRC** |  |
| **1 per group** | **Large sheet of paper** | **Classroom** |  |
| **1** | **Bin of water** | **Classroom** |  |
| **1 per student** | **Magnifying glasses** | **IRC** |  |
| **1** | **Dandelion flower** | **Classroom schoolyard**  |  |

**\*Examples include:**

* **Soaring Seeds: Ash, elm linden, maple, dandelion**
* **“Velcro” seeds: any burr that gets stuck in your sock in a grassy field**
* **Edible seeds: seeds inside of fruits and nuts**
* **Floating seeds: Palm, water lilies, coconuts**
* **Explosive seeds: Inpatients, sweet peas, pansies, lupines**

Jaffe, Roberta and Gary Appel. *The Growing Classroom.* South Burlington, VT: National Gardening Association, 2007. Print.