Unit Four Plant Adaptations

2nd grade/ 5 weeks / Start of MP4

Stage 1 – Desired Results (Also see Disciplinary Core Ideas below)
Unit Summary In this unit of study, students develop an understanding of what plants need to grow and how plants depend on animals for seed dispersal and pollination. **Vocabulary: biodiversity, communicate, dispersing, ecosystems, photosynthesis, pollinating**
Performance Expectations: (PE) (Established Goals / Content Standards) ● **2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.** ○ *Assessment Boundary: Assessment is limited to testing one variable at a time.* ● **2-LS2-2: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.** ● **K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.**

Enduring Understanding	**Essential Question**
Students will understand that: ● Plants depend on water and light to grow. ● The shape and stability of structures of natural and designed objects are related to their function. ● Plants depend on animals for pollination or to move their seeds around.	***Why do we see different living things in different habitats?*** *What do plants need to live and grow?* *Why do some plants rely on animals for reproduction?*

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Planning and Carrying Out Investigations ● Plan and conduct investigations collaboratively to produce evidence to answer a question. (1-PS4-1),(2-LS2-1) ● Make observations (firsthand or from media) to collect data that can be used to make comparisons.	**LS2.A: Interdependent Relationships in Ecosystems** ● Plants depend on water and light to grow.(2-LS2-1) ● Plants depend on animals for pollination or to move their seeds	**Cause and Effect** ● Events have causes that generate observable patterns. (2-LS2-1) **Structure and Function** ● The shape and stability of structures of natural and designed

(2-LS4-1) **Developing and Using Models** ● Develop a simple model based on evidence to represent a proposed object or tool. (2-LS2-2) **Asking Questions and Defining Problems** ● Ask questions based on observations to find more information about the natural and/or designed world(s). (K-2-ETS1-1) ● Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)	around. (2-LS2-2) **ETS1.B: Developing Possible Solutions** ● Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.*(secondary to 2-LS2-2)* **ETS1.A: Defining and Delimiting Engineering Problems** ● A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1) ● Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1) ● Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)	objects are related to their function(s). (2-LS2-2), (K-2-ETS1-2) --- ***Connections to Nature of Science*** **Scientific Knowledge is Based on Empirical Evidence** ● Scientists look for patterns and order when making observations about the world. (2-LS4-1)

Stage 2 –Model Assessments	
Summative Performance Task(s): **Performance Task #1:** Invent and design a new plant. Include name, basic needs, how the needs are met, habitat, and color illustration of the new plant. **Performance Task #2:** Invent and design a machine or product a human can use to disperse seeds like an animal. Describe how the product replicates how the seed is carried and dispersed by the animal in its habitat.	**Formative Evidence:** *What do plants need to live and grow?* **Students who understand the concepts can:** ● Plan and conduct an investigation to determine whether plants need sunlight and water to grow. *Why do some plants rely on animals for reproduction?* **Students who understand the concepts can:**

Mystery Science Assessments are available for both the end of each mystery and the end of each unit. **Audience:** ● I Get It Rubric A primary rubric that uses a combination of words and symbols to describe different levels of performance. ● Primary Science Rubric This rubric is appropriate for use with younger children. It shows how a seed develops, from being planted to becoming a flowering plant. Each growth level represents a different level of performance. ● Science Rubric The Exemplars Science Rubric is based on the following science standards: The National Research Council and the American Association for the Advancement of Science and New Standards. It includes four criteria: use of scientific tools, science reasoning and strategies, science concepts and, use of data and communication. ● Science Continuum Rubric This continuum was developed by an Exemplars workshop leader and task writer, Tracy Lavallee. It provides a framework for assessing the scientific thinking of young students.	● Develop a simple model that mimics the function of an animal dispersing seeds or pollinating plants. ● Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Stage 3 – Learning Plan

Suggested Resources for Planning:
Mystery Science: Plant Adventures: *Plant Adaptation* Mystery Lessons 1-5
"Optional Extras" are extensions to each Mystery. We recommend you use them during your unit or to extend the length of each unit. They include an informational text reading that builds on the Mystery's topic, assessments, and suggestions for supplemental activities.

Tower Garden lessons

1. **https://www.towergarden.com/content/dam/towergarden/resources/lesson-plans/grades-2-and-up-plant-seeds.pdf**
2. **https://www.towergarden.com/content/dam/towergarden/resources/lesson-plans/grades-2-and-up-plant-roots.pdf**
3. **https://www.towergarden.com/content/dam/towergarden/resources/lesson-plans/math-G2-3.pdf**
4. **https://www.towergarden.com/content/dam/towergarden/resources/lesson-plans/science-journal-**

G2-3.pdf

5. https://www.towergarden.com/content/dam/towergarden/resources/lesson-plans/writing-prompts-G2-3.pdf

Mystery 1: How did a tree travel halfway around the world?

Standard:2-LS2-2
Target:

- I can develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

The Wonder of Science- Ecosystems
Reading AZ
ReadWorks.org:
Videos:
Magic School Bus Goes to Seed

Seed Travels Activity Standard:2-LS2-2
Sock Seed Video and Activity
Assessment Example

2-LS2-1, 2-LS2-2, 2-LS4-1 Plant Your Socks

Mystery 2: Do plants eat dirt?

Standard:2-LS2-1, 2-LS4-1
Target:

- I can plan and conduct an investigation to determine if plants need sunlight and water to grow.
- I can make observations of plants and animals to compare the diversity of life in different habitats.

The Wonder of Science- Ecosystems

ReadWorks.org:
Reading AZ:
Videos:
Bill Nye Plants

Mystery 3: Why do trees grow so tall?

Standard:2-LS2-1
Target:

- I can plan and conduct an investigation to determine if plants need sunlight and water to grow.

The Wonder of Science- Ecosystems
Reading AZ:
ReadWorks.org:

2-LS2-1, 2-LS2-2 Why Do Sunflowers Follow the Sun?

Mystery 4: Should you water a cactus?

Standard:2-LS2-1, 2-LS4-1

Target:

- I can plan and conduct an investigation to determine if plants need sunlight and water to grow.
- I can make observations of plants and animals to compare the diversity of life in different habitats.

The Wonder of Science- Ecosystems

Reading AZ:

ReadWorks.org:

Videos:

Reading Rainbow Giant Saguaro Cactus

How a Cactus Stores Water Standard:2-LS2-1, 2-LS4-1

Mystery 5: Where do plants grow best?

Standard:2-LS2-1, 2-LS4-1

Target:

- I can plan and conduct an investigation to determine if plants need sunlight and water to grow.
- I can make observations of plants and animals to compare the diversity of life in different habitats.
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The Wonder of Science- Ecosystems

Reading AZ:

ReadWorks.org:

2-LS2-1 Corn Cob Sprouting in Water

Books:

Read Aloud(s)

Flip, Float, Fly Seeds on the Move by JoAnn Early Macken

From Seed to Plant by Gail Gibbons

Tree of Life: The Incredible Biodiversity of Life on Earth (CitizenKid)

What Do You Find on a Saguaro Cactus? (Ecosystems Close Up) by Megan Kopp

Be a Friend to Trees A Sense of Wonder- by Patricia Lauber

Reading AZ:

About Trees
Informational (nonfiction), 769 words, Level P (Grade 2)
I Am Your New Plant
Informational (nonfiction), 82 words, Level E (Grade 1)
The Mighty Saguaro Cactus
Informational (nonfiction), 1,473 words, Level U (Grade 4)
The Plant
Concept book (nonfiction), 17 words, Level aa (Grade K)
Plant Defenses
Informational (nonfiction), 437 words, Level L (Grade 2)
A Seed Grows
Informational (nonfiction), 133 words, Level G (Grade 1)

ReadWorks.org:
What Lives in the Desert? What is a Desert?
Parts of a Tree
Seeds Need to Move Trees
Plant Growth
A Plant that Preys
How Plants get Water and Food Wind Helps Plants Grow Stories About Growing Plants
Plants Make their Own Food What Plants Need
How Plants Work
What do Plants Need?
Fruits and Plants
How Plants Grow Plants and their Seeds

Brain Pop Jr.
https://jr.brainpop.com/science/plants/partsofaplant/
https://jr.brainpop.com/science/plants/plantadaptations/
https://jr.brainpop.com/science/plants/plantlifecycle/
https://jr.brainpop.com/science/habitats/desert/
https://jr.brainpop.com/science/land/soil/