2nd Grade Unit 1: Partners in the Wild - Plants, Pollinators, and Places to Live

Content Area: **Science**
Course(s): **Science Grade 2**
Time Period: **MP1**
Length: **43 days**
Status: **Published**

NJSLS - Science

K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.
K-2-ETS1-2	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.
K-2-ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
2-LS2-1	Plan and conduct an investigation to determine if plants need sunlight and water to grow.
2-LS2-2	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.

Science and Engineering Practices

Developing and Using Models

Develop a simple model based on evidence to represent a proposed object or tool. (2-LS2-2, K-2-ETS1-2)

Planning and Carrying Out Investigations

Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-LS2-1)

Make observations (firsthand or from media) to collect data which can be used to make comparisons. (2-LS4-1)

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)

Analyzing and Interpreting Data

Analyze data from tests of an object or tool to determine if it works as intended. (K-2-ETS1-3)

Disciplinary Core Ideas

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 around. (2-LS2-2)

LS4.D: Biodiversity and Humans

There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)

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)

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. (K-2-ETS1-2)

ETS1.C: Optimizing the Design Solution

Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3)

Crosscutting Concepts

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 objects are related to their function(s). (2-LS2-2, K-2-ETS1-2)

Scientific Knowledge is Based on Empirical Evidence

Scientists look for patterns and order when making observations about the world. (2-LS4-1)

Rationale and Transfer Goals

In this, students will become field scientists as they investigate the diverse, interconnected relationships within the natural world. Students will explore what plants need to survive and thrive, discovering through observation and experimentation that plants depend on water and light to grow. Moving beyond basic plant needs, students will investigate the vital partnerships between plants and animals, focusing on how animals act as crucial helpers in pollination and seed dispersal.

Finally, students will broaden their lens to explore biodiversity, comparing the rich variety of plant and animal life across different land and water habitats. By the conclusion of this unit, students will understand that living things do not exist in isolation, but rather rely on each other and their specific environments to survive.

Enduring Understandings

Plants and animals depend on each other and their environment for survival; plants rely on water, light, and animal helpers, while animals rely on plants for food and shelter.

Natural systems have specific structures that work together (like flowers and bees), and humans can design solutions to problems by mimicking these natural processes.

Changes in an environment's resources (like water, light, or the presence of pollinators) directly impact the survival and diversity of the living things within that ecosystem.

Essential Questions

What do plants need from their environment in order to grow?

How do plants and animals depend on each other for survival?

Why do different habitats have different types of plants and animals?

Content - What will students know?

- Plants require both light and water to grow and remain healthy.
- Unlike animals, plants cannot move to find food; they use sunlight and water in their environment to survive. Without these, their growth will be stunted, or they will die.
- Many plants rely on animals (like bees, butterflies, birds, and bats) to move pollen from one flower to another so the plant can make seeds.
- Plants rely on animals to move their seeds to new places to grow. This happens when seeds stick to animal fur (like burrs), are buried and forgotten (like squirrels with acorns), or are eaten and dropped

elsewhere in animal waste.

- Animals do not do this as a favor, they are usually getting food (nectar or fruit) from the plant in the process.
- A habitat is a specific place where a plant or animal lives because it provides the food, water, and shelter they need.
- Different habitats (such as deserts, oceans, rainforests, ponds, and grasslands) support completely different types of living things.
- Some habitats have a massive variety of different species living together (high biodiversity, like a rainforest or coral reef), while others have fewer, highly specialized species (low biodiversity, like a desert or tundra).

Skills - What will students be able to do?

- Actively participate in setting up an experiment with a control group (e.g., planting seeds and giving one group light/water, one group no light, and one group no water).
- Use simple tools (like a ruler or non-standard units like paperclips) to track plant height, and use pictures or charts to record changes over time.
- Look at a dying plant in a dark closet and state, "This plant didn't grow because it lacked sunlight."
- Use everyday classroom materials (like Velcro, tape, pom-poms, or pipe cleaners) to engineer a tool that mimics how a seed sticks to animal fur or floats away in the wind.
- Use puppets, drawings, or a dramatic roleplay to demonstrate how a bee collects nectar from a flower, gets covered in pollen, and transfers it to another flower.
- Sort pictures or toy figures of plants and animals into their correct habitats (e.g., placing a cactus in the desert and a lily pad in the pond).
- Look at two different nature photos (e.g., a diverse rainforest vs. a snowy tundra), count the number of different types of plants and animals they see, and identify which habitat has a greater variety of life.
- Clearly explain, either through writing, speaking, or drawing, why a specific animal or plant cannot survive in a different habitat (e.g., "A polar bear cannot live in the desert because it has thick fur and there is no ice or fish to eat.").

Activities - How will we teach the content and skills?

- Mystery Science Animal Adventures Anchor Phenomenon

- Mystery Science Animal Adventures Lesson 1
- Mystery Science Animal Adventures Lesson 2
- Mystery Science Animal Adventures Lesson 3
- Mystery Science Animal Adventures Lesson 4
- Mystery Science Plant Adventures Anchor Phenomenon
- Mystery Science Plant Adventures Lesson 1
- Mystery Science Plant Adventures Lesson 2
- Mystery Science Plant Adventures Lesson 3
- Mystery Science Plant Adventures Lesson 4
- Mystery Science Plant Adventures Lesson 5
- Whole group instruction and discussion.
- Read Alouds
- Group and Individual Projects
- Hands-on discovery when possible; creating models
- Webquests/Internet “field trips”

Formative Assessments

- Mystery Science Animal Adventures Lesson 1 Assessment
- Mystery Science Animal Adventures Lesson 2 Assessment
- Mystery Science Animal Adventures Lesson 3 Assessment
- Mystery Science Animal Adventures Lesson 4 Assessment
- Mystery Science Plant Adventures Lesson 1 Assessment
- Mystery Science Plant Adventures Lesson 2 Assessment
- Mystery Science Plant Adventures Lesson 3 Assessment
- Mystery Science Plant Adventures Lesson 4 Assessment
- Mystery Science Plant Adventures Lesson 5 Assessment

- Teacher Observation
- Student projects/models
- Exit Tickets

Summative Assessments

- Mystery Science Animal Adventures Performance Task
- Mystery Science Animal Adventures Unit Assessment
- Mystery Science Plant Adventures Performance Task
- Mystery Science Plant Adventures Unit Assessment
- Tests/Quizzes
- Grade 2 Science Unit 1 Benchmark

Spiraling for Mastery

Content or Skill for this Unit	Spiral Focus from Previous Unit	Instructional Activity
• Plants depend on water and light to grow. • There are many different kinds of living things in any area, and they exist in different places on land and in water.	Kindergarten: A situation that people want to change or create can be approached as a problem to be solved through engineering. Kindergarten: Asking questions, making observations, and gathering information are helpful in thinking about problems. Kindergarten: Before beginning to design a solution, it is important to clearly understand the problem. Kindergarten: Living things need water, air, and resources from the	K-LS1-1 Resources

	land, and they live in places that have the things they need. Humans use natural resources for everything they do. Kindergarten: All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.	

Career Readiness, Life Literacies, & Key Skills

9.1.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.1.2.CR.2	List ways to give back, including making donations, volunteering, and starting a business.
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
9.4.2.CT.1	Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).
9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.4.2.IML.3	Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2).

Interdisciplinary Connections

2.DL.B.4	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph.
RI.CR.2.1	Ask and answer questions to demonstrate understanding of key details in an informational text, referring explicitly to the text as the basis for the answers.
W.WR.2.5	Generate questions about a topic and locate related information from a reference source to obtain information on that topic through shared and independent research.
W.SE.2.6	Prioritize information provided by different sources on the same topic while gathering ideas and planning to write about a topic.
SL.UM.2.5	Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.