Grade 2, Unit 1, Plants

Content Area: **Science**
Course(s): **Science K**
Time Period: **September**
Length: **Trimester 1**
Status: **Published**

Unit Overview

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. Students also compare the diversity of life in different habitats. The crosscutting concepts of cause and effect and structure and function are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in planning and carrying out investigations and developing and using models. Students are also expected to use these practices to demonstrate understanding of the core ideas. Students will also be introduced to the Philadelphia Zoo UNLESS contest for the year and discuss the impacts environmental issues can have on wildlife.

NJ Student Learning Standards - Science

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.
2-LS2	Ecosystems: Interactions, Energy, and Dynamics
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.

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. (K2-ETS1-1

) Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)

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)

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). (K2-ETS1-1) Define a simple problem that can be solved through the development of a new or improved object or tool. (K2-ETS1-1)

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)

Scientific Knowledge is Based on Empirical Evidence

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

Learning Targets (Student Language)

- I can analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs
- I can 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 too
- I can develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
- I can 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.
- I can make observations of plants and animals to compare the diversity of life in different habitats. [Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.] [Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats.]
- I can 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.]

Essential Questions

- How does the diversity of plants and animals compare among different habitats?
- What do plants need to live and grow?
- Why do some plants rely on animals for reproduction?
- Why do we see different things in different habitats?

Materials & Resources

Mystery Science Lessons

Read Alouds

Cross Cut Weather Reading Activities

Mystery Labs

Additional Hands on Activities

Teacher Devised or Created Worksheets

Barinpop Jr.

Philadelphia Zoo Unless Contest

Learning Plan (Pacing Guide)

Unit 1 Pacing Guide		
Unit Title	Duration	Related Standards
Plant Adaptations	17 Instructional Days	NJSLS Science 2020 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. 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-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

		2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.
Animal Diversity	20 Instructional Days	NJSLS Science 2020 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats. 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. 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.

Assessments

- Graphic Organizers
- Mystery Science Formative Assessments
- Mystery Science Summative Assessments
- Plant Drawings
- Plant Pattern Recordings

Interdisciplinary Connections

NJSLS ELA

W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-LS2-1, 2-LS4-1)

W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-LS2-1, 2-LS4-1)

SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or

recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-LS2-2)

RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1)

W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1)

NJSLS Mathematics

MP.2 Reason abstractly and quantitatively. (2-LS2-1, 2-LS4-1, K-2-ETS1-1)

MP.4 Model with mathematics. (2-LS2-1), (2-LS2-2. 2-LS4-1, K-2-ETS1-1)

MP.5 Use appropriate tools strategically. (2-LS2-1, K-2-ETS1-1)

2.MD.D.10 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. (2-LS2-2, 2-LS4-1, K-2-ETS1-1)

English Language Arts/Literacy

English Language Arts can be leveraged in this unit in a number of ways. Students can participate in shared research using trade books and online resources to learn about the diversity of life in different habitats or to discover ways in which animals help pollinate plants or distribute seeds. Students can record their findings in science journals or use the research to write and illustrate their own books. Students can also learn to take notes in their journals in order to help them recall information from experiences or gather information from provided sources. They can add drawings or other visual displays to their work, when appropriate, to clarify ideas, thoughts, and feelings.

Mathematics

Throughout this unit of study, students need opportunities to represent and interpret categorical data by drawing picture graphs and/or bar graphs (with a single unit scale) to represent a data set with up to four categories. This will lead to opportunities to solve simple put-together, take-apart, and compare problems using information presented in these types of graphs. For example, students could create bar graphs that show the number of seedlings that sprout with and without watering or that document plant growth. They could also create a picture graph showing the number of plant species, vertebrate animal species, and invertebrate animal species observed during a field trip or in a nature photograph. As students analyze the data in these types of graphs, they can use the data to answer simple put-together, take apart, and compare problems. This unit also presents opportunities for students to model with mathematics. They can diagram situations mathematically or solve a one-step addition or subtraction word problems. Data collected in bar graphs and picture graphs can easily be used for this purpose.

Accommodations and Modifications (Interventions. Special Education, ELL, Enrichment)

- Collaborate with after-school programs or clubs to extend learning opportunities.
- Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understanding.
- Follow all modifications and accommodations as outlined in IEPs and 504s.
- Provide ELL students with multiple literacy strategies.
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g.
- Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tools such as Zoom/Google Meets, experts from the community helping with a project, journal articles, and biographies).
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Structure the learning around explaining or solving a social or community-based issue.
- Use project-based science learning to connect science with observable phenomena.

Career Reading, Life Literacies, and Key Skills

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).
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
8.1.2.DA.3	Identify and describe patterns in data visualizations.
8.1.2.DA.4	Make predictions based on data using charts or graphs.
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).
9.4.2.IML.4	Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9).
CAEP.9.2.4.A.2	Identify various life roles and civic and work related activities in the school, home, and community.
CAEP.9.2.4.A.4	Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.