Unit 4-Plant Adventures/Climate Change

Content Area: **Science**
Course(s): **Science 2**
Time Period: **Marking Period 4**
Length: **MP 4**
Status: **Published**

Essential Questions

- What resources are needed for plants to grow?
- In what ways does an animal help disperse plant seeds?
- In what ways do animals help plants pollinate?

Big Ideas

- Plants depend on water and light to grow, and also depend on animals for pollination or to move their seeds around.
- Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.
- Young people can have a positive impact on the natural world in the fight against climate change.
- A variety of diverse sources, contexts, disciplines, and cultures provide valuable and necessary information that can be used for different purposes.
- Information is shared or conveyed in a variety of formats and sources.

Diversity Integration

Objective: Students will be able to think about the plant life cycle and what they need in order to survive and relate that to themselves.

Activity: Students will think about the various stages of a plant life cycle. Students will have to think about what plants need in order to survive and go through the life cycle. Students will think about what they need in order to survive and how their life relates to a plant's life cycle. How are plants and humans alike? We are all different, but special in our own way. Even though flowers are different we still love them all the same, like our friends. They all have different characteristics, grown at different times of the year, in different places. Our friends come from different countries, have different qualities, etc, etc. just like plants can too. Students will make a Venn Diagram comparing plants to humans and what they both need to survive/have in common.

Science and Engineering Practices

Asking Questions and Defining Problems:

- Ask questions based on observations to find more information about the natural and/or designed world(s).
- Ask and/or identify questions that can be answered by an investigation.

Developing and Using Models:

- Develop a simple model based on evidence to represent a proposed object or tool.

Planning and Carrying Out Investigations:

- With guidance, plan and conduct an investigation in collaboration with peers (for K).
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
- Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons.
- Make predictions based on prior experiences.

Analyzing and Interpreting Data:

- Record information (observations, thoughts, and ideas).
- Use and share pictures, drawings, and/or writings of observations.

Using Mathematics and Computational Thinking:

- Use quantitative data to compare two alternative solutions to a problem.

Constructing Explanations and Designing Solutions:

- Generate and/or compare multiple solutions to a problem.

Engaging in Argument from Evidence:

- Listen actively to arguments to indicate agreement or disagreement based on evidence, and/or to retell the main points of the argument.
- Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence.

Obtaining, Evaluating, and Communicating Information:

- Read grade-appropriate texts and/or use media to obtain scientific and/or technical information to determine patterns in and/or evidence about the natural and designed world(s).
- Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.

Science and Society

Mary Agnes Chase

Studied and illustrated plants

CSDT Technology Integration

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.

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.

Activity:

Mystery Science lesson Could a Plant Survive Without Light?

Enduring Understandings

Next Generation Standards

Interdependent Relationships in Ecosystems

2-LS2.A Plants depend on water and light to grow.

2-LS2.A Plants depend on animals for pollination or to move their seeds around.

Student Learning Standards

Mathematics

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 problems9 using information presented in a bar graph. Science example: Make a bar graph with single-unit scale showing the number of seedlings that sprout with and without watering.

Career Readiness, Life Literacies, and Key Skills

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., 1.2.3.CR1b, 8.22.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1)

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.History SE.3, W.2.6, 1-LSI-2).

Focus Areas

Knowledge

- Plants need water and light to grow.

Skills

- Plan and conduct an investigation that determines plants need sunlight and water to grow
- Describe what happens when plants do not get water.
- Describe what happens when plants don't get sunlight.
- Develop a simple model to show how animals disperse seeds or pollinate plants.

Understandings

- Plan and conduct an investigation to determine if plants need sunlight and water to grow.
- Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

Climate Change

2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.

- Activity: In this lesson, students investigate how plants need water and sunlight to grow. In the two-part activity, Seeds — Light and Dark, students experiment with growing radish seeds in light and dark conditions. They plant them in cups, place half of the cups in sunlight, and put the other half in a dark container. Three to seven days later, students compare the seedlings and then watch what happens when all are placed in sunlight.

Social Studies: Cross-Curricular
6.3.2.GeoGI.1: Investigate a global issue such as climate change, its significance, and share information about how it impacts different regions around the world.
6.3.2.GeoGI.2: Collect data and consider sources from multiple perspectives to become informed about an environmental issue and identify possible solutions.

- Activity: In this lesson, students compare multiple solutions for preventing erosion. In the activity, Erosion Engineering, they design and test ways to keep water from washing away a hill modeled out of cornmeal.

Career Readiness

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).

- Activity: In this unit, students will use a variety of sources to find information about climate change. Students will use different research apps.
- Activity: In this lesson, students investigate the effects of rocks tumbling in a river. Based on their observations, they construct an explanation for why there is sand at a beach. In the activity, Rocking the River, students pretend to be a river and tear up pieces of construction paper to model what happens to rocks as they travel along the river.

Resources

Primary Resources

- Mystery Science

Supplemental Resources

Scott Foresman Science, Pearson, 2008

- Chapter 1, All About Plants

Leveled Readers

- *All About Plants*

Scientific Inquiry

Core

- How did a tree travel halfway around the world? Lab
- Do plants eat dirt? Lab
- Why do trees grow so tall? Lab
- Should you water a cactus? Lab
- Where do plants grow best? Lab

Supplemental

- BrainPop Jr. Plant Life Cycle & Plant Adaptation's videos
- Scholastic Science Spin Magazine
- Magic School Bus "Goes to Seed", "Get's Planted"