Unit: Plant and Animal Survival

Content Area: **Science**
Course(s): **Science - Grade 2**
Time Period: **1 marking period**
Length: **Weeks**
Status: **Published**

Unit Overview

- Students observe and categorize the living things in an area. Then they make a graph of their observations and share their results with the class.
- Students grow plants with and without water or light to determine whether plants need water and light to grow. They use what they learn to plan another investigation.
- Students act as engineers to design a tool for pollinating a flower by hand. They build a hand pollinator and test it on a model of a flower.
- Students visit three habitats. They describe each habitat and identify plants and animals that belong and do not belong in each place.
- Students visit a rainforest habitat. While there, they identify the plants and animals they see and hear. Then they write a travel blog about the trip.
- Students play Desert Challenge! to learn how plants and animals survive in the desert.
- Students take on the role of either a pond plant or animal. They find out how the needs of their plant or animal are met by other pond plants and animals.
- Students take on the role of either a pond plant or animal. They find out how the needs of their plant or animal are met by other pond plants and animals.

Transfer

Students will be able to independently use their learning to...

- Make observations (firsthand or from media) to collect data which can be used to make comparisons.
- Develop a simple model based on evidence to represent a proposed object or tool.
- The shape and stability of structures of natural and designed objects are related to their function(s).
- Events have causes that generate observable patterns.
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.

Meaning

Understandings

Students will understand...

- what kinds of living things there are.
- what plants and animals need to survive.
- how plants and animals depend on each other.
- why plants and animals live in some places and not in others.
- how plants and animals survive in a rainforest.
- how plants and animals survive in a desert.
- how plants and animals survive in a pond.
- how plants and animals survive in the ocean.

Essential Questions

Students will keep considering...

- What kinds of living things are there?
- What do plants and animals need to survive?
- How do plants and animals depend on each other?
- Why do plants and animals live in some places and not in others?
- How do plants and animals survive in a Rainforest?
- How do plants and animals survive in a desert?
- How do plants and animals survive in a pond?
- How do plants and animals survive in the ocean?

Application of Knowledge and Skill

Students will know...

Students will know...

- What kinds of living things there are.
- What plants and animals need to survive.
- How plants and animals depend on each other.
- Why plants and animals live in some places and not in others.
- How plants and animals survive in a rainforest.
- How plants and animals survive in a desert.
- How plants and animals survive ina pond.
- How plants and animals survive in the ocean.

Students will be skilled at...

Students will be skilled at...

- Planning and Carrying Out Investigations
- Developing and Using Models

Academic Vocabulary

Survive

Living Thing

Pollen

Habitat

Rainforest

Desert

Pond

Ocean

Learning Goal 1 - Lessons 1,4,5,6,7,8

Make observations of plants and animals to compare the diversity of life in different habitats.

- Make observations of plants and animals to compare the diversity of life in different habitats.

MA.K-12.2	Reason abstractly and quantitatively. Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.
MA.K-12.4	Model with mathematics. Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.
LA.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).
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
SCI.2-LS2-1	Plan and conduct an investigation to determine if plants need sunlight and water to grow.
SCI.2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.

Target 1 - Lesson 1

There are many different kinds of living things in any area, and they exist in different places on land and in water.

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

Target 2 - Lesson 4

Explain the characteristics of a habitat.

- Explain the characteristics of a habitat.

Target 3 - Lesson 4

Describe and compare the different types of habitats.

- Describe and compare the different types of habitats.

Target 4 - Lesson 5

Make connections between the characteristics of a rainforest and the plants and animals that live there.

- Make connections between the characteristics of a rainforest and the plants and animals that live there.

Target 5 - Lesson 6

Make connections between the characteristics of a desert and the plants and animals that live there.

- Make connections between the characteristics of a desert and the plants and animals that live there.

Target 6 - Lesson 7

Make connections between the characteristics of a pond and the plants and animals that live there.

- Make connections between the characteristics of a pond and the plants and animals that live there.

Target 7 - Lesson 8

Make connections between the characteristics of an ocean and the plants and animals that live there.

- Make connections between the characteristics of an ocean and the plants and animals that live there.

Learning Goal 2 - Lesson 2

Plan and conduct an investigation to determine if plants need sunlight and water to grow.

- Plan and conduct an investigation to determine if plants need sunlight and water to grow.

MA.K-12.2	Reason abstractly and quantitatively. Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and

	represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.
MA.K-12.4	Model with mathematics. Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.
MA.K-12.5	Use appropriate tools strategically. Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.
LA.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).
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
SCI.2-LS2-1	Plan and conduct an investigation to determine if plants need sunlight and water to grow.

Target 1 - Lesson 2

Describe the factors necessary for animals to live.

- Describe the factors necessary for animals to live.

Target 2 - Lesson 2

Describe the factors necessary for plants to live.

- Describe the factors necessary for plants to live.

Target 3 - Lesson 2

Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.

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

Learning Goal 3 - Lesson 3

Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

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

SCI.2-LS2-2	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

Target 1 - Lesson 3

Plants depend on animals for pollination or to move their seeds around.

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

Target 2 - Lesson 3

The shape and stability of structures of natural and designed objects are related to their function(s).

- The shape and stability of structures of natural and designed objects are related to their function(s).

Target 3 - Lesson 3

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

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

Learning Goal 4 - Engineering and Design Standard

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.

- 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.

LA.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).
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
SCI.2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.
SCI.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.

Formative Assessment and Performance Opportunities

- **Lesson Game**
  Students test their understanding of key concepts with an education game.
- **Interactive Tutorial**
  Students can work independently to check their understanding in a safe environment that provides instant feedback but is not graded.
- **Interactive Student Notebook**
  Students record their understanding of both the reading and activity. Review during the lesson to gauge student understanding.
- **Vocabulary Cards**
  Students check their understanding of key vocabulary terms with digital flip cards.
- **Class Participation**
  Throughout the lesson, you'll have opportunities embedded in the lesson to check for student understanding.

Summative Assessment

- TCI Assessment: What Kinds of Living Things Are There? - English
- TCI Assessment: What Do Plants and Animals Need to Survive? - English
- TCI Assessment: How Do Plants and Animals Depend on Each Other? - English
- TCI Assessment: Why Do Plants and Animals Live in Some Places and Not Others? - English
- TCI Assessment: How Do Plants and Animals Survive in a Rainforest? - English
- TCI Assessment: How Do Plants and Animals Survive in a Desert? - English
- TCI Assessment: How Do Plants and Animals Survive in a Pond? - English
- TCI Assessment: How Do Plants and Animals Survive in the Ocean? - English

Accommodations/Modifications

English Learners

- Allow Flexibility While Recording Data
- Simplify the Investigation Instructions
- Introduce the Petri Dish Model Before Students Design Their Hand Pollinators

- Bring Home the Main Concept of Habitats
- Scaffold the Writing Assignment
- Discuss Desert Organisms Before the Game/Minimize Writing During the Game (Lesson 6)
- Scaffold the Processing Assignment
- Support the Presentations

Students with Special Needs

- Provide More Guidance During the Field Trip
- Support the Recording and Analyzing of Data
- Support the Processing Assignment
- Build and Model a Hand Pollinator
- Support the Reading Notes
- Shorten the Virtual Rainforest Trip/Support Note Taking During the Trip (Lesson 5)
- Focus on What's Important
- Have Students Read the Plant and Animal Cards Beforehand (Lesson 7)
- Model More Explicitly

Advanced Learners

- Lesson 1 - Students are provided with art supplies to draw the four seasons. Once the seasons are drawn, the students are asked to draw in a species of their choice in each of the seasons. This activity will allow students to understand that particular characteristics of a species that change or become more prominent in specific seasons. For example, some animals have more or less fur at specific times of year. Some plants lose all their leaves in winter, and some trees remain green all year round.
- Lesson 2 - Students are provided with art supplies to draw a mountain top. Once the mountain is drawn, the students are asked to draw plants and animals that would live on the mountain top. This activity will allow students to understand that the environment of a mountain top meets the needs of only select species.
- Lesson 3 - Ask students to list out and draw the resources they receive from their family and friends. Prompt students to consider where they get water, food, and shelter from. This activity will give the student an experience observing and characterizing resources within their own habitats.
- Lesson 4 - Students build a model habitat. They are responsible for describing the climate and resources available. They then model what types of animal can live there and what types cannot. This activity helps students make observations about what characteristics allow an organism to survive in a specific place.
- Lesson 5 - Students research a species that lives in the rainforest. Through their research, students are able to write a short story about a day in the life of this species. They describe what the animal does, eats, how it moves around and what other species it interacts with. This provides students with experience in characterizing the parts of an animal and its behaviors.
- Lesson 6 - Students model a terrarium that would allow a desert lizard to survive in the classroom. Students have to draw and list what components make the terrarium able to support the needs of the lizard.
- Lesson 7 - Students conduct a long term experiment to observe and understand the life cycle of the frog. Students watch as a tadpole in a jar develops into a frog.

Unit Resources

- TCI Online Manual and Materials
- TCI Kit
- Vocabulary Cards

- Student Textbook

21st Century Life and Careers

CAEP.9.2.4.A.1	Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.
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.3	Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.
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.

Interdisciplinary Connections

MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.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.
LA.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).
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
LA.SL.2.5	Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.