Kindergarten Unit 3 - Basic Needs of Living Things

Content Area: **Science**
Course(s): **Science Grade K**
Time Period: **MP3**
Length: **22 days**
Status: **Published**

NJSLS - Science

SCI.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.
SCI.K-LS1-1	Use observations to describe patterns of what plants and animals (including humans) need to survive.
SCI.K-ESS2-2	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
SCI.K-ESS3-1	Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
SCI.K-ESS3-3	Communicate solutions that will reduce the impact of climate change and humans on the land, water, air, and/or other living things in the local environment.

Science and Engineering Practices

Analyzing and Interpreting Data

Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)

Engaging in Argument from Evidence

Construct an argument with evidence to support a claim. (K-ESS2-2)

Developing and Using Models

Use a model to represent relationships in the natural world. (K-ESS3-1)

Obtaining, Evaluating, and Communicating Information

Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)

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)

Disciplinary Core Ideas

LS1.C: Organization for Matter and Energy Flow in Organisms

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. (K-LS1-1)

ESS2.E: Biogeology

Plants and animals can change their environment. (K-ESS2-2)

ESS3.A: Natural Resources

Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)

ESS3.C: Human Impacts on Earth Systems

Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3)

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. (K2-ETS1-1)

Crosscutting Concepts

Patterns

Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)

Systems and System Models

Systems in the natural and designed world have parts that work together. (K-ESS2-2, K-ESS3-1)

Cause and Effect

Events have causes that generate observable patterns. (K-ESS3-3)

Structure and Function

The shape and stability of structures of natural and designed objects are related to their function(s). (K-2-ETS1-2)

Scientific Knowledge is Based on Empirical Evidence

Scientists look for patterns and order when making observations about the world. (K-LS1-1)

Rationale and Transfer Goals

Where do plants and animals live and why do they live there?

How do people impact the environment as they gather and use what they need to live and grow?

In this unit of study, students develop an understanding of what plants, animals, and humans need to survive

and the relationship between their needs and where they live. Students will be able to compare and contrast the needs of all living things and understand the impact on their environments. The crosscutting concepts of Patterns, Systems and System Models, Cause and Effect, and Structure and Function are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in developing and using models, analyzing and interpreting data, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate an understanding of the core ideas.

Enduring Understandings

Plants need water and light to live and grow.

Patterns in the natural and human-designed world can be observed and used as evidence.

Living things need water, air, and resources from the land, and they live in places that have the things they need.

Systems in the natural and designed world have parts that work together.

Things that people do to live comfortably can affect the world around them.

Essential Questions

How can you tell if something is alive?

What do animals and plants need to survive?

Where do organisms live and why do they live there?

How can humans reduce their impact on the land, water, air, and other living things in the local environment?

Content - What will students know?

- Plants do not need to take in food.

- All plants require light.

- All living things need water.

- Animals need to take in food, but plants do not.

- Different kinds of food are needed by different types of animals.

- Plants and Animals have parts, or structures, that work together, enabling them to meet their needs in a variety of environments.

- Things that people do to live comfortably can affect the world around them.

- People can make choices that reduce their impacts on the land, water, air, and other living things.

Skills - What will students be able to do?

- Observe living things directly in the classroom, on the schoolyard, and through media. Media (including books, print articles, and digital resources) expose students to a wide variety of organisms.

- Compare and Contrast Living things and their environments

- Identify common patterns between plants and animals

- Observe that systems in the natural and designed world have parts that work together.

- Observe and use patterns in the natural world as evidence.

Activities - How will we teach the content and skills?

- Mystery Science Animal Secrets Lesson 1

- Mystery Science Animal Secrets Lesson 2

- Mystery Science Animal Secrets Lesson 3

- Mystery Science Animal Secrets Lesson 4

- Mystery Science Plant Secrets Lesson 1

- Mystery Science Plant Secrets Lesson 2

- Mystery Science Plant Secrets Lesson 3

- [Read aloud lesson: Where Do Polar Bears Live?](#)

- Living Vs. Nonliving Sorting Activity

- [The Needs of Living Things](#)

- [BrainPop Jr. Living and Nonliving things](#)

- [The Wonder of Science](#)

- [What's Your Habitat?](#)

- [Plants and Animals Unit](#)

Evidence/Assessments - How will we know what students have learned?

- Mystery Science Animal Secrets Lesson 1 Assessment

- Mystery Science Animal Secrets Lesson 2 Assessment

- Mystery Science Animal Secrets Lesson 4 Assessment

- Mystery Science Plant Secrets Lesson 1 Assessment

- Mystery Science Plant Secrets Lesson 2 Assessment

- Mystery Science Plant Secrets Lesson 3 Assessment

- Teacher Observation

- Student projects/models

- Individual and Group Participation

- Exit Tickets

- Quizzes

- [Grade K Unit 3 Benchmark](#)

Spiraling for Mastery

Content or Skill for this Unit	Spiral Focus from Previous Unit	Instructional Activity
Plants and Animals have parts, or structures, that work together, enabling them to meet their needs in a variety of environments. Things that people do to live comfortably can affect the world around them.	n/a	Mystery Science Units • Animal Needs • Plant Needs Read aloud lesson: Where Do Polar Bears Live? Living Vs. Nonliving Sorting Activity The Needs of Living Things BrainPop Jr. Living and Nonliving things The Wonder of Science What's Your Habitat? Plants and Animals Unit

21st Century Life and Careers

WRK.9.1.2.CAP.1   Make a list of different types of jobs and describe the skills associated with each job.

Career Readiness, Life Literacies, & Key Skills

TECH.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).
TECH.9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
TECH.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).
TECH.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).
TECH.9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

Interdisciplinary Connections/Companion Standards

NJSLS ELA

W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-LS-1)

RL.K.1 With prompting and support, ask and answer questions about key details in a text (e.g., who, what, where, when, why, how). (K-ESS2-2)

W.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book. (K-ESS2-2)

W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS2-2, K-ESS3-3)

SL.K.5 Add drawings or other visual displays to descriptions as desired to provide additional detail. (K-ESS3-1)

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)

W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1)

NJSLS Mathematics

K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of/less of" the attribute, and describe the difference. (K-LS-1)

MP.2 Reason abstractly and quantitatively. (K-ESS3-1)(K-2-ETS1-1)

MP.4 Model with mathematics. (K-ESS3-1). (K-2-ETS1-1)

K.CC Know number names and the count sequence. (K-ESS3-1)

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

English Language Arts

After students observe plants and animals in a variety of settings (e.g., ant farms, fish in an aquarium, plants growing, insects in a jar), the teacher asks them to share their thoughts about what the plants and animals need using expressions like, "I think…" and "I agree with…." To help summarize patterns in the needs of plants and animals, teachers can list all of the "needs" the class has discussed on the board using words and pictures/symbols (e.g., sun, water, food). Students, individually or with a partner, draw a picture of a plant on one half of a piece of paper, and an animal on the other half. Then they draw and/or write the needs of the plant and of the animal next to each picture. Students can verbally complete the sentence frame, "Plants are different from animals because _____." This concept is important because scientists distinguish plants from animals based on what they need: animals need to consume food while plants do not, although plants do need nutrients. Students can represent this idea with a Venn diagram. ELA/Literacy Standards: W.K.2, 8; SL.K.1, 4, 5; L.K.5c

With adult support, students participate in shared research in order to find examples of ways that humans reduce their impact on the land, water, air, and other living things in the local environment. With prompting and support, students will ask and answer questions about key details in a text. Students, with adult support and/or peer collaboration, can also use simple books and media resources to gather information and then use drawings, simple informative writing (or dictation), and visual displays to represent some of the ways that people lessen their impact on the environment. With support from adults, students will recall information from experiences or gather information provided from sources to answer a question. Students can clarify their ideas,

thoughts, and feelings using simple informative writing.

Mathematics

Kindergarten students use attributes to sort objects (K.MD.3). For example, a large portion of IS1 involves sorting plants and animals based on patterns in their needs. Students can sort organisms based on whether they are a plant or an animal, whether they live on water or land, and whether an animal eats only plants, only animals, or both. With adult support, kindergarteners use simple measurements to describe various attributes of plants and animals. Kindergarteners can use simple, nonstandard units to measure the height of plants or the amount of water given to plants. For example, they might use Unifix cubes to measure height or count the number of scoops of water given to a plant on a daily or weekly basis. Students should work in groups to measure and record their data. They also measure various attributes of animals. Kindergarteners can use simple, nonstandard units to measure such attributes as height, length, or weight. They can also count numbers of appendages or other body parts. They might use Unifix cubes to measure height or length and wooden blocks to measure weight. Students should work in groups to measure and record their data. With adult guidance and questioning, students can then learn to analyze their data. As students use data to compare the amount of growth that occurs in plants that get varying amounts of water or sunlight, they are given the opportunity to reason abstractly and quantitatively. For example, students can measure and compare the height of a sunflower grown in the shade compared to the height of a sunflower grown in the sun, or they can count and compare the number of leaves on bean plants that receive different amounts of water daily. These investigations will give students evidence to support claims about the needs of plants. Students should also have opportunities to solve one-step addition/subtraction word problems based on their collected data. Math Standards: MP. 2, K.CC.1-3, K.MD.2-3

With adult support, students will classify data by one attribute, sort data into categories, and graph the data. For example, students can keep track of the amount of materials recycled over a period of time. They can classify recycled trash as paper, plastic, or glass, then count and graph these data, using bar graphs or picture graphs. Students should have opportunities to analyze and compare the data and then use the data to solve word problems. As students work with their data, they are learning to reason abstractly and quantitatively, model by diagramming the situation mathematically, and use appropriate tools strategically.