



## **Kindergarten Science Curriculum**

*This curricula and accompanying instructional materials have been developed to align with the NJSLs and in accordance with the NJ Department of Education's guidelines to include: Curriculum designed to meet grade level expectations, integrated accommodations and modifications for students with IEPs, 504s, ELLs, and gifted and talented students, assessments including benchmarks, formative, summative, and alternative assessments, a list of core instructional and supplemental materials, pacing guide, interdisciplinary connections, integration of 21<sup>st</sup> century skills, integration of technology, and integration of 21<sup>st</sup> Century Life and Career standards.*

### **About the Standards**

In 1996, the New Jersey State Board of Education adopted the state's first set of academic standards called the Core Curriculum Content Standards. The standards described what students should know and be able to do upon completion of a thirteen-year public school education. Over the last twenty years, New Jersey's academic standards have laid the foundation for local district curricula that are used by teachers in their daily lesson plans.

Revised every five years, the standards provide local school districts with clear and specific benchmarks for student achievement in nine content areas. Developed and reviewed by panels of teachers, administrators, parents, students, and representatives from higher education, business, and the community, the standards are influenced by national standards, research-based practice, and student needs. The standards define a "Thorough and Efficient Education" as guaranteed in 1875 by the New Jersey Constitution. Currently the standards are designed to prepare our students for college and careers by emphasizing high-level skills needed for tomorrow's world.

The New Jersey Student Learning Standards include Preschool Teaching and Learning Standards, as well as nine K-12 standards for the following content areas: **21st Century Life and Careers, Comprehensive Health and Physical Education, English Language Arts, Mathematics, Science, Social Studies, Technology, Visual and Performing Arts, World Languages**

The 2020 NJSLs in [Science](#) were adopted by the State Board of Education on June 3, 2020. Districts are required to implement it by September 2022. The [2020 New Jersey Student Learning Standards webpage](#) provides links to the 2020 NJSLs and information regarding curriculum implementation dates.

**Cape May City Elementary School District Science Curriculum  
Pacing Guide**

**Content Area: Science**

Our elementary science program is founded upon the New Jersey Student Learning Standards for Science, which emphasizes three dimensions to promote scientific literacy for all student scientists. The core three dimensions of science learning, which are integrated into all science learning activities, are: **Science and Engineering Practices, Disciplinary Core Ideas, and Cross Cutting Concepts.** These three dimensions can also be thought of as, **“what scientists do,” “what scientists need to know,” and “common themes found throughout all science disciplines.”**

To implement these standards and corresponding dimensions, our district utilizes highly interactive and engaging activities. These dynamic activities are categorized into three main units of study. and present hands-on, real-world science experiences matched to the developmental level of students.

**Three Main Units of Study:**

1. Physical Science,
2. Earth & Space Science, and
3. Life Science

**Course Title: Kindergarten Science**

**Grade level: K**

**Unit I: K-ESS2 Earth Systems**

**10 days to start and then ongoing:**

In this unit of study, students develop an understanding of patterns and variations in local weather and the use of weather forecasting to prepare for and respond to severe weather. The crosscutting concepts of patterns; cause and effect; interdependence of science, engineering, and technology; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions, analyzing and interpreting data, and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas. This unit is based on K-ESS2-1, K-ESS3-2, and K-2-ETS1-1

**Dates for Unit: September to November**

**Pacing Guide: 10 days**

- Week 1: Describing the Weather
- Week 2: Tools to Measure Weather
- Week 3: Recording & Graphing Local Weather
- Week 4: Describe Seasonal Weather
- Week 5: Forecasting the Weekly Weather

<p><b>Unit II: K-PS2 Motion and Stability: Forces and Interactions</b></p> <p><b>Instructional Days: 15</b></p> <p>During this unit of study, students apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. The crosscutting concept of cause and effect is called out as the organizing concept for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in planning and carrying out investigations and analyzing and interpreting data. Students are also expected to use these practices to demonstrate understanding of the core ideas. This unit is based on K-PS2-1, K-PS2-2, and K-2: ETS1-3.</p>	<p><b>Dates for Unit: November to February</b></p> <p><b><u>Pacing Guide: 15 days</u></b></p> <p>Week 1: What is Energy?</p> <p>Week 2: Pushes and Pulls</p> <p>Week 3: When objects collide</p> <p>Week 4: Direction and Force</p> <p>Week 5: Unit Review including Unit Vocabulary</p>
<p><b>Unit III: K-PS3-Energy</b></p> <p><b>Instructional Days: 15</b></p> <p>During this unit of study, students apply an understanding of the effects of the sun on the Earth’s surface. The crosscutting concepts of cause and effect and structure and function are called out as organizing concepts for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in developing and using models; planning and carrying out investigations; analyzing and interpreting data; and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas. This unit is based on K-PS3-1, K-PS3-2, K-2 ETS1-1, K-2-ETS1-2, and K-2-ETS1-3.</p>	<p><b>Dates for Unit: February to March</b></p> <p><b><u>Pacing Guide: 15 days</u></b></p> <p>Week 1: The Sun, Energy, and the Earth</p> <p>Week 2: Observe Effects of Sunlight on Different Materials: (rocks, water, paper, sand, dirt, plants, people, etc.)</p> <p>Week 3: Design Structures to Protect You From the Sun</p>
<p><b>Unit IV: K-LS1 From Molecules to Organisms: Structures and Processes</b></p> <p><b>Instructional Days: 20</b></p> <p>In this unit of study, students develop an understanding of what plants and animals need to survive and the relationship between their needs and where they live. Students compare and contrast what plants and animals need to survive and the relationship between the needs of living things and where they live. The crosscutting concepts of patterns and systems and system models 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 understanding of the core ideas.</p> <p>This unit is based on K-LS1-1, K-ESS3-1, and K-ESS2-2.</p>	<p><b>Dates for Unit: March to May</b></p> <p><b><u>Pacing Guide: 20 days</u></b></p> <p>Week 1: Living and Non-Living Needs</p> <p>Week 2: Plant and Animal Characteristics</p> <p>Week 3: Environments of Plants and Animals</p>

<p><b>Unit V: K-ESS3 Earth and Human Activity</b></p> <p><b>Instructional Days: 15</b></p> <p>In this unit of study, students develop an understanding of what humans need to survive and the relationship between their needs and where they live. The crosscutting concept of cause and effect is called out as the organizing concept for the disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, and in obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas. This unit is based on K-ESS3-3 and K-2 ETS1-1.</p>	<p><b>Dates for Unit: May to June</b></p> <p><b><u>Pacing Guide: 15 days</u></b></p> <p>Week 1: Habitats of the Earth</p> <p>Week 2: Plant and Animal Adaptations for Survival</p> <p>Week 3: Climate Change and Habitats</p> <p>Week 4: Reduce, Reuse, and Recycle to help the Earth</p>
<p><b>In Kindergarten Science, students will:</b></p> <ul style="list-style-type: none"> <li>● Develop an interest in and awareness of the scientific principles that occur in the world around us.</li> <li>● Begin using scientific principles such as observation, collection of data, drawing conclusions, and prediction.</li> <li>● Explore and develop an understanding of types of motion and forces affecting motion.</li> <li>● Recognize and utilize good safety habits at school, home and play.</li> <li>● Use the five senses to observe and classify objects.</li> <li>● Recognize and understand that living things vary in form, structure and basic needs.</li> <li>● Explore and compare the habitats of living organisms.</li> <li>● Develop an understanding of natural resources, and the importance of recycling for their preservation.</li> <li>● Identify and observe weather phenomena, ultimately applying knowledge to make weather predictions.</li> <li>● Explore the relationship between sunlight and energy.</li> <li>● Compare and measure objects when making quantitative measurements.</li> </ul>	
<p><b>Date Created: 04/07/2022</b></p>	<p><b>Board Approved On: 8/18/22</b></p>

Note: The number of instructional days is an estimate based on the information available at this time. 1 day equals approximately 42 minutes of seat time. Teachers are strongly encouraged to review the entire unit of study carefully and collaboratively to determine whether adjustments to this estimate need to be made.

**Cape May City Elementary School District Kindergarten Science Curriculum**  
**Unit I Overview**

**Content Area: Science**

**Unit Title: Unit I**  
**K-ESS2: Earth Systems**

**Target Course/Grade Level: K**

**Unit Summary: Learning Goal**

Students will notice weather patterns and predict changes by developing a habit of becoming a weather watcher.

- Describe the relationship between the Sun and the effects on the Earth's surface.
- Observe and document daily weather conditions and discuss how the weather influences your activities
- Observe and discuss evaporation and condensation. Identify and use water conservation practices.
- Ways to explain and describe weather are temperature, how clear the sky is, rain and wind.
- Students will explore the purpose of weather forecasting.

**Interdisciplinary Connections:**

- Science, Technology, English / Language Arts, Health, Social Emotional Learning, Mathematics, Social Studies

**Career Readiness: Life Literacies and Key Skills Standards:**

- [Career Readiness, Life Literacies and Key Skills](#)
  - These include critical thinking, problem solving, creativity, innovation, collaboration, teamwork and leadership, cross-cultural understanding, and interpersonal communication and science.
  - Incorporation of relevant technologies as tools as part of instruction (i.e. Chromebooks, Touch screen devices, manipulatives, certified assistive technologies for students with special needs, etc.)
  - Developing effective communication
  - Developing Independent Learning Strategies
  - Incorporating Science, Technology, Engineering, and Mathematical themes into daily lessons

**Learning Targets:**

K-PS3-1 Make observations to determine the effect of sunlight on Earth’s surface.

K-PS3-2 Use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on Earth’s surface.


K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time.

K-2-ETS-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

*\*\*\* In addition there will be continuous incorporation of the NJSLS ELA standards specifically those that deal with: reading and analyzing informational text, writing responses, speaking and listening\*\*\**

Unit Activity	Suggested Learning Activities
I.	<p><b>Science and Engineering Practices:</b> Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1) Engaging in Argument from Evidence Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s). Construct an argument with evidence to support a claim. (K-ESS2-2)</p> <p><b>Disciplinary Core Ideas:</b> ESS2.D: Weather and Climate Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1) ESS2.E: Biogeology Plants and animals can change their environment. (K-ESS2-2) 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. (secondary to ESS2-2)</p> <p><b>Crosscutting Concepts:</b> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1) Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS2-2) Connections to Nature of Science Science Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. (K-ESS2-1)</p>  <p><b>Graphing Weather Changes</b> – This Performance Task will take one week of gathering information. Students will record the daily weather and chart it on a Graph (Sunny, Cloudy, Rainy, Windy) by checking off the chart each day. Teachers may need to write the daily temperature each day on the board for students to record on their graph. Students will create a graph to record and monitor temperature changes each day then analyze the information to make observations, predictions or decisions.</p> <p><b>**This chart can be copied/pasted and enlarged into a word document. Each</b></p>

student should have their own chart.

WARM						
COLD						
WINDY						
RAINY						
CLOUDY						
SUNNY						
DAILY TEMPERATURE						
	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY

### Daily Weather

1. Did the temperature change each day this week?
2. Did you notice anything different outside on any particular days this week (rain, clouds, wind, humidity)?
3. Did the weather affect any of your activities this week?
4. What season are we in right now?
5. Was the weather this week normal for this time of year?
6. What were the high and low temperatures for this week and on what days?
7. Could you use this chart next year to predict what the weather may be like on this particular week next year?

## Gifted and Talented: Enrichment Links and Writing Prompts

### Links:

[Timelapse of a Blizzard](#)

[Weather Folklore](#)

[World Climographs](#)

[Why Does the Wind Blow?](#)

[Why Don't Clouds and Rain Form Indoors?](#)

### Writing Prompts:

Draw or write sentences to finish the prompts.

You could do a writing prompt for all four seasons.

“I stay cool in summer by...”

“What is your favorite weather, and in what season does it occur?”

## At-Risk, Including ELL: Resources to Enhance Understanding

**Books:** [The Sun](#), [What's the Weather Like Today?](#), [Cloudy with a Chance of Meatballs](#), [On the Same Day in March](#), [Colors of the Weather](#), [Freddy the Forecaster and the Big Blizzard](#), [Sunshine on My Shoulders](#), [Clouds](#), [Rain](#).

**Reading A to Z: Most Books are in English and Spanish**

[What Season Is It?](#) Level C

[The Four Seasons](#) Level E

[Changing Seasons](#) Level F

**Video Links:**

[Be a Weather Watcher](#)

[Blippi Learns About the Weather](#)

[Wonder About Weather](#)

[STEM Activity-Build a Sun Shelter](#)

[Weather Forecasting](#)

[What is Climate?](#)

[So Many Weather Experiments](#)

[Forecast Maps](#)

[How a Weather Forecast is Made](#)

[Lightning Strikes](#)

## Cape May City Elementary School District Kindergarten Science Curriculum

### Unit II Overview

**Content Area: Science**

**Unit Title: Unit II**

**K-PS2: Motion and Stability: Forces and Interactions**

**Target Course/Grade Level: K**

**Unit Summary: Learning Goal**

- Students will plan, conduct, analyze, and compare the effects of pushes and pulls on the motion of an object
- Know and understand the common properties, forms, and changes in matter and energy.
- Some properties can be observed with the senses.
- Pushes and pulls are forces that affect motion.



### Interdisciplinary Connections:

- Science, Technology, English/Language Arts, Health, Social Emotional Learning, Mathematics

### Career Readiness: Life Literacies and Key Skills Standards:

- [Career Readiness, Life Literacies and Key Skills](#)
  - These include critical thinking, problem solving, creativity, innovation, collaboration, teamwork and leadership, cross-cultural understanding, and interpersonal communication and science.
  - Incorporation of relevant technologies as tools as part of instruction (i.e. Chromebooks, Touch screen devices, manipulatives, certified assistive technologies for students with special needs, etc.)
  - Developing effective communication
  - Developing Independent Learning Strategies
  - Incorporating Science, Technology, Engineering, and Mathematical themes into daily lessons

### Learning Targets

K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.

K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

K-2-ETS1 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.

*\*\*\* In addition there will be continuous incorporation of the NJSLs ELA standards specifically those that deal with: reading and analyzing informational text, writing responses, speaking and listening\*\*\**

### Unit Activity

### Suggested Learning Activities

II.

**Science and Engineering Practices:** Scientists use different ways to study the world. (K-PS2-1)

**Disciplinary Core Ideas:** Pushes and pulls can have different strengths and directions. (K-PS2-1),(K-PS2-2) Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1),(K-PS2-2)

**Crosscutting Concepts:** Cause and Effect-Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2-1),(K-PS2-2)



**Pushes and Pulls Activity**

Use the same experiment set up to change the variable of ramp texture to experiment with friction. Have students compare the different ramps and discuss the following.

Which ramp will make the toy car travel quickly?

Will the height of the ramp increase the speed of the toy car?

If you make your toy care heavier, will it travel any faster?

**Clarification Statement:** Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.

**Assessment Boundary:** Assessment does not include friction as a mechanism for change in speed.

### Gifted and Talented: Enrichment Links and Writing Prompts

#### Links:

[The Walking Table](#)

[Top Spinning for Over 50 Minutes](#)

[Giant Newton's Cradle](#)

[The Ollie - Skateboarding Slow Motion](#)

[Amazing Rube Goldberg Machines](#)

[Amazing Slinky Tricks](#)

#### Writing Prompts:

Draw or write sentences to finish the prompts.

“Something I push is...”

“Something I pull is...”

### At-Risk, Including ELL: Resources to Enhance Understanding

**Books:** [The Three Little Pigs](#), [How People Learned to Fly](#), [And Everyone Shouted, Pull](#), [Motion Push and Pull](#), [Fast and Slow](#)

**Reading A to Z: Most Books are in English and Spanish**

[Simple Machines](#), Level K

#### Video Links:

[Super Simple Machines](#)

[Solving Problems with Simple Machines](#)

[Force and Motion-Bill Nye](#)

## Unit III Overview

**Content Area: Science**

**Unit Title: Unit III**

**K-PS3-Energy**

**Target Course/Grade Level: K**

### **Unit Summary: Learning Goal**

Students will develop the idea that sunlight is an energy source that can be helpful and harmful.

### **Interdisciplinary Connections:**

- Science, Technology, English/Language Arts, Health, Social Emotional Learning, Mathematics

### **Career Readiness: Life Literacies and Key Skills Standards:**

- [Career Readiness, Life Literacies and Key Skills](#)
- These include critical thinking, problem solving, creativity, innovation, collaboration, teamwork and leadership, cross-cultural understanding, and interpersonal communication and science.
- Incorporation of relevant technologies as tools as part of instruction (i.e. Chromebooks, Touch screen devices, manipulatives, certified assistive technologies for students with special needs, etc.)
- Developing effective communication
- Developing Independent Learning Strategies
- Incorporating Science, Technology, Engineering, and Mathematical themes into daily lessons

### **Learning Targets**

K-PS3-1 Make observations to determine the effect of sunlight on Earth's surface.

K-PS3-2 Use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on Earth's surface.

K-2-ETS1 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.

**Unit Activity**

**Suggested Learning Activities**

### III.

**Science and Engineering Practice:** Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Make observations (firsthand or from media) to collect data that can be used to make comparisons. (KPS3-1) Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. (K-PS3-2)

**Disciplinary Core Idea:** PS3.B: Conservation of Energy and Energy Transfer Sunlight warms Earth’s surface. (K-PS3-1), (K-PS3-2)

**Crosscutting Concept:** Cause and Effect Events have causes that generate observable patterns. (K-PS3-1), (K-PS3-2) Connections to Nature of Science Scientific Investigations Use a Variety of Methods Scientists use different ways to study the world. (K-PS3-1)

#### **What authentic performance task(s) will students demonstrate desired understanding(s)?**

Students will create a trifold about the sun and its relationship with the Earth and the rest of the Solar System. (S&L/ELA Standards)

3- Students can clearly share thoughts and references the important reasons of the relationship between the Sun and Earth, and can communicate those thoughts orally to both the teacher and their peers.

2- Students give some detail of what the relationship is but cannot get their thoughts across in a clear manner.

1- Students struggle to share thoughts and are unable to reference previous conversations or topics from the lesson.



#### **Lesson Plan: The Warmth of the Sun**

**Materials Needed:** Two jars of water, hot days, and a science journal. Complete this activity over a full week or more. Watch the video before the experiment, and discuss how the heat from the sun will change the open jar.

 [Water evaporation experiment](#)

To help students broaden their understanding of the sun, particularly its critical role in warming the land, air, and water around us.



### **Extra Activity-Build a Sun Shelter**

Meets NJSLS *K-PS3-1*, *K-PS3-2*. Materials needed: popsicle sticks, construction paper, cardboard, plastic wrap, foil, pipe cleaners, color changing beads, tape, string, glue, etc. After a discussion about how the sun can damage our skin, and make plants without shade dry up, students will build a sun shelter from a variety of materials to protect an object made with color changing beads from harmful UV rays. See link: [STEM Activity-Build a Sun Shelter](#)

## **Gifted and Talented: Enrichment Links and Writing Prompts**

### **Links:**

[Why Do Sunflowers Follow the Sun?](#)

[Snowman Melt Time Lapse](#)

[Homemade Thermometer](#)

[How the Sun Sees You](#)

[Solar Powered Jellyfish](#)

### **Writing Prompts:**

Draw or write sentences to finish the prompts.

“How is the sun helpful and harmful?”

“How can you protect your skin from the sun?”

## **At-Risk, Including ELL: Resources to Enhance Understanding**

**Books:** [The Sun is My Favorite Star](#), [The Rain Puddle](#), [The Sun is Always Shining Somewhere](#), [Where Does the Sun Go?](#) [Sun Up](#), [Sun Down](#)

**Reading A to Z: Most Books are in English and Spanish**

[Too Hot](#), Level C

[Our Sun](#), Level H

[Where We Get Energy](#), Level K

### **Video Links:**

[The Power of Sunlight](#)

[Sun Song](#)

[How Does the Sun Affect the Earth?](#)

[Super Sunlight](#)

**Cape May City Elementary School District Kindergarten Science Curriculum  
Unit IV Overview**

**Content Area: Science**

**Unit Title: Unit IV**

**K-LS1: From Molecules to Organisms: Structures and Processes**

**Target Course/Grade Level: K**

**Unit Summary: Learning Goal**

Students will be able to describe patterns of what plants and animals (including humans) need to survive.

**Interdisciplinary Connections:**

- Science, Technology, English / Language Arts, Health, Social Emotional Learning, Mathematics

**Career Readiness: Life Literacies and Key Skills Standards:**

[Career Readiness, Life Literacies and Key Skills](#)

- These include critical thinking, problem solving, creativity, innovation, collaboration, teamwork and leadership, cross-cultural understanding and interpersonal communication and science.
- Incorporation of relevant technologies as tools as part of instruction (i.e. Chromebooks, Touch screen devices, manipulatives, certified assistive technologies for students with special needs, etc.)
- Developing effective communication
- Developing Independent Learning Strategies
- Incorporating Science, Technology, Engineering, and Mathematical themes into daily lessons

**Learning Targets**

K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive

K-ESS2-2 Organisms (including humans) can change the environment to meet their needs.

K-ESS3-1 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.

K-2-ETS1 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.

**Unit Activity**

**Suggested Learning Activities**

**IV.**

**Science and Engineering Practice:** Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (KLS1-1)

**Disciplinary Core Idea:** 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)

**Crosscutting Concept** Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1) Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. **K-LS1-1** Use observations to describe patterns of what plants and animals (including humans) need to survive.

**Clarification Statement:** Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.



**My Pet-Lesson Activity: Overview:** Every pet owner should know that certain responsibilities come with owning an animal, such as caring for the pet and keeping it alive, happy, and healthy. There are many things you can do to keep a pet happy, but when it comes down to the essentials, there are actually only a handful of things that an animal (including humans, which are part of the animal kingdom), be it in captivity or in the wild, really needs to survive. These basic needs are food to eat, water to drink, shelter for protection, and air to breathe.

**Materials:** Printed and cut-out [Pet Animal Cards](#), tape, printed and cut-out [Animal Basic Needs Cards](#)

**Objectives:** Identify the basic needs of an animal. Describe how the specific needs, such as the type of food or shelter, vary for different animals.

**Activity:** Place animal cards on different walls in the room. Hand out basic needs cards to each group or individual student. Explain the overview to the students. Then give them some time to place basic needs cards near the pictures of the animals that the items would match.

Once all the cards are placed, move from animal to animal to discuss if the basic needs pictures were placed correctly.

### Gifted and Talented: Enrichment Links and Writing Prompts

**Links:**

K-LS1-1 [Farming Fish with Vegetables](#)

K-LS1-1 [Exploring Microhabitats](#)

K-LS1-1 [Crown Shyness](#)

K-LS1-1 [Corn Cob Sprouting in Water](#)

KESS3-1 [Plant Your Old Socks](#)

KESS3-1 [Dolphins and Humans Fishing](#)

**Writing Prompts:**

Draw or write sentences to finish the prompts.

“What are the 4 basic needs of all living things?”

“Explain the life cycle of a butterfly.”

“What could live in an old log?”

“How do tree roots change their environment as they grow?”

**At-Risk, Including ELL: Resources to Enhance Understanding**

**Books:** [The Carrot Seed](#), [One Bean](#), [Wiggling Worms](#), [Living and Nonliving](#)(Pebble Books), [What Living Things Need](#)(Learning Ladders), [The Tiny Seed](#), [Because of an Acorn](#), [What Will Hatch?](#), [Earth Day Birthday](#), [Arthur Turns Green](#), [The Amazing Life Cycle of Butterflies](#)

**Reading A to Z: Most Books are in English and Spanish**

[Future Flowers](#), Level D

[Grow Vegetables](#), Level D

[I am Your New Plant](#), Level E

[Places Plants and Animals Live](#), Level E

[Grow Tomatoes in Six Steps](#), Level G

**Video Links:**

[How Does a Seed Become a Plant?](#)

[How Do You Know Something is Living?](#)

[Jack Hartmann, Living Things](#)

[Which Living Things Look Like Their Parents?](#)

**Cape May City Elementary School District Kindergarten Science Curriculum  
Unit V Overview****Content Area: Science****Unit Title: Unit V****K-ESS3 Earth and Human Activity****Target Course/Grade Level: K****Unit Summary: Learning Goal**

In this unit of study, students develop an understanding of what humans need to survive and the relationship between their needs and where they live.

- Students will explore the positive and negative impact of humans on the Earth.



### Interdisciplinary Connections:

- Science, Technology, English / Language Arts, Health, Social Emotional Learning, Mathematics

### Career Readiness: Life Literacies and Key Skills Standards:

#### [Career Readiness, Life Literacies and Key Skills](#)

- These include critical thinking, problem solving, creativity, innovation, collaboration, teamwork and leadership, cross-cultural understanding and interpersonal communication and science.
- Incorporation of relevant technologies as tools as part of instruction (i.e. Chromebooks, Touch screen devices, manipulatives, certified assistive technologies for students with special needs, etc.)
- Developing effective communication
- Developing Independent Learning Strategies
- Incorporating Science, Technology, Engineering, and Mathematical themes into daily lessons

### Learning Targets

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. [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight, so they often grow in meadows. Plants, animals, and their surroundings make up a system.]

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. [Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]

Unit Activity	Suggested Learning Activities
V.	<p><b>Science and Engineering Practices:</b> Disciplinary Core Ideas Crosscutting Concepts Asking Questions and Defining Problems Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested. Ask questions based on observations to find more information about the designed world. (K-ESS3-2) Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions. Use a model to represent relationships in the natural world. (K-ESS3-1)</p> <p><b>DCI:</b> 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.B: Natural Hazards Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3- 2) 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 an Engineering Problem Asking questions, making observations, and gathering information are helpful in thinking about problems. (secondary to KESS3-2) 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. (secondary to K-ESS3-3)</p> <p><b>Crosscutting Concepts:</b> Cause and Effect Events have causes that generate observable patterns. (K-ESS3-2), (K-ESS3-3) Systems and System Models Systems in the natural and designed world have</p>

parts that work together. (K-ESS3-1) Connections to Engineering, Technology, and Applications of Science Interdependence of Science, Engineering, and Technology People encounter questions about the natural world every day. (K-ESS3-2) Influence of Engineering, Technology, and Science on Society and the Natural World People depend on various technologies in their lives; human life would be very different without technology. (K-ESS3-2) Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information. Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2) Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)

**“Why Do I Live Here? Lesson Activity:**

**Overview:**

Your house is your home. Deer, rabbits, skunks, squirrels, snakes, and birds also have homes in different habitats. Your home keeps you safe and warm. You can get water and food in your home. Animals have homes that keep them safe and warm too. They live where they can get the food they need. They can’t go to a store like humans, so their habitat must have the food that they need to eat, or they could not live there.

**Video: Watch to enhance understanding**

[Habitats Help Animals, Plants, and People to Survive!](#)

Pick a favorite animal from the video, and draw a picture of the animal in the habitat with the food it might eat there.

Students will present their pictures to the class.

**Fun Video to extend learning:**

[Jack Hartmann-Habitat](#)

**Extended Discussion: Complete journal drawings or just discuss as a whole group.**

What could happen to Earth’s habitats if humans don’t reduce, reuse, and recycle?

**Gifted and Talented: Enrichment Links and Writing Prompts**

**Links:**

- [Ecosystems](#)
- [Interdependent Relationships](#)
- [Habitats](#)
- [Plant and Animal Adaptations](#)
- [Human Environment Interaction](#)
- [How Does Climate Change Affect Animals?](#)
- [Climate Change](#)
- [Recycle with Blippi](#)

**Writing Prompts:**

Draw or write sentences to finish the prompts.

“Name three or more ways you can help the Earth?”

“How can you protect the ocean?”

“What animals live in your habitat and why are they important?”

**At-Risk, Including ELL: Resources to Enhance Understanding****Books:****Reading A to Z: Most Books are in English and Spanish**

Deep in the Ocean, Level L

Country Animals, Level E

Glow in the Dark Animals, Level R

Saving the Last Wild Tigers, Level O

Caring for the Earth, Level E

Nature Reuses and Recycles, Level R

Earth's Water, Level H

Plight of the Polar Bear, Level H

**Video Links:**

[Save the Planet Song](#)

[Earth Day Song](#)

[Earth Day Activities for Kids](#)

[Learn How to Recycle](#)

**Cape May City Elementary School District Kindergarten Science Curriculum  
Evidence of Learning****Specific Formative Assessments Utilized in Daily Lessons:**

- Suggested Formative Assessment
- Daily independent practice
- Peer Discussions
- Student Portfolio
- Reading/Writing Conferences
- Self-Evaluations
- Anecdotal Notes
- Open-Ended Responses
- Journal Entries
- Reading Logs
- Exit Tickets

**Summative Assessment Utilized throughout Units:**

- Performance Tasks
- Technology Tasks

**Benchmarks:**

- Quarterly Benchmarks Generated by the Teacher / Curriculum Committee

**Modifications for English Language Learner's [ELL]**

- Teacher tutoring
- Peer tutoring
- Online Resources
- Cooperative Learning Groups
- Modified Assignments
- Differentiated Instruction
- Response to Intervention ([www.help4teachers.com](http://www.help4teachers.com))
- Provide additional examples and opportunities for additional problems for repetition with visuals and manipulatives
- Picture vocabulary
- Picture books
- Simplified language for understanding
- Reader's Theater
- Modify Homework, Assignments and Assessment (can be oral if necessary)
- Cooperative learning
- Retell stories using props
- Additional Center work focusing on alphabet and HFW
- Additional Phonemic Awareness teaching and practice
- Re-teach alphabet and alphabet sounds
- Sentence frames with word bank and pictures
- Songs
- Total Physical Response
- Picture word wall

**Modifications for Special Education Students [IEPs]:**

- Follow all IEP accommodations for each student as to meet each student's individual need
- For extra strategies please review list above in the ELL category for students who have IEPs
- Provide instructional breaks / practice chunking
- Circling back to original topic
- Lexile score modifications

**Modifications for students with 504s:**

- Adhere to the modifications of the 504
- For extra strategies please review list above in the ELL category for students who have IEPs
- Provide instructional breaks / practice chunking
- Circling back to original topic

- Lexile score modifications

**Modifications Gifted and Talented Students:**

- Advanced Lexile Resources
- Independent Study
- Advanced Assignments
- Project Based Learning

**Modifications At-Risk/Basic Skills:**

- Teacher tutoring
- Supplemental / Pull Out Teaching
- Peer tutoring
- Cooperative Learning Groups / Centers
- Modified Assignments
- Differentiated Instruction
- Response to Intervention ([www.help4teachers.com](http://www.help4teachers.com))
- Provide additional examples and opportunities for additional problems for repetition with visuals and manipulatives
- Picture vocabulary
- Picture books
- Simplified language for understanding
- Reader's Theater
- Modify Homework, Assignments and Assessment (can be oral if necessary)
- Cooperative learning
- Retell stories using props
- Additional Center work focusing on alphabet and HFW
- Additional Phonemic Awareness teaching and practice
- Sentence frames with word bank and pictures
- Songs
- Total Physical Response
- Picture word wall

**Teacher Notes:**

- **Career Readiness, Life Literacies, and Key Skills:** Rapid advancements in technology and subsequent changes in the economy have created opportunities for individuals to compete and connect on a global scale. In this increasingly diverse and complex world, the successful entrepreneur or employee must not only possess the requisite education for specific industry pathways but also employability skills necessary to collaborate with others and manage resources effectively in order to establish and maintain stability and independence. This document outlines concepts and skills necessary for New Jersey's students to thrive in an ever-changing world. Intended for integration throughout all K–12 academic and technical content areas, the New Jersey Student Learning Standards- Career Readiness, Life Literacies, and Key Skills (NJSL-CLKS) provides the framework for students to learn the concepts, skills, and practices essential to the successful

navigation of career exploration and preparation, personal finances and digital literacy that rewards innovation, creativity, and adaptation to change.

**Project-based Learning Tasks:**

- Ongoing student portfolio assessments [created by faculty] to monitor student progress.

**Vocabulary:**

- In-text vocabulary should be incorporated into every unit. Word journals, vocabulary walls, and/or various other activities should be utilized by the instructor to teach vocabulary.
- Story, key details, retell, describe, main topic, rhyming words, syllables, story elements, character, setting, question, question words, front cover, back cover, title page, narrative, favorite, informational text, rules, connection, discuss, conversation, information, illustrator, author, illustrate, picture

**The Research Process:**

- The research process must be integrated within each course curriculum. Students will be provided with opportunities to investigate issues from thematic units of study. As the NJLS indicate, students will develop proficiency with MLA or APA format as applicable.
- [https://owl.purdue.edu/owl/research\\_and\\_citation/apa\\_style/apa\\_formatting\\_and\\_style\\_guide/general\\_format.html](https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/general_format.html)
- [https://owl.purdue.edu/owl/research\\_and\\_citation/mla\\_style/mla\\_formatting\\_and\\_style\\_guide/mla\\_formatting\\_and\\_style\\_guide.html](https://owl.purdue.edu/owl/research_and_citation/mla_style/mla_formatting_and_style_guide/mla_formatting_and_style_guide.html)

**Technology:**

- Students must engage in technology applications integrated throughout the curriculum, though technology provided by us in their individual classroom, and in our technology centered classrooms.
- BrainPop
- Time for Kids Magazine online
- Scholastic Magazine online
- Google Earth
- Nationalgeographic.com
- StemScopes

**Resources:**

- Ancillary resources and materials used to deliver instruction are included below:
- Stemsopes
- Learning New Jersey Model Curriculum
- Reading A-Z.com
- Abcmouse .com
- EnchantedLearning,Com
- Sing Along Songs
- Scholastic.com
- Bilingualplanet.com
- Frog street
- Press.com
- 122 teachme.com

- [www.starfall.com](http://www.starfall.com)
- [www.teacherspayteachers.com](http://www.teacherspayteachers.com)
- [www.teachingchannel.org](http://www.teachingchannel.org)
- [www.udl.org](http://www.udl.org)
- <http://www.state.nj.us/education/aps/cccs/ss/>
- [www.macmillanmh.com](http://www.macmillanmh.com) –downloadable graphic organizer

**Career Education & Resources:**

- NJDOE CTE (<https://www.nj.gov/education/cte/>)
- Careers are Everywhere Workbook (<https://lmc.state.tx.us/shared/careersareeverywhere.asp>)
- Career Bingo ([http://www.breitlinks.com/careers/career\\_pdfs/careerbingo.pdf](http://www.breitlinks.com/careers/career_pdfs/careerbingo.pdf))
- Vocational Information Center / Career Exploration Guides and Resources for Younger Students (<http://www.khake.com/page64.html>)
- CTE NJDOE Career Explore (<https://www.nj.gov/education/cte/resources/tools/exploration.htm>)

**Differentiation Strategies**

Differentiation strategies can require varied amounts of preparation time. High-prep strategies often require a teacher to both create multiple pathways to process information/demonstrate learning and to assign students to those pathways. Hence, more ongoing monitoring and assessment is often required. In contrast, low-prep strategies might require a teacher to strategically create process and product choices for students, but students are allowed to choose which option to pursue given their learning profile or readiness level. Also, a low-prep strategy might be focused on a discrete skill (such as vocabulary words), so there are fewer details to consider. Most teachers find that integration of one to two new low-prep strategies and one high-prep strategy each quarter is a reasonable goal.

**Low Prep Strategies**

<b>Varied journal prompts, spelling or vocabulary lists</b>	Students are given a choice of different journal prompts, spelling lists or vocabulary lists depending on level of proficiency/assessment results.
<b>Anchor activities</b>	Anchor activities provide meaningful options for students when they are not actively engaged in classroom activities (e.g., when they finish early, are waiting for further directions, are stumped, first enter class, or when the teacher is working with other students). Anchors should be directly related to the current learning goals.
<b>Choices of books</b>	Different textbooks or novels (often at different levels) that students are allowed to choose from for content study or for literature circles.
<b>Choices of review activities</b>	Different review or extension activities are made available to students during a specific section of the class (such as at the beginning or end of the period).
<b>Homework options</b>	Students are provided with choices about the assignments they complete as homework. Or, students are directed to specific homework based on student needs.
<b>Student-teacher goal setting</b>	The teacher and student work together to develop individual learning goals for the student.
<b>Flexible grouping</b>	Students might be instructed as a whole group, in small groups of various

	permutations (homogeneous or heterogeneous by skill or interest), in pairs or individuals. Any small groups or pairs change over time based on assessment data.
<b>Varied computer programs</b>	The computer is used as an additional center in the classroom, and students are directed to specific websites or software that allows them to work on skills at their level.
<b>Multiple Intelligence or Learning Style options</b>	Students select activities or are assigned an activity that is designed for learning a specific area of content through their strong intelligence (verbal-linguistic, interpersonal, musical, etc.)
<b>Varying scaffolding of same organizer</b>	Provide graphic organizers that require students to complete various amounts of information. Some will be more filled out (by the teacher) than others.
<b>Think-Pair-Share by readiness, interest, and/or learning profile</b>	Students are placed in predetermined pairs, asked to think about a question for a specific amount of time, then are asked to share their answers first with their partner and then with the whole group.
<b>Mini workshops to re-teach or extend skills</b>	A short, specific lesson with a student or group of students that focuses on one area of interest or reinforcement of a specific skill.
<b>Orbitals</b>	Students conduct independent investigations generally lasting 3-6 weeks. The investigations “orbit” or revolve around some facet of the curriculum.
<b>Games to practice mastery of information and skill</b>	Use games as a way to review and reinforce concepts. Include questions and tasks that are on a variety of cognitive levels.
<b>Multiple levels of questions</b>	Teachers vary the sorts of questions posed to different students based on their ability to handle them. Varying questions is an excellent way to build the confidence (and motivation) of students who are reluctant to contribute to class discourse. Note: Most teachers would probably admit that without even thinking about it they tend to address particular types of questions to particular students. In some cases, such tendencies may need to be corrected. (For example, a teacher may be unknowingly addressing all of the more challenging questions to one student, thereby inhibiting other students’ learning and fostering class resentment of that student.)
<b>High Prep Strategies</b>	
<b>Cubing</b>	Designed to help students think about a topic or idea from many different angles or perspectives. The tasks are placed on the six sides of a cube and use commands that help support thinking (justify, describe, evaluate, connect, etc.). The students complete the task on the side that ends face up, either independently or in homogenous groups.
<b>Tiered assignment/ product</b>	The content and objective are the same, but the process and/or the products that students must create to demonstrate mastery are varied according to the students’ readiness level.



<b>Independent studies</b>	Students choose a topic of interest that they are curious about and want to discover new information on. Research is done from questions developed by the student and/or teacher. The researcher produces a product to share learning with classmates.
<b>4MAT</b>	Teachers plan instruction for each of four learning preferences over the course of several days on a given topic. Some lessons focus on mastery, some on understanding, some on personal involvement, and some on synthesis. Each learner has a chance to approach the topic through preferred modes and to strengthen weaker areas
<b>Jigsaw</b>	Students are grouped based on their reading proficiency and each group is given an appropriate text on a specific aspect of a topic (the economic, political and social impact of the Civil War, for example). Students later get into heterogeneous groups to share their findings with their peers, who have read about different areas of study from source texts on their own reading levels. The jigsaw technique allows you to tackle the same subject with all of your students while discreetly providing them the different tools they need to get there.
<b>Multiple texts</b>	The teacher obtains or creates a variety of texts at different reading levels to assign strategically to students.
<b>Alternative assessments</b>	After completing a learning experience via the same content or process, the student may have a choice of products to show what has been learned. This differentiation creates possibilities for students who excel in different modalities over others (verbal versus visual).
<b>Modified Assessments</b>	Assessments can be modified in a variety of ways – for example by formatting the document differently (e.g. more space between questions) or by using different types of questions (matching vs. open ended) or by asking only the truly essential questions.
<b>Learning contracts or Personal Agendas</b>	A contract is a negotiated agreement between teacher and student that may have a mix of requirements and choice based on skills and understandings considered important by the teacher. A personal agenda could be quite similar, as it would list the tasks the teacher wants each student to accomplish in a given day/lesson/unit. Both Learning contracts and personal agendas will likely vary between students within a classroom.
<b>Compacting</b>	This strategy begins with a student assessment to determine level of knowledge or skill already attained (i.e. pretest). Students who demonstrate proficiency before the unit even begins are given the opportunity to work at a higher level (either independently or in a group).
<b>Literature circles</b>	Flexible grouping of students who engage in different studies of a piece of literature. Groups can be heterogeneous and homogeneous.
<b>Learning Centers</b>	A station (or simply a collection of materials) that students might use independently to explore topics or practice skills. Centers allow individuals or groups of students to work at their own pace. Students are constantly reassessed to determine which centers are appropriate for students at a particular time, and to plan activities at those centers

	to build the most pressing skills.
<b>Tic-Tac-Toe Choice Board (sometimes called “Think-Tac-Toe”</b>	The tic-tac-toe choice board is a strategy that enables students to choose multiple tasks to practice a skill, or demonstrate and extend understanding of a process or concept. From the board, students choose (or the teacher assigns) three adjacent or diagonal. To design a tic-tac-toe board: - Identify the outcomes and instructional focus - Design 9 different tasks - Use assessment data to determine student levels - Arrange the tasks on a tic-tac-toe board either randomly, in rows according to level of difficulty, or you may want to select one critical task to place in the center of the board for all students to complete.
<b>Curriculum Development Resources/Instructional Materials:</b>	
<p>List or Link Ancillary Resources and Curriculum Materials Here:</p> <ul style="list-style-type: none"> <li>● New Jersey Student Learning Standards (<a href="https://www.nj.gov/education/cccs/">https://www.nj.gov/education/cccs/</a>)</li> <li>● NJSLS Science (<a href="https://www.nj.gov/education/modelcurriculum/sci/">https://www.nj.gov/education/modelcurriculum/sci/</a>)</li> </ul>	
<b>Board of Education Approved Text(s)</b>	
<p>Scholastic Magazines  National Geographic for Kids  Time Magazine for Kids  StemScopes  Newsela</p>	