Washington Township School District

The mission of the Washington Township Public Schools *is to provide a safe educational environment for all students to attain the skills and knowledge specified in the New Jersey Core Curriculum Content Standards at all grade levels so as to ensure their full participation in our global society as responsible, self-directed, and civic-minded citizens.*

Course Title:	**Science**
Grade Level(s):	**Kindergarten**

Duration:	*Full Year:*	**X**	*Semester:*		*Marking Period:*	
Course Description:	The Washington Township School District Kindergarten Science curriculum uses an integrated approach to general science that focuses on units in physical, life, and earth science. By using this approach, teachers are able to meet the needs of all students while aligning with the New Jersey Model Curriculum and the Next Generation Science Standards. Hands-on activities are stressed and include student discovery experiments, problem solving, model building, cooperative learning, technology integration, classroom discussion, teacher demonstrations, and writing opportunities for research and self-expression. Interdisciplinary subject areas are incorporated whenever possible. Students are introduced to the use of scientific tools and methods used for investigations. The course is designed to be implemented using the 5E Model of Instruction: Engage, Explore, Explain, Extend/Elaborate, and Evaluate. The major topics of study for Kindergarten are taken specifically from the Next Generation Science Standards: ● Motion and Stability: Forces and Interactions ● Energy ● From Molecules to Organisms: Structures and Processes ● Earth's Systems ● Earth and Human Activity ● Engineering Design					
Grading Procedures:	Beginning, Developing, Secure					
Primary Resources:	Teacher Created Materials & Mystery Science					

Washington Township Principles for Effective Teaching and Learning	
	▪ Implementing a standards-based curriculum ▪ Facilitating a learner-centered environment ▪ Using academic target language and providing comprehensible instruction ▪ Adapting and using age-appropriate authentic materials ▪ Providing performance-based assessment experiences ▪ Infusing 21st century skills for College and Career Readiness in a global society
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Under the Direction of:	Linda Thomas, Elementary Supervisor

Written: August 2017

Revised: July 2024 by Madison Agostini

BOE Approval:

Unit Title: Forces and Interactions: Pushes and Pulls

Unit Description:
During this unit of study, students will learn to 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.

Unit Duration: See pacing guide for implementation

Desired Results

New Jersey Student Learning Standards:
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.

Indicators:
PS2.A: Forces and Motion

- 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.

Understandings:
Students will understand that…

- Energy, force, and motion are related and are a part of their everyday life.
- Five senses can be used to explore different forms of energy such as light, heat, and sound.

Essential Questions:

- What is a push?
- What is a pull?
- What is force?
- What is motion?
- What is energy?

Assessment Evidence

Performance Tasks:

Introductory Activity- The students will engage in new concepts.

- Explore pictures/ objects of opposite items
- Discuss various landscapes

Lab Activity- The students will explore concepts and explain their findings.

- Draw a connection between the text, pictures, and new vocabulary words. Write words to describe a push or pull on a landform.
- Conduct an experiment to demonstrate the opposite forces of pushes and pulls

Before, After, and During the Reading- The students will elaborate and extend their understanding about a topic.

Assessments- The students will be evaluated with assessments for progress monitoring, and summative purposes - student activity sheets; data analysis; reader quiz, and interactive e-book activities.

Other Evidence:

Students will demonstrate their understandings through:

- Science Notebook Entries
- Unit Test (optional)
- Activities from this unit can be made available during Choice Time Workshop for further investigation.

Learning Plan		
Benchmarks: Aspects of this unit will be assessed in a performance/portfolio based Mid year assessment. **Resources: Science Readers: Content and Literacy in Science**		
Learning Activities:		
Days	**Activities**	**Materials/Suggested Resources**
Tell Me About It Standards **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** Disciplinary Core Ideas **PS2.A: Forces and Motion** **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)** **PS3.C: Relationship Between Energy and Forces** **A bigger push or pull makes things speed up or slow down more quickly. *(secondary to K-PS2-1)*** Objective- **The students will** ● **Use images to understand opposites.** **Investigate pushes and pulls**	**Engage-** Display pictures/ items of opposite objects to students. Allow time for exploration **Explore-** Discuss the vocabulary word opposite. Have students give an example of an opposite they noticed from the picture or items. **Explain-** Introduce the vocabulary words push and pull. Clarify any misconceptions about pushes and pulls **Elaborate**- Conduct an investigation using marbles or balls to demonstrate the opposite forces of push and pull and describe how these forces are different. **Evaluate-** Children will collect data from experiments and discuss results.	
On Land Standards **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** Disciplinary Core Ideas **PS2.A: Forces and Motion**	**Engage-** Review and discuss different pictures of various landscapes pgs. 2-3, 6-7, 10-11 **Explore**- Discuss what would it be like to push or pull an object on the various types of land **Explain**- Review the vocabulary words push, pull, force, and motion Clarify any misconceptions about pushes and pulls. **Elaborate**-Write push or pull to describe way an object would be moved easily on the land. Conduct an investigation by pushing and	

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) **PS2.B: Types of Interactions** **When objects touch or collide, they push on one another and can change motion. (K-PS2-1)** **PS3.C: Relationship Between Energy and Forces** **A bigger push or pull makes things speed up or slow down more quickly. *(secondary to K-PS2-1)*** **ETS1.A: Defining Engineering Problems** **A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. *(secondary to K-PS2-2)*** Objective **The students will be able to** **Use images to identify pushes and pulls** **Investigate pushes and pulls**	pulling objects up and down ramps, flat desk surfaces, over rocks, smooth desk surfaces, in grass, and in the sandbox. **Evaluate**- Children will collect data from the experiment and discuss results.	

Unit Learning Goal and Scale *(Level 2.0 reflects a minimal level of proficiency)*	
New Jersey Student Learning Standards: **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.**	
4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **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**
2.0	**Students will be able to:** ● **Recognize and recall specific vocabulary: push, pull, force, motion, energy.** ● **Describe a push and pull on the motion of an object.** ● **Explain the direction of a push or pull**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**

0.0	**Even with help, no success**

New Jersey Student Learning Standards: **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**	
4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **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**
2.0	**Students will be able to:** ● **Recognize and recall specific vocabulary: speed, fast, slow, direction, left, right, up, down, push, pull** ● **Describe the change in speed or direction of an object with a push or pull**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

Unit Modifications for Special Population Students

Advanced Learners	● Challenge advanced learners to use descriptions that were not noted in the text**. (Tell Me About It)** ● Challenge advanced learner to list draw and label three examples of pushes and three examples of pulls on two different types of land **(On Land)**
Struggling Learners	● Choose descriptions and complete sentences verbally before writing them down **(Tell Me About It)** ● Draw and label a push or a pull and verbalize rationale **(On Land)**
English Language Learners	● Choose descriptions and complete sentences verbally before writing them down **(Tell Me About It)** ● Draw and label a push or pull and verbalize rationale **(On Land)**
Special Needs Learners	Consult IEPs and 504 plans to differentiate instruction based on individual needs. ● Use audio recording to help with fluency and comprehension and pre-label examples in the book of pushes and pulls

Interdisciplinary Connections

ELA/Literacy – **RI.K.1** With prompting and support, ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how).. **(K-PS2-2)**
W.WR.K.5 With prompting and support, generate questions through shared research in response to a topic, text, or stimulus (e.g. event, photograph, video, book). **(K-PS2-1) SL.K.3** Ask and answer questions in order to seek help, get information, or clarify something that is not understood. **(K-PS2-2)**

Mathematics – **MP.2** Reason abstractly and quantitatively. **(K-PS2-1) K.M.A.1** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. **(K-PS2-1) K.M.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-PS2-1)**

Integration of 21st Century Skills

Indicators:
8.2.2.A.4 Choose a product to make and plan the tools and materials needed.
8.2.2.B.1 Identify how technology impacts or improves life.
8.2.2.B.3 Identify products or systems that are designed to meet human needs.
8.2.2.B.4 Identify how the ways people live and work has changed because of technology.
8.2.2.C.1 Brainstorm ideas on how to solve a problem or build a product.
8.2.2.C.2 Create a drawing of a product or device that communicates its function to peers and discuss.
8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.
8.2.2.D.1 Collaborate and apply a design process to solve a simple problem from everyday experiences.
8.2.2.D.3 Identify the strengths and weaknesses in a product or system.
9.2.4.A.1 Identify different types of work and how work can help people achieve personal and professional goals
9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.

Unit Title: Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

Unit Description:
In this unit of study, students will learn to develop an understanding of what plants and animals need to survive and the relationship between their needs and where they live. Students will learn how to 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.

Unit Duration: See pacing guide for implementation

Desired Results

New Jersey Student Learning Standards:
K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.
K-ESS2-2. Construct an argument supported by evidence for how plants and animals (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-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Indicators:

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.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*

Understandings: *Students will understand that…* ● The difference between living and nonliving things ● Living things grow and change ● There are things that a living thing needs to survive ● Earth materials consists of solid rocks, soils,	**Essential Questions:** ● What are living things? ● What are nonliving things? ● How are living things and nonliving things different? ● How are living things and nonliving things the same? ● What do living things need?

Assessment Evidence

Performance Tasks:

Introductory Activity- The students will engage in new concepts.

- Sort Pictures of Living and nonliving things
- Match baby animals with their parents
- Experiment to see if seeds need water to grow
- Observe how plants fare without water
- Observe plant growth over four weeks
- Create bodies of water in sand
- Make landscape out of earth materials
- Compare and contrast how trash items decompose

Lab Activity- The students will explore concepts and explain their findings

- Preview text, discuss living and nonliving things, and complete sentences about them.
- Predict the main idea, identify parents and babies, find details in the text that support the main idea and answer questions.
- Ask and answer questions about seeds and write a story about a seed.
- Make predictions about the main idea of the text and complete sentences about what living things need
- Identify the main idea in the text and write a story about a puppy or a kitten.
- Predict what the text will say based on the pictures and use the pictures to find information about bodies of water and write a story about visiting a body of water.
- Draw a connection between the text, pictures, and new vocabulary words. Write words to describe different types of land and draw a picture of their local land.

Before, After, and During the Reading- The students will elaborate and extend their understanding about a topic.

Assessments- The students will be evaluated with assessments for progress, monitoring, and summative purposes

- Student Activity Sheets
- Data Analysis
- Reader Quiz
- Interactive-ebook activities

Other Evidence:

Students will demonstrate their understandings through:

Science Notebook Entries

Unit Test (optional)

Activities from this unit can be made available during Choice Time Workshop for further investigation.

Benchmarks: Aspects of this unit will be assessed in a performance/portfolio based end of the year assessment. **Resources: Science Readers: Content and Literacy in Science**		
Learning Activity:		
Lesson and Duration	**Activities**	**Materials/ Suggested Resources**
Living! **New Jersey Student Learning Standards** **K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.** **Disciplinary Core Ideas** 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) Objective- The students will Use the images and the words in the text to understand the book. Complete sentences about living and nonliving things. Identify familiar living and nonliving things.	**Engage-** Sort pictures of living and nonliving things **Explore-** Preview pictures in the book and predict what the text will say **Explain-** Discuss pictures that show living and nonliving things. Complete sentences about living and nonliving things. Clarify misconceptions. **Elaborate-** Identify living and nonliving things. Before Reading (pg. 41), During Reading (pg. 42), and After Reading (pg. 43) **Evaluate-** Your Turn Prompt (pg. 22 of Living book), Living! Quiz (pg. 48), Data Analysis Activity- At The Beach (pg. 49), Interactive-eBook activities (optional)	Set up a living exhibit (live animal) ● Butterflies ● Ladybugs ● Ants ● Frogs Standards-Based Investigations Science Labs K-2
Baby Animals **New Jersey Student Learning Standards** **K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.** **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) Objective- The students will Identify the main idea and supporting details of the text. Answer questions about baby	**Engage-** Match baby animals with their parents. **Explore-** Predict the main idea of the book. **Explain-** Identify each animal and have children identify the baby from the parent. Identify details in the book that support the main idea and answer questions about baby animals. Clarify any student misconceptions about the matching baby-parent pairs. **Elaborate-** Identify baby animals and find baby animals. Before Reading (pg. 52), During Reading (pg. 53), After Reading (pg. 54) **Evaluate-** Your Turn Prompt (pg. 22 of the Baby Animal book), Baby Animal Quiz (pg. 59), Data Analysis -On the Farm (pg. 60), Interactive-eBook activities (optional)	Standards-Based Investigations Science Labs K-2 □ How are babies like their parents? (pg. 63)

animals. Understand that babies resemble their parents		
Seeds **NJSLS** **K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.** **Disciplinary Core Ideas**	**Engage-** Experiment to see whether seeds need water to grow **Explore**- Ask questions about seeds **Explain** – Look for the answers to questions and write a story about a seed. Clarify any misconceptions about seeds. **Elaborate-** Ask questions about seeds-Before Reading pg. 63,	Set up living exhibit (plants) Standards-Based Investigations Science Labs K-2 □ How are seeds different? (pg. 65) □ How can I group Seeds? (pg. 110)
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) Objective- The students will Ask and answer questions about the book Write a story about a seed Understand that seeds grow into plants	During Reading pg. 64, After Reading pg. 65. **Evaluate-**Your Turn Prompt (pg. 22 of Seeds book), Seeds Quiz (pg. 70), Data analysis activity, How Tall? (pg. 71), Interactive-ebook activities (optional)	

What Do Living Things Need? **K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.** **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) Objective- The students will Identify the main idea of the book Complete sentences about what living things need. Identify what living things need to survive.	**Engage-** Observe how plants fare with and without water **Explore**- Make predictions about the main idea in the book **Explain** – Identify the main idea of the book and complete a sentence about living things. Clarify any misconceptions about What Living things need. **Elaborate-** identify what living things need to survive. Determine whether different plants have what they need -Before Reading pg. 63, During Reading pg. 64, After Reading pg. 65. **Evaluate-**Your Turn Prompt (pg. 22 of What Do Living Things Need? book), What Do Living Things Need? Quiz (pg. 81), Data analysis activity, How Much Water? (pg. 82), Interactive-ebook activities (optional)	Standards-Based Investigations Science Labs K-2 What do plants need? (pg. 78) □ How do minibeasts live? (pg. 79) □ Do plants need sunshine? (pg. 97) *Optional Online Resource* https://mysteryscience.com/mini-lessons/spring-flowers#slide-id-8722
Growing Up **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.** **Disciplinary Core Ideas** **ESS2.E: Biogeology** Plants and animals can change their environment. (K-ESS2-2) Objective- The students will Identify the main idea of the book Write a story about a puppy or kitten that grows up Understand how living things grow and change	**Engage**- Observe plant growth over four weeks. **Explore**- Find the main idea of a familiar story or book. **Explain**-Identify the main idea of the book and write a story about a puppy or a kitten that grows up. Clarify any misconceptions about how living things grow and change. **Elaborate-** Match babies with adults and discuss how they grow and change. Before the Reading (pg. 85), During the Reading (pg. 86), After the Reading (pg. 87) **Evaluate-**Your Turn Prompt (pg. 22 of Growing Up book), Growing up Quiz (pg. 92), Data Analysis activity, Older and Taller (pg.93), Interactive-ebook activities (optional)	

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On Water **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.** **Disciplinary Core Ideas** 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) Objective- The students will Use the text and pictures in the book to answer questions. Write a story about visiting a water body Identify different water bodies	**Engage**- Create water bodies in sand **Explore-** Predict what the text will say based on the pictures. **Explain-** Use the text and pictures to find information and write about visiting a body of water. Clarify any misconceptions about bodies of water **Elaborate-** Match names of water bodies with their pictures. Draw a picture of a water body they have seen- Before the Reading (pg. 183), During the Reading (pg. 184), After the Reading (pg. 185) **Evaluate**- Your Turn Prompt (pg. 22 of the On the Water book), On Water Quiz (pg. 191), Data analysis activity , Duck Pond (pg. 192), Interactive-ebook (optional)	*Optional Online Resource* https://mysteryscience.com/mini-lessons/deep-ocean#slide-id-14409
On Land **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.** **Disciplinary Core Ideas** 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) Objective- The students will Use the text and pictures to determine the meaning of vocabulary words Write an opinion about a type of land Describe different kinds of land	**Engage-** Make a landscape out of Earth materials **Explore**- Draw connections between the text, the pictures, and the vocabulary words **Explain**-Explain how the pictures helped them understand the vocabulary words and write about their favorite types of land. Clarify any misconceptions about land. **Elaborate**-Write words to describe different kinds of land. Draw their local land- Before the Reading (pg. 173), During the Reading (pg. 174), After the Reading (pg. 175) **Evaluate**- Your Turn Prompt (pg. 22 of the On Land book), On Land Quiz (pg. 180), Data Analysis- How Many Hills? (pg. 181), Interactive-ebook activities (optional)	
Too Much Trash **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.**	**Engage**- Compare and contrast how trash items decompose. **Explore**-Ask questions about the book **Explain**- Ask and answer questions about the book and create a poster explaining why we need to keep Earth clean. Clarify	*Optional Online Resource* https://mysteryscience.com/mini-lessons/trash-last-forever#slide-id-17877

Disciplinary Core Ideas		

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) Objective- The students will Ask and answer questions about the book Create posters explaining why we need to keep the Earth clean. Identify the impact pollution has on the environment.	any misconceptions about humanity's effect on the environment. **Elaborate-** Draw and write about how to clean up trash. Think of a way something can be recycled- Before the Reading (pg. 195), During the Reading (pg. 196), After the Reading (pg. 197) **Evaluate-**Your Turn Prompt (pg. 22 of Too Much Trash ! Book), Too Much Trash! Quiz (pg. 202), Data analysis, Trash Outside (pg. 203), Interactive ebook activities (optional)	

Unit Learning Goal and Scale *(Level 2.0 reflects a minimal level of proficiency)*	
New Jersey Student Learning Standards: K-LS1-1. Use observations to describe patterns of what plants or animals (including humans) need to survive.	
4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **Use observations to describe patterns of what plants and animals (including humans) need to survive.**
2.0	**Students will be able to:** ● **Recognize and recall specific vocabulary: living, nonliving, plants, seeds, protection, space, needs, wants,** ● **Identify the difference between needs and wants**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

New Jersey Student Learning Standards: K-ESS2-2. Construct an argument supported by evidence for how plants or animals (including humans) can change the environment to meet their needs.	
4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.**

2.0	**Students will be able to:** ● **Recognize and recall specific vocabulary: plants, animals, environment, change, grows up,** ● **Describe how plants can change the environment.** ● **Describe how animals (including humans) change the environment**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

New Jersey Student Learning Standards: 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.	
4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live**
2.0	**Students will be able to:** ● **Recognize and recall specific vocabulary: needs, plants, animals, air, water, shelter, food, nutrients, environment** ● **Identify animal homes** ● **Identify types of land**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

New Jersey Student Learning Standards: 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.	
4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment**
2.0	**Students will be able to:** ● **Recognize and recall specific vocabulary: pollution, litter, reduce, reuse, recycle, beautiful, hilly, narrow, ponds, streams, swamps, harms**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

Unit Modifications for Special Population Students

Advanced Learners	Challenge advanced learners to write predictions for several pages in the book. **(Living)** Challenge advance learners to complete the activity sheet without using the word bank **(Baby Animals)** Have advanced learners write several sentences to their story **(Seeds)** Have advanced learners write their own sentences about what living things need **(What do living things need)** Challenge advanced learners to identify one detail that supports the main idea **(Growing Up)** Challenge Advanced learners to use details to describe what the water body looked like **(On Water)** Challenge advanced learners to write a catchy slogan at the bottom of their posters **(Too Much Trash)**
Struggling Learners	● Dictate predictions **(Living)** ● Use the beginning letter of each word to determine which pictures match the words **(Baby Animals)** ● Write story by at least starting with the beginning letter of each word. Dictate story as they write. **(Seeds)**

	● Create a drawing and label pictures. Dictate sentences **(What do living things need)** ● Complete drawing and label it. Dictate to teacher writing portion **(Growing up)** ● Use pictures/ drawing to create story and label items in the picture **(On Water)** ● Choose a reason to keep the earth clean before starting activity **(Too Much Trash).**
English Language Learners	● Dictate predictions **(Living)** ● Use the beginning letter of each word to determine which pictures match the words **(Baby Animals)** ● Dictate story as they write **(Seeds)** ● Create a drawing and label the pictures. Dictate sentences **(What do living things need)** ● Complete drawing and dictate writing portion **(Growing Up)** ● Dictate story to the teacher **(On Water)** ● Verbally choose a reason to keep the earth clean before starting activity **(Too Much Trash)**
Special Needs Learners	Consult IEPs and 504 plans to differentiate instruction based on individual needs. ● Audio recording of books can be played as students follow along. This will help comprehension and practice fluency

Interdisciplinary Connections

Indicators:
ELA/Literacy – RI.CR.K..1 With prompting and support, ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). **(K-ESS2-2)**
W.AW.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces on a topic or text (e.g., My favorite book is…). **(K- ESS2-2) W. IW.K.2** Use a combination of drawing, dictating, and writing to compose informative/explanatory texts to convey ideas. **(K-ESS2-2) W.WR.K.5** With prompting and support generate questions through shared research in response to a topic, text, or stimulus (e.g. event, photograph, video, book).. **(K-ESS2-1)**

Mathematics – MP.2 Reason abstractly and quantitatively. **(K-ESS2-1) MP.4** Model with mathematics. **(K-ESS2-1) K.CC.A** Know number names and the count sequence. **(K-ESS2-1) K.M.A.1** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. **(K-ESS2-1) K.DL.A.3** Classify objects into given categories; count the number of objects in each category and sort the categories by count. **(K-ESS2-1)**

Integration of 21st Century Skills

Indicators:
8.2.2.A.4 Choose a product to make and plan the tools and materials needed.
8.2.2.B.1 Identify how technology impacts or improves life.
8.2.2.B.3 Identify products or systems that are designed to meet human needs.
8.2.2.B.4 Identify how the ways people live and work has changed because of technology.
8.2.2.C.1 Brainstorm ideas on how to solve a problem or build a product.
8.2.2.C.2 Create a drawing of a product or device that communicates its function to peers and discuss.
8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.
8.2.2.D.1 Collaborate and apply a design process to solve a simple problem from everyday experiences.
8.2.2.D.3 Identify the strengths and weaknesses in a product or system.
9.2.4.A.1 Identify different types of work and how work can help people achieve personal and professional goals
9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.

Unit Title: Weather and Climate (including the sun)

Unit Description:
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 students will be able to apply an understanding of the effects of the sun on the Earth's surface 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.

Unit Duration: See pacing guide for implementation

Desired Results

New Jersey Student Learning Standards:
K-PS3-1. Make observations to determine the effect of sunlight on Earth's surface.
K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.
K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.
K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.

Indicators:

PS3.B: Conservation of Energy and Energy Transfer
- Sunlight warms Earth's surface. (K-PS3-1),(K-PS3-2)

Understandings:
Students will understand that…
- There are patterns in weather
- There are different types of weather.
- There are different types of land.
- Weather can affect the shape and formation of land.
- There are different types of bodies of water.
- Pollution has an impact on the environment
- Keeping the earth clean is important

Essential Questions:
- What is weather?
- What is temperature?
- How does weather change?
- Why does weather change?
- How do rain and sun affect land?
- What is severe weather?

Assessment Evidence

Performance Tasks:

Introductory Activity- The students will engage in new concepts.
- Observe the local weather
- Observe how rain and sun affect the land
- Observe how sun light changes the temperature of water

Lab Activity- The students will explore concepts and explain their findings
- Make predictions about the text by looking at the front and back cover and compare and contrast two types of weather and complete sentences about it

Other Evidence:
- Students will demonstrate their understandings through:
- Science Notebook Entries
- Unit Test (optional)
- Activities from this unit can be made available during Choice Time Workshop for further investigation.

- Take a picture walk through the text and explain how the pictures help you understand the text. Write about your favorite type of weather. - Predict a picture that will be used to complement the text, identify text and image connections and write a story about a sunny day. **Before, After, and During the Reading- The students will elaborate and extend their understanding about a topic.** **Assessments- The students will be evaluated with assessments for progress, monitoring, and summative purposes** - Student Activity Sheets - Data Analysis - Reader Quiz - Interactive-ebook activities	

Benchmarks: Aspects of this unit will be assessed in a performance/ portfolio based mid year (weather and climate)and end of the year (the sun) assessment

Learning Plan

Resources: Science Readers: Content and Literacy in Science

Learning Activities:

Lesson and Duration	Activities	Materials/Suggested Resources

What is Weather? **New Jersey Student Learning Standards** K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time. Disciplinary Core Ideas 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)** Objective- The students will Compare and contrast two kinds of weather. Complete sentences about weather. Describe various weather conditions. Disciplinary Core Ideas	**Engage**- Observe the local weather **Explore**- Make predictions about the book based on the title and the front cover. **Explain**-Compare and contrast two types of weather and complete sentences about weather. Clarify any misconceptions about weather. **Elaborate**- Match weather with how it makes them feel- Before the Reading (pg. 151), During the Reading (pg. 152), After the Reading (pg. 153) **Evaluate**- Your Turn Prompt (pg. 22 of the What is weather? Book), What is Weather? Quiz (pg. 158), Data analysis, Hot and Cold (pg. 159) Interactive-ebook activities (optional)	Create a weather graph to monitor and record the weather (daily, weekly, monthly) to be done throughout the school year Standards-Based Investigations Science Labs K-2 ● How Can I make a thermometer? (pg. 12) ● What makes a tornado? (pg. 13) ● Where does rain come from? (pg. 14) ● How can I make rain? (pg. 24) ● Where does frost come from? (pg. 15) ● How strong is the wind? (pg. 22)

Changing Weather **New Jersey Student Learning Standards** K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. Disciplinary Core Idea 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)** 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-**	**Engage-** Observe how rain and sun affect the land **Explore**- Take a picture walk of the book **Explain**- Explain how the images help them understand the book and write about their favorite kind of weather. Clarify any misconceptions about weather. **Elaborate-**Label types of weather. Write and Draw about a storm- Before the Reading (pg. 162), During the Reading (pg. 163), After the Reading (pg. 164) **Evaluate**- Your Turn prompt (pg. 22 of the Changing Weather book), Changing Weather Quiz (pg. 169), Data analysis, Sunny and Rainy (pg. 170), Interactive-ebook (optional)	Observation labs can be done in centers or during choice time Standards-Based Investigations Science Labs K-2 ● How does the weather change? (pg. 19) *Optional Online Resource:* https://mysteryscience.com/mini-lessons/dangerous-hurricanes#slide-id-14157

ESS3-2)		
Here Comes the Sun **<u>New Jersey Student Learning Standards</u>** K-PS3-1. Make observations to determine the effect of sunlight on Earth's surface. K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. <u>Disciplinary Core Idea</u> PS3.B: Conservation of Energy and Energy Transfer **Sunlight warms Earth's surface. (K-PS3-1),(K-PS3-2)** Objective- The students will Identify how the images in the book help them understand the text. Write about a sunny day. Identify ways the sun helps us.	**Engage**- Observe how sunlight changes the temperature of water. **Explore-** Predict a picture that will be used to complement the text. **Explain-** Identify text and image connections and write a story about a sunny day. Clarify any misconceptions about the sun **Elaborate-** Identify things that need the sun. Identify how the sun helps them- Before the Reading (pg. 140), During the Reading (pg. 141), After the Reading (pg. 142) **Evaluate-** Your Turn Prompt (pg. 22 of the Here comes the Sun book), Here Comes the Sun Quiz (pg. 147), Data analysis, Sunny Days (pg. 148), Interactive-ebook (optional)	Standards-Based Investigations Science Labs K-2 ● When does the Sun rise? (pg. 21) *<u>Optional Online Resource:</u>* <u>https://mysteryscience.com/mini-lessons/hottest-place-on-earth#slide-id-15721</u>

Unit Learning Goal and Scale *(Level 2.0 reflects a minimal level of proficiency)*
New Jersey Student Learning Standards: **K-PS3-1. Make observations to determine the effect of sunlight on Earth's surface.**

4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **Make observations to determine the effect of sunlight on Earth's surface.**
2.0	**Students will be able to:** ● **Recognize and recall specific vocabulary: hot, heat, sun rays**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

New Jersey Student Learning Standards: **K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.**	
4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area**
2.0	**Students will be able to:** ● **Recognize and recall specific vocabulary: thermometer, degrees**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

New Jersey Student Learning Standards: **K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.**	
4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **Use and share observations of local weather conditions to describe patterns over time**
2.0	**Students will be able to:** ● **Recognize and recall specific vocabulary sunlight, wind, snow, rain, and temperature**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

New Jersey Student Learning Standards: **K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.**	
4.0	**Students will be able to:** ● **In addition to 3.0 performance, the student demonstrates in-depth interferences and applications that go beyond what was taught**
3.0	**Students will be able to:** ● **Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.**

2.0	**Students will be able to:** • **Recognize and recall specific vocabulary: meteorologist, weather, weather forecasting, severe weather**
1.0	**With help, partial success at level 2.0 content and level 3.0 content:**
0.0	**Even with help, no success**

Unit Modifications for Special Population Students

Advanced Learners	• Challenge advanced learners to write about today's weather instead.**(What is weather)** • Challenge advanced learners to list two reasons they like the type of weather they have chosen **(Changing Weather)** • Challenge the advanced learner to use descriptive words to make their story more interesting **(Here Comes the Sun)**
Struggling Learners	• Show struggling learners how to clue in the pictures to help them complete the sentences **(What is weather)** • Identify the beginning and ending sound of the words to help they write **(Changing weather)** • Have them use a sentence starter such as One sunny day, I … to complete story **(Here comes the sun)**
English Language Learners	• Have the ELL verbalize the weather they see in the pictures **(What is weather**) • Identify the beginning sound of a word to help them write **(Changing weather)** • Have them draw a picture, label it, and verbalize their story to the teacher or peer **(Here Comes the Sun)**
Special Needs Learners	Consult IEPs and 504 plans to differentiate instruction based on individual needs. • Use the audio books to help with fluency and comprehension emphasize that the pictures in a book should match the words.

Interdisciplinary Connections

ELA/Literacy -RI.CR.K.1 With prompting and support, ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). **(K-ESS3- 2) W. WR.K.5** With prompting and support, generate questions through shared research in response to a topic, text, or stimulus (e.g. event, photograph, video, book). **(K-PS3-1),*(K-PS3-2),*(K-ESS2-1) SL.K.3** Ask and answer questions in order to seek help, get information, or clarify something that is not understood. **(K-ESS3-2)**

Mathematics - MP.2 Reason abstractly and quantitatively. **(K-ESS2-1) MP.4** Model with mathematics. **(K-ESS2-1),*(K-ESS3-2)* K.CC** Counting and Cardinality *(**K-ESS3-2)*** **K.CC.A** Know number names and the count sequence. **(K-ESS2-1) K.MD.A.1** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. **(K-ESS2-1) K.M.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- PS3-1),(K-PS3-2) K.DL.A.1** Classify objects into given categories; count the number of objects in each category and sort the categories by count. **(K-ESS2-1)**

Integration of 21st Century Skills

Indicators:
8.2.2.A.4 Choose a product to make and plan the tools and materials needed.
8.2.2.B.1 Identify how technology impacts or improves life.
8.2.2.B.3 Identify products or systems that are designed to meet human needs.
8.2.2.B.4 Identify how the ways people live and work has changed because of technology.
8.2.2.C.1 Brainstorm ideas on how to solve a problem or build a product.
8.2.2.C.2 Create a drawing of a product or device that communicates its function to peers and discuss.
8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.
8.2.2.D.1 Collaborate and apply a design process to solve a simple problem from everyday experiences.
8.2.2.D.3 Identify the strengths and weaknesses in a product or system.
9.2.4.A.1 Identify different types of work and how work can help people achieve personal and professional goals
9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.