PITTSGROVE TOWNSHIP SCHOOL DISTRICT

Pittsgrove Township
School District
P.R.I.D.E. Patience Respect Integrity Diligence Empathy

Course Name: Science	**Grade Level(s): Kindergarten**
Department: Science	**Credits: N/A**
BOE Adoption Date: September 17, 2020	**Revision Date(s): August 5, 2020**

Course Description

Students will explore the scientific method through an inquiry-based environment, developing critical thinking and problem solving skills essential to becoming informed productive contributors to society in the 21st century. Students will engage in engineering and scientific practices and apply concepts to deepen their understanding of questioning, research, hypothesis, experimenting, collecting data, and analysis. Through the application of the scientific method, students will be able to draw conclusions, collaborate, and communicate results regarding weather, motion, sunlight, and basic needs of living organisms.

Mission Statement

The Pittsgrove Township School District believes in growing all learners to thrive. *The district offers an intellectually rigorous, dynamic curriculum aligned to state and national standards coupled with research-based practices in classrooms. The Pittsgrove Township School District strives to highlight critical thinking, problem-solving, intercultural literacy, digital literacy, collaboration, innovation, and a growth mindset as part of the instructional core of learning. The district provides high quality resources to provide young people the knowledge they need to approach the future as leaders and learners.*

Curriculum & Instruction Goals

1. To ensure students are college and career ready upon graduation
2. To vertically and horizontally align curriculum PreK-12 to ensure successful transition of students at each grade level
3. To identify individual student strengths and weaknesses utilizing various assessment measures (formative, summative, alternative, etc.) so as to differentiate instruction while meeting the rigor of the applicable content standards
4. To improve student achievement as assessed through multiple measures including, but not limited to, state testing, local assessments, and ongoing progress monitoring

How to Read this Document

This curricular document contains both a *pacing guide* and *curriculum units*. The pacing guide serves to communicate an estimated timeframe as to *when* critical knowledge and skills will be taught throughout the year. The pacing, however, may differ slightly depending upon the unique needs of each learner. The *curriculum units* contain more detailed information as to the content, goals, objectives, instructional strategies, resources, and assessments.

NJ Administrative Code and Statutes Key
^=Amistad Law **O=Diversity & Inclusion Law** **<>=Holocaust** **+=LGBT and Disabilities Law** ***=AAPI (Asian American and Pacific Islanders)** **$=Financial Literacy** **Use this key to understand where the NJ mandates are being implemented in the K-12 curriculum units.**

Pacing Guide

Course Title: Kindergarten Science
Prerequisite(s): None

Unit Title	Duration/ Month(s)	Related Standards	Learning Goals	Critical Knowledge and Skills
Unit 1: Weather	10 Instructional Days (continue throughout year)	● K-ESS2-1 ● K-ESS3-2 ● K-2-ETS1-1	● Students will use and share observations of local weather conditions to describe patterns over time ● Students will ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather ● Students will 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	● Making observations ● Drawing conclusions ● Making hypotheses ● Problem solving ● Data collection
Unit 2: Pushes and Pulls	15 Instructional Days	● K-PS2-1 ● K-PS2-2 ● K-2- ETS1-1	● Students will be able to plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and	● Making observations ● Drawing conclusions ● Making hypotheses ● Problem solving ● Data collection

			pulls on the motion of an object ● 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 pull ● Students will be able to analyze data from tests of 2 objects designed to solve the same problem to compare the strengths and weaknesses of how each performs	
Unit 3: Effects of the Sun	15 Instructional Days	● 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-2- ETS1-1. Ask questions, make observations, and gather	● Students will be able to make observations to determine the effect of sunlight on Earth's surface ● Students will be able to use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on Earth's surface ● Students will be able to ask questions, make observations, and gather information about a situation people want to change to define a simple	● Making observations ● Drawing conclusions ● Making hypotheses ● Problem solving ● Data collection

		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.	problem that can be solved through the development of a new or improved object or tool	
Unit 4: Basic Needs of Living Things	20 Instructional Days	● 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. ● K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. ● K-ESS3-3. Communicate solutions that will reduce the impact of humans on the	● Students will be able to use observations to describe patterns of what plants and animals need to survive ● Students will be able to use a model to represent a relationship between the needs of different plants and animals (including humans) and the places they live ● 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	● Making observations ● Drawing conclusions ● Making hypotheses ● Problem solving ● Data collection

		land, water, air, and/or other living things in the local environment. ● K-2- ETS1-1. 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.		
Unit 5: Basic Needs of Humans	15 Instructional Days	● K-ESS3-1 ● K-ESS3-2 ● K-ESS3-3 ● K-2- ETS1-1	● Students will be able to communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living tings in the local environment ● Students will be able to ask questions, make observations, and gather information about a solution people want to change to define a simple problem that can be solved	● Drawing conclusions ● Making hypotheses ● Problem solving ● Data collection

			through the development of a new or improved object or tool.	

Instructional Unit Map					
Course Title: Kindergarten Science					
Unit Title	Weather			**Start Date:**	September
				Length of Unit:	10 Instructional Days
Content Standards *What do we want them to know, understand, & do?*	● K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time. ● 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-2- ETS1-1. 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	**Learning Goals**	● Students will use and share observations of local weather conditions to describe patterns over time ● Students will ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather ● Students will 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		

	development of a new or improved object or tool.		
Essential Questions	● How can someone predict what the weather will be tomorrow? ● How does weather forecasting help us to prepare for dangerous weather? ● What is the weather like today and how is it different from yesterday?		
Assessments *How will we know they have gained the knowledge & skills?*	**Formative**	**Summative**	**Alternative**
	● Teaching Strategies Gold anecdotal notes ● Thumbs up/thumbs down ● Interactive questioning ● Teacher observation ● Choral and individual responses to questioning ● Center work ● Homework ● Checklists	● Projects ● Experiments ● Family Projects	● Presentations ● Posters ● Diorama ● Weather Forecast
Unit Pre-Assessment(s) *What do they already know?*	● Interactive questioning ● Prior knowledge of weather		
Instructional Strategies/Student Activities	● Think, pair, share ● Online media resources ● Data collection journals ● Mystery Science ● Nor'Easter Nick ● Weather forecast during calendar		

Instructional/ Assessment Scaffolds *(Modifications /Accommodations) – planned for prior to instruction*	**English Language Learners**	**Special Education Learners**	**Struggling Learners**	**Advanced Learners**
	• Provide ELL students with multiple literacy strategies. • Provide visuals • Labeling in English and Spanish • Use of Google Translate • Provide modeling • Differentiated grouping • Small group instruction • Single step directions • Allow child to redo	• Provide visuals • Provide modeling • Single step instructions • Provide extra time • Peer buddy • Differentiated grouping • Allow child to redo work • Alternative assignments • Enhanced directions • Shortened/simplified assignments	• Allow for choice in student grouping • Provide more detailed instructions • Additional time on assignments • Provide visuals • Provide modeling • Peer buddy	• Tiered assignments • Flexible grouping • Independent projects • Learning Centers
Differentiated Instructional Methods: *(Multiple means for students to access content and multiple modes for student to*	**Access** (Resources and/or Process)		**Expression** (Products and/or Performance)	
	• Library area: books & resources available for student exploration. • Experiments on display • Center Exploration • Promethean board for student & teacher discussions • iPads (science apps)		• Daily center activities • Journaling • Science lessons • Presentations/Peer Sharing	

express understanding)		
Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	● Tier Two- alike, different, label, author, illustrator, main idea, details, events, tools, damage, community ● Tier Three- hypothesis, experiment, weather, climate, flooding, wind, sun, clouds, rain, snow,	
Integration of Technology SAMR	**Substitution** ● View Videos on Brain Pop Jr. ○ Seasons ○ Winter ○ Spring ○ Summer ○ Fall ○ Water Cycle ○ Sun ● View Mystery Science videos ○ Weather Conditions ○ Severe Weather & Preparation ○ Weather Forecasting and Patterns ○ Local Weather & Patterns ○ Sunlight, Warming, and Engineering ○ Sunlight, Heat, and the Earth's Surface ● View Mystery Doug Videos ○ Why is the sky blue? ○ Why are tornadoes hard to predict? ○ Why do flowers bloom in the spring? ○ Where do bugs go in winter? **Augmentation:** ● Students will take a quiz following the jr.brainpop.com videos.	

	● Students will use an ipad to explore scientific concepts **Modification:** ● Seesaw program. Assignments can be differentiated according to individual level **Redefinition:** ● Students will give their own weather forecast
Interdisciplinary Connections NJ Student Learning Standards	**ELA**: ● W.K.7 - Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-ESS2-1) ● RI.K.1 - With prompting and support, ask and answer questions about key details in a text. (K-ESS3-2) ● SL.K.3- Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-ESS3-2) ● RI.2.1 - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1) ● W.2.6 - With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1) ● W.2.8 -Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1) **Math**: ● MP.2 - Reason abstractly and quantitatively. (K-ESS2-1),(K-2-ETS1-1) ● MP.4 - Model with mathematics. (K-ESS2-1),(K-ESS3-2),(K-2-ETS1-1) ● MP.5 - Use appropriate tools strategically. (K-2-ETS1-1) ● 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.MD.B.3- Classify objects into given categories; count the number of objects in each category and sort the categories by count. (K-ESS2-1) ● 2.MD.D.10- Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1)

21st Century Themes/Skills P21 Framework	Themes	Skills
	Environmental Literacy 1. Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as it relates to air, climate, land, food, energy, water and ecosystems. 2. Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.). 3. Investigate and analyze environmental issues, and make accurate conclusions about effective solutions. 4. Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).	• Responsibility and Accountability • Critical Thinking • Problem Solving • Strategic Thinking • Decision Making • Respect and Understanding
Resources/Materials	• Mystery Science • Brain Pop Jr. • Mystery Doug • Journals	

Instructional Unit Map			
Course Title: Kindergarten Science			
Unit Title	Pushes and Pulls	**Start Date:**	November
		Length of Unit:	15 Instructional Days

<table>
<tr><td>Content Standards
What do we want them to know, understand, & do?</td><td colspan="2">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- ETS1-1. 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.</td><td>Learning Goals</td><td>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
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 pull
Students will be able to analyze data from tests of 2 objects designed to solve the same problem to compare the strengths and weaknesses of how each performs</td></tr>
<tr><td>Essential Questions</td><td colspan="4">What happens if you push or pull an object harder?
Why do scientists like to play soccer?
How can you design a simple way to change the speed or direction of an object using a push or pull from another object?</td></tr>
<tr><td rowspan="2">Assessments
How will we know they have gained the knowledge & skills?</td><td>Formative</td><td>Summative</td><td colspan="2">Alternative</td></tr>
<tr><td>Anecdotal notes
Thumbs up/thumbs down
Interactive questioning
Teacher observation
Choral and individual responses to questioning
Center work</td><td>Projects
Experiments
Family Projects</td><td colspan="2">Presentations
Push/Pull Sorting activity</td></tr>
</table>

	• Homework • Checklists			
Unit Pre-Assessment(s) *What do they already know?*	• Interactive questioning • Prior knowledge of force and motion			
Instructional Strategies/ Student Activities	• Think, pair, share • Online media resources • Data collection journals • Mystery Science • Motion experiments/demonstrations (string attached to object being pulled, straw on a string attached to a balloon, two objects colliding, etc) • STEM activities			
Instructional/Assessment Scaffolds *(Modifications /Accommodations) – planned for prior to instruction*	**English Language Learners**	**Special Education Learners**	**Struggling Learners**	**Advanced Learners**
	• Provide ELL students with multiple literacy strategies. • Provide visuals • Labeling in English and Spanish • Use of Google Translate • Provide modeling • Differentiated grouping • Small group instruction • Single step directions	• Provide visuals • Provide modeling • Single step instructions • Provide extra time • Peer buddy • Differentiated grouping • Allow child to redo work	• Allow for choice in student grouping • Provide more detailed instructions • Additional time on assignments • Provide visuals • Provide modeling • Peer buddy	• Tiered assignments • Flexible grouping • Independent projects • Learning Centers

	● Allow child to redo	● Alternative assignments ● Enhanced directions ● Shortened/simplified assignments		
Differentiated Instructional Methods: *(Multiple means for students to access content and multiple modes for student to express understanding)*	**Access** (Resources and/or Process)		**Expression** (Products and/or Performance)	
	● Library area: books & resources available for student exploration. ● Experiments on display ● Center Exploration ● Promethean board for student & teacher discussions ● iPads (science apps)		● Daily center activities ● Journaling ● Science lessons ● Presentations/Peer Sharing	
Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	● Tier Two- alike, different, main idea, details, events, tools, push, pull, magnets ● Tier Three- hypothesis, experiment, motion, force, simple machines, direction, speed			

Integration of Technology SAMR	**Substitution** ● View Videos on Brain Pop Jr. ○ Pushes and pulls ○ Gravity ○ Magnets ○ Simple Machines ● View Mystery Science videos ○ Pushes and Pulls ○ Motion, Speed and Strength ○ Speed of direction and force ○ Direction of Motion and Engineering ○ Pushes, Pulls, and Work Words ● View Mystery Doug Videos ○ How are toys invented? ○ Why is it so hard to make new inventions? **Augmentation:** ● Students will take a quiz following the jr.brainpop.com videos. ● Students will use an ipad to explore scientific concepts **Modification:** ● Seesaw program. Assignments can be differentiated according to individual level **Redefinition:** ● Students will perform their own demonstration of motion.
Interdisciplinary Connections NJ Student Learning Standards	**ELA**: ● RI.K.1- With prompting and support, ask and answer questions about key details in a text. (K-PS2-2) ● W.K.7- Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-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) **Math**:

<table>
<tr><td></td><td colspan="2">

MP.2- Reason abstractly and quantitatively. (K-PS2-1), (K-2-ETS1-1),(K-2-ETS1-3)
MP.4- Model with mathematics. (K-2-ETS1-1), (K-2-ETS1-3)
MP.5- Use appropriate tools strategically. (K-2-ETS1-1), (K-2-ETS1-3)
K.MD.A.1- Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-PS2-1)
K.MD.A.2- Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference. (K-PS2-1)

</td></tr>
<tr><td rowspan="2">21st Century Themes/Skills
P21 Framework</td><td>Themes</td><td>Skills</td></tr>
<tr><td>Environmental Literacy
1. Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as it relates to air, climate, land, food, energy, water and ecosystems.
2. Demonstrate knowledge and understanding of society’s impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.).
3. Investigate and analyze environmental issues, and make accurate conclusions about effective solutions.
4. Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).</td><td>● Responsibility and Accountability
● Critical Thinking
● Problem Solving
● Strategic Thinking
● Decision Making
● Respect and Understanding
● Creativity and Innovation</td></tr>
<tr><td>Resources /Materials</td><td colspan="2">● Mystery Science
● Brain Pop Jr.
● Mystery Doug
● Journals</td></tr>
</table>

Instructional Unit Map

<table>
<tr><td colspan="5">Course Title: Kindergarten Science</td></tr>
<tr><td>Unit Title</td><td colspan="2">Effects of the Sun</td><td>Start Date:</td><td>January</td></tr>
<tr><td></td><td colspan="2"></td><td>Length of Unit:</td><td>15 Instructional Days</td></tr>
<tr><td>Content Standards
What do we want them to know, understand, & do?</td><td colspan="2">● 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-2- ETS1-1. 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.</td><td>Learning Goals</td><td colspan="2">● Students will be able to make observations to determine the effect of sunlight on Earth’s surface
● Students will be able to use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on Earth’s surface
● Students will be able to 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
● Students will be able to 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</td></tr>
<tr><td>Essential Questions</td><td colspan="4">● How can we use science to keep a playground cool in the summertime?
● How does sunlight affect the playground?
● Imagine that we have been asked to design a new playground. How would we keep the sand, soil, rocks, and water found on the playground cool during the summer?</td></tr>
<tr><td>Assessments
How will we know they have</td><td>Formative</td><td colspan="2">Summative</td><td>Alternative</td></tr>
</table>

gained the knowledge & skills?	• Anecdotal notes • Thumbs up/thumbs down • Interactive questioning • Teacher observation • Choral and individual responses to questioning • Center work • Homework • Checklists	• Projects • Experiments • Family Projects	• Presentations • Shadow Creating Activity
Unit Pre-Assessment(s) *What do they already know?*	• Interactive questioning • Prior knowledge of the effects of the sun		
Instructional Strategies/ Student Activities	• Think, pair, share • Online media resources • Data collection journals • Mystery Science • Shadow experiments/demonstrations • STEM activities		

Instructional/Assessment Scaffolds *(Modifications /Accommodations) – planned for*	**English Language Learners**	**Special Education Learners**	**Struggling Learners**	**Advanced Learners**
	• Provide ELL students with multiple literacy strategies. • Provide visuals • Labeling in English and Spanish	• Provide visuals • Provide modeling • Single step instructions	• Allow for choice in student grouping • Provide more detailed instructions • Additional time on assignments • Provide visuals • Provide modeling	• Tiered assignments • Flexible grouping • Independent projects

prior to instruction	● Use of Google Translate ● Provide modeling ● Differentiated grouping ● Small group instruction ● Single step directions ● Allow child to redo	● Provide extra time ● Peer buddy ● Differentiated grouping ● Allow child to redo work ● Alternative assignments ● Enhanced directions ● Shortened/simplified assignments	● Peer buddy	● Learning Centers
Differentiated Instructional Methods: *(Multiple means for students to access content and multiple modes for student to express understanding)*	**Access** (Resources and/or Process)		**Expression** (Products and/or Performance)	
	● Library area: books & resources available for student exploration. ● Experiments on display ● Center Exploration ● Promethean board for student & teacher discussions ● iPads (science apps)		● Daily center activities ● Journaling ● Science lessons ● Presentations/Peer Sharing	

Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	● Tier Two- alike, different, main idea, details, observation, sunlight, tool, object, question, sketch, model ● Tier Three- hypothesis, experiment, seasonal, warming, effect, surface, shadow, Earth, structure
Integration of Technology SAMR	**Substitution** ● View Videos on Brain Pop Jr. ○ Soil ○ Rocks & Minerals ○ Sun ○ Heat ● View Mystery Science videos ○ Sun, Shadows, & Daily Patterns ○ Sun & Daily Patterns ○ Daylight and Seasonal Patterns ○ Day, Night, & Earth's Rotation ○ Seasonal Changes and Shadow Length ● View Mystery Doug Videos ○ How close can an astronaut get close to the sun? ○ How dangerous is it to look at the sun? **Augmentation:** ● Students will take a quiz following the jr.brainpop.com videos. ● Students will use an ipad to explore scientific concepts **Modification:** ● Seesaw program. Assignments can be differentiated according to individual level **Redefinition:** ● Students will model the effect of sunlight on the Earth's surface

<table>
<tr><td>Interdisciplinary Connections
NJ Student Learning Standards</td><td colspan="2">ELA:
W.K.7- Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-PS3-1),(K-PS3-2)
K.MD.A.2- Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference. (K- PS3-1)
RI.2.1- Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1)
W.2.6- With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1),(K-2-ETS1- 3)
W.2.8- Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1),(K-2-ETS1-3)
SL.2.5- Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (K-2-ETS1-2)
Math:
K.MD.A.2- Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference. (K-PS3-2)
MP.2- Reason abstractly and quantitatively. (K-2-ETS1-1),(K-2-ETS1-3)
MP.4- Model with mathematics. (K-2-ETS1-1),(K-2-ETS1-3)
MP.5- Use appropriate tools strategically. (K-2-ETS1-1),(K-2-ETS1-3)
2.MD.D.10- Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1),(K-2-ETS1-3)</td></tr>
<tr><td rowspan="2">21st Century Themes/Skills
P21 Framework</td><td>Themes</td><td>Skills</td></tr>
<tr><td>Environmental Literacy
Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as it relates to air, climate, land, food, energy, water and ecosystems.
Demonstrate knowledge and understanding of society’s impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.).</td><td>Responsibility and Accountability
Critical Thinking
Problem Solving
Strategic Thinking
Decision Making
Respect and Understanding
Creativity and Innovation</td></tr>
</table>

	3. Investigate and analyze environmental issues, and make accurate conclusions about effective solutions. 4. Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).	
Resources /Materials	● Mystery Science ● Brain Pop Jr. ● Mystery Doug ● Journals	

Instructional Unit Map					
Course Title: Kindergarten Science					
Unit Title	Basic Needs of Living Things			**Start Date:**	March
				Length of Unit:	20 Instructional Days
Content Standards *What do we want them to know, understand, & do?*	● 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. ● K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to,	**Learning Goals**	● Students will be able to use observations to describe patterns of what plants and animals need to survive ● Students will be able to use a model to represent a relationship between the needs of different plants and animals (including humans) and the places they live ● 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		

	severe weather. ● 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. ● K-2- ETS1-1. 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.		
Essential Questions	● Where do plants and animals live and why do they live there? ● How can you tell if something is alive? ● What do animals and plants need to survive?		
Assessments *How will we know they have gained the knowledge & skills?*	**Formative**	**Summative**	**Alternative**
	● Anecdotal notes ● Thumbs up/thumbs down ● Interactive questioning ● Teacher observation ● Choral and individual responses to questioning ● Center work ● Homework	● Projects ● Experiments ● Family Projects	● Presentations ● Plant Flowers and document growth

	• Checklists			
Unit Pre-Assessment(s) *What do they already know?*	• Interactive questioning • Prior knowledge of the basic needs of living things			
Instructional Strategies/Student Activities	• Think, pair, share • Online media resources • Data collection journals • Mystery Science • Plant Life Experiments (Plant a flower, vegetable, etc…) • STEM activities			
Instructional/ Assessment Scaffolds *(Modifications /Accommodations) – planned for prior to instruction*	**English Language Learners**	**Special Education Learners**	**Struggling Learners**	**Advanced Learners**
	• Provide ELL students with multiple literacy strategies. • Provide visuals • Labeling in English and Spanish • Use of Google Translate • Provide modeling • Differentiated grouping • Small group instruction • Single step directions • Allow child to redo	• Provide visuals • Provide modeling • Single step instructions • Provide extra time • Peer buddy • Differentiated grouping • Allow child to redo work • Alternative assignments • Enhanced directions	• Allow for choice in student grouping • Provide more detailed instructions • Additional time on assignments • Provide visuals • Provide modeling • Peer buddy	• Tiered assignments • Flexible grouping • Independent projects • Learning Centers

<table>
<tr><td></td><td></td><td>• Shortened/simplified assignments</td><td></td><td></td></tr>
<tr><td rowspan="2">Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)</td><td colspan="2">Access (Resources and/or Process)</td><td colspan="2">Expression (Products and/or Performance)</td></tr>
<tr><td colspan="2">• Library area: books & resources available for student exploration.
• Experiments on display
• Center Exploration
• Promethean board for student & teacher discussions
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• Journaling
• Science lessons
• Presentations/Peer Sharing</td></tr>
<tr><td>Vocabulary Highlight key vocabulary (both Tier II and Tier III words)</td><td colspan="4">• Tier Two- alike, different, main idea, details, observation, plant, flower, sun, soil, water, growth, animal

• Tier Three- hypothesis, experiment, seasonal, warming, effect, life cycle, sprout, seed, relationship, evidence</td></tr>
<tr><td>Integration of Technology
SAMR</td><td colspan="4">Substitution
• View Videos on Brain Pop Jr.
○ Plant Life Cycle
○ Parts of a Plant
○ Trees
○ Food Chain
○ Ocean Habitats
○ Arctic Habitats
○ Freshwater Habitats</td></tr>
</table>

	● View Mystery Science videos ○ Animal Structures & Survival ○ Animal Needs: Food ○ Animal Behavior & Offspring Survival ○ Animal Needs: Shelter ○ Camouflage & Animal Survival ○ Animal Needs: Safety ○ Plant Needs: Light ○ Plant Survival & Engineering ○ Animal Needs & Changing the Environment ● View Mystery Doug Videos ○ Could a turtle live outside its shell? ○ Why do we need blood? ○ Where do bugs go in the winter? ○ Why do bears hibernate? **Augmentation:** ● Students will take a quiz following the jr.brainpop.com videos. ● Students will use an ipad to explore scientific concepts **Modification:** ● Seesaw program. Assignments can be differentiated according to individual level **Redefinition:** ● Students will model the effect of sunlight and water on the growth of plants
Interdisciplinary Connections NJ Student Learning Standards	**ELA**: ● W.K.1- Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book. (K-ESS2-2) ● W.K.2- Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (KESS2-2) ● W.K.7- Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-LS1-1) ● SL.K.5- Add drawings or other visual displays to descriptions as desired to provide additional detail. (K-ESS3-1)

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- R.K.1- With prompting and support, ask and answer questions about key details in a text. (K-ESS2-2)

Math:

- K.MD.A.2- Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference. (K-LS1-1)
- MP.4- Reason abstractly and quantitatively. (K-ESS3-1) MP.2 Model with mathematics. (K-ESS3-1)
- K.CC- Counting and Cardinality (K-ESS3-1)

</td></tr>
<tr><td rowspan="2">21st Century Themes/Skills
P21 Framework</td><td>Themes</td><td>Skills</td></tr>
<tr><td>

Environmental Literacy

1. Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as it relates to air, climate, land, food, energy, water and ecosystems.
2. Demonstrate knowledge and understanding of society’s impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.).
3. Investigate and analyze environmental issues, and make accurate conclusions about effective solutions.
4. Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).

</td><td>

- Responsibility and Accountability
- Critical Thinking
- Problem Solving
- Strategic Thinking
- Decision Making
- Respect and Understanding
- Creativity and Innovation

</td></tr>
<tr><td>Resources/Materials</td><td colspan="2">

- Mystery Science
- Brain Pop Jr.
- Mystery Doug
- Journals

</td></tr>
</table>

<table>
<tr><th colspan="4">Instructional Unit Map</th></tr>
<tr><td colspan="4">Course Title: Kindergarten Science</td></tr>
<tr><td>Unit Title</td><td colspan="2">Basic Needs of Humans</td><td>Start Date: May
Length of Unit: 15 Instructional Days</td></tr>
<tr><td>Content Standards
What do we want them to know, understand, & do?</td><td colspan="2">● 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.
● K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.
● 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.
● K-2- ETS1-1. 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</td><td>Learning Goals
● Students will be able to communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living tings in the local environment
● Students will be able to ask questions, make observations, and gather information about a solution people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</td></tr>
</table>

	improved object or tool.			
Essential Questions	● How do people impact the environment as they gather and use what they need to live and grow? ● How can humans reduce their impact on the land, water, air, and other living things in the local environment?			
Assessments *How will we know they have gained the knowledge & skills?*	**Formative**	**Summative**		**Alternative**
	● Anecdotal notes ● Thumbs up/thumbs down ● Interactive questioning ● Teacher observation ● Choral and individual responses to questioning ● Center work ● Homework ● Checklists	● Projects ● Experiments ● Family Projects		● Presentations ● Make a model of the human body
Unit Pre-Assessment(s) *What do they already know?*	● Interactive questioning ● Prior knowledge of the basic needs of humans			
Instructional Strategies/ Student Activities	● Think, pair, share ● Online media resources ● Data collection journals ● Mystery Science ● Recycling Project ● Rainwater Collection ● Rain Garden Observations ● STEM activities			
Instructional/Assessment	**English Language Learners**	**Special Education Learners**	**Struggling Learners**	**Advanced Learners**

Scaffolds *(Modifications /Accommodations) – planned for prior to instruction*	• Provide ELL students with multiple literacy strategies. • Provide visuals • Labeling in English and Spanish • Use of Google Translate • Provide modeling • Differentiated grouping • Small group instruction • Single step directions • Allow child to redo	• Provide visuals • Provide modeling • Single step instructions • Provide extra time • Peer buddy • Differentiated grouping • Allow child to redo work • Alternative assignments • Enhanced directions • Shortened/simplified assignments	• Allow for choice in student grouping • Provide more detailed instructions • Additional time on assignments • Provide visuals • Provide modeling • Peer buddy	• Tiered assignments • Flexible grouping • Independent projects • Learning Centers
Differentiated Instructional Methods: *(Multiple means for students to access content and multiple modes for student to express*	**Access** (Resources and/or Process) • Library area: books & resources available for student exploration. • Experiments on display • Center Exploration • Promethean board for student & teacher discussions • iPads (science apps)		**Expression** (Products and/or Performance) • Daily center activities • Journaling • Science lessons • Presentations/Peer Sharing	

understanding)		
Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	● Tier Two- alike, different, main idea, details, observation, human, needs, wants, ● Tier Three- hypothesis, experiment, seasonal, warming, effect, life cycle, health, body systems, relationship, evidence, reduce, reuse, recycle	
Integration of Technology SAMR	**Substitution** ● View Videos on Brain Pop Jr. ○ Reduce, Reuse, Recycle ○ Natural Resources ○ Trees ○ Food Chain ● View Mystery Science videos ○ Muscles & Skeleton ○ Light, Eyes, & Vision ○ Brain, Nerves, & Information Processing Structure and Function of Eyes ● View Mystery Doug Videos ○ Why do we need blood? ○ How is plastic made? ○ What is the biggest tree in the world? **Augmentation:** ● Students will take a quiz following the jr.brainpop.com videos. ● Students will use an ipad to explore scientific concepts **Modification:** ● Seesaw program. Assignments can be differentiated according to individual level **Redefinition:**	

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- Students will model the importance of specific systems in the human body

</td></tr>
<tr><td>Interdisciplinary Connections
NJ Student Learning Standards</td><td colspan="2">

ELA:

- W.K.2- Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS3-3)
- RI.2.1- Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1)
- W.2.6- With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1)
- W.2.8- Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1)

Math:

- MP.2- Reason abstractly and quantitatively. (K-2-ETS1-1)
- MP.4- Model with mathematics. (K-2-ETS1-1)
- MP.5- Use appropriate tools strategically. (K-2-ETS1-1)
- 2.MD.D.10- Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1)

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Resources /Materials	● Mystery Science ● Brain Pop Jr. ● Mystery Doug ● Journals