Quinton Township School District
Science
Kindergarten
Pacing Guide

Unit	1	**Unit Title:**	Pushes and Pulls	**Pacing:**	36 Days

Unit Summary: During this unit of study, students apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. The crosscutting concept of cause and effect is called out as the organizing concept for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in planning and carrying out investigations and analyzing and interpreting data. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Essential Questions:

What happens if you push or pull an object harder?

Objectives:

- Explain that things can move, and that when they do, they are in motion.
- Identify various types of motion.
- Identify that pushes can have different strengths and directions.
- Explain that a bigger push makes things speed up or slow down more quickly.
- Observe and record how the strength of a push can change motion.
- Observe that a bigger push makes things speed up or slow down more quickly.
- Identify that pulls can have different strengths and directions.
- Observe and record how the strength of a pull can change motion. Observe that a stronger pull makes things speed up or slow down more quickly.
- Observe and record how pushing and pulling on an object can change the direction of its motion and can start or stop it. Identify when objects touch or collide, they push on one another and can change motion.
- Identify that pushing or pulling on an object can change the direction of its motion. Explain that when objects touch or

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collide, they push on one another and can change motion.

- Observe and record how pushing and pulling on an object can change the direction of its motion. Identify that when objects touch or collide, they push on one another and can change motion.
- 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.
- 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.
- Connect concepts about forces and motion with the career of pilots.

NJSLS-Science Standards
K-PS2-1
K-PS2-2
K-2 ETS1-3

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Planning and Carrying Out Investigations With guidance, plan and conduct an investigation in collaboration with peers. **Analyzing and Interpreting Data** Analyze data from tests of an object or tool to determine if it works as intended. **Asking Questions and Defining Problems** Ask questions based on observations to find more information about the natural and/or designed world(s). Define a simple problem that can be solved through the development of a new or improved object or tool.	**PS2.A: Forces and Motion** Pushes and pulls can have different strengths and directions. Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. **PS2.B: Types of Interactions** When objects touch or collide, they push on one another and can change motion. **PS3.C: Relationship Between Energy and Forces** A bigger push or pull makes things speed up or slow down more quickly.	**Cause and Effect** Simple tests can be designed to gather evidence to support or refute student ideas about causes. **Structure and Function** The shape and stability of structures of natural and designed objects are related to their function(s).

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Developing and Using Models Develop a simple model based on evidence to represent a proposed object or tool.	**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. **ETS1.A: Defining and Delimiting Engineering Problems** A situation that people want to change or create can be approached as a problem to be solved through engineering.	
Interdisciplinary Connections: W.IW.K.2, W.WR.K.5		
Career Readiness, Life Literacies, and Key Skills: 9.4.2.CI.1, 9.4.2.CT.2, 9.4.2.CT.3		
Computer Science and Design Thinking: 8.1.2.DA.3		
Career Education: 9.2.2.CAP.1, 9.2.2.CAP.2		

Overview of Activity/Focus	Instructional Materials	Technology Infusion

• With guidance, collaboratively plan and conduct investigations to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object, including
  ○ A string attached to an object being pulled.
  ○ A person pushing an object.
  ○ A person stopping a rolling ball.
  ○ Two objects colliding and pushing on each other.
• With guidance, collaboratively plan and create a project
	Core Materials
	National Geographic Science
	
	Supplemental Resources
	Mystery Science
	Little Science Thinkers
	PBS Learning Media
	NatGeo Science
		Smart Board Applications
		Google Applications
		Chromebooks
		Gizmo
		IXL

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such as a marble maze that uses pushes and pulls.		

Assessments	
Formative Assessments ● Class Discussions ● Self Assessment	**Summative Assessments** ● Post-investigation Oral Assessments ● Final Project
Benchmark Assessments ● District-assigned Benchmark Assessments (e.g. LinkIt, content-specific benchmarks)	**Alternative Assessments** ● Alternative Choice Projects ● Oral Assessments

Differentiation			
Special Education	**MLL**	**At Risk**	**Gifted and Talented**
• **Modify and accommodate as listed in student IEP or 504 plan.** • **Utilize wait time effectively.** • **Communicate clear, concise directions and repeat, reword, modify as necessary.** • **Use visual aids during lessons and small-group time.** • **Utilize open-ended questioning techniques.** • **Utilize extended time and/or reduce number of items given for homework, quizzes, and tests.** • **Vary formative assessment styles to drive next point of instruction.** • **Create modified assessments.**	• **Basic Skills Instruction** • **Speech/Language Therapy** • **Rosetta Stone** • **Provide English/Native Language Dictionary for use.** • **Place with native-language-speaking teacher/paraprofessional as available.** • **Use target words and cognates to understand texts.** • **Remind students to underline passages and list words they don't understand.** • **Learn/Utilize/Display some words in the students' native language.** • **Provide and model sentence frames to help students participate in discussion.** • **Provide word banks to help**	• **Basic Skills Instruction** • **Provide after-school tutoring services.** • **Hold fall and spring parent conferences.** • **Make modifications to instructional plans based on I and RS Plan.** • **Utilize wait time effectively.** • **Develop a record system to encourage good behavior and completion of work.** • **Utilize scaffolding to support instruction.** • **Provide counseling if necessary to help students cope with challenges.** • **Utilize strategic grouping with a positive academic role model.** • **Utilize graphic organizers.**	• **Allow self-directed learning for growth though independent projects.** • **Challenge students with age-appropriate texts at higher reading levels.** • **Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge.** • **Provide for the development of self-understanding of one's relationships with people, societal institutions, nature and culture.**

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• **Allow students to utilize online audio books, when appropriate.** • **Allow for collaboration through strategically selected groups.** • **Utilize assistive technology as appropriate.** • **Utilize graphic organizers.** • **Provide and model sentence frames/sentence starters.** • **Utilize manipulatives as necessary.** • **Provide breaks to allow for refocusing as necessary.**	**students write.** • **Translate printed communications in native language for parents.** • **Hold conferences with translator present.**		

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Quinton Township School District
Science
Kindergarten

Unit	2	**Unit Title:**	Plants and Animals	**Pacing:**	36 Days

Unit Summary: In this unit of study, students develop an understanding of what plants and animals need to survive and the relationship between their needs and where they live. Students compare and contrast what plants and animals need to survive and the relationship between the needs of living things and where they live. The crosscutting concepts of patterns and systems and system models are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in developing and using models, analyzing and interpreting data, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas. This unit will also explore how climate changes can impact plants and animals. #

Essential Questions:

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

Objectives:

- Define "living."
- Explain that living things are alive and they grow and change.
- Identify plants as living things.
- Explain that plants need water and light to live and grow.
- Explain that living things live in places that have the things that they need.
- Identify that plants need water, air, and resources from the land.
- Explain that plants live in places that have the things they need to live.
- Identify animals as living things.
- Explain that animals need water and air to live and grow.
- Explain that animals live in places that have the things they need.
- Identify that animals need water, air, and resources from the land, and live in places that have the things they need.

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- Explain that animals need food in order to live and grow, and that they obtain their food from plants or from other animals.
- Use observations to describe patterns of what plants and animals need to survive.

NJSLS-Science Standards
K-LS1-1
K-ESS3-1
K-ESS2-2

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Planning and Carrying Out Investigations With guidance, plan and conduct an investigation in collaboration with peers. **Analyzing and Interpreting Data** Analyze data from tests of an object or tool to determine if it works as intended. **Developing and Using Models** Use a model to represent relationships in the natural world. **Engaging in Argument from Evidence** Construct an argument with evidence to support a claim.	**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. **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. **ESS2.E: Biogeology** Plants and animals can change their environment.	**Patterns** Patterns in the natural and human designed world can be observed and used as evidence. **Systems and System Models** Systems in the natural and designed world have parts that work together.

Interdisciplinary Connections: W.IW.K.2, W.WR.K.5, K.DL.A.1

Career Readiness, Life Literacies, and Key Skills: 9.4.2.CI.1, 9.4.2.CT.1, 9.4.2.CT.2, 9.4.2.CT.3

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Computer Science and Design Thinking: : 8.1.2.DA.3

Overview of Activity/Focus	Instructional Materials	Technology Infusion
• With guidance, record characteristics of animal and plant habitats and behavior, collecting observations from nature walks or videos. • After reading stories or watching videos, group plants and animals together based upon their similar environmental needs (water, sunlight) and the availability of their preferred food sources. • With guidance, collaboratively develop a simple model showing living things in a meadow and how those living things meet their needs in the meadow. • Watch videos about how animals such as polar bears are endangered by climate change.#	**Core Materials** *National Geographic Science* **Supplemental Resources** Mystery Science videos & activities Little Science Thinkers PBS Learning Media NatGeo Science PBS video "Is It Alive?" TeacherTube video "Living or Non-Living?"	Smart Board Applications Google Applications Chromebooks Gizmo IXL

Assessments	
Formative Assessments • Class Discussions • Recorded Observations of Plants and Animals • Exit Tickets • Journal Responses	**Summative Assessments** • Post-investigation Oral Assessments • Unit Assessment
Benchmark Assessments • District-assigned Benchmark Assessments (e.g. LinkIt, content-specific benchmarks)	**Alternative Assessments** • Alternative Choice Projects • Oral Assessments
Differentiation	

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Special Education	MLL	At Risk	Gifted and Talented
• Modify and accommodate as listed in student IEP or 504 plan. • Utilize wait time effectively. • Communicate clear, concise directions and repeat, reword, modify as necessary. • Use visual aids during lessons and small-group time. • Utilize open-ended questioning techniques. • Utilize extended time and/or reduce number of items given for homework, quizzes, and tests. • Vary formative assessment styles to drive next point of instruction. • Create modified assessments. • Allow students to utilize online audio books, when appropriate. • Allow for collaboration through strategically selected groups. • Utilize assistive technology as appropriate. • Utilize graphic organizers. • Provide and model sentence frames/sentence starters. • Utilize manipulatives as necessary. • Provide breaks to allow for refocusing as necessary.	• Basic Skills Instruction • Speech/Language Therapy • Rosetta Stone • Provide English/Native Language Dictionary for use. • Place with native-language-speaking teacher/paraprofessional as available. • Use target words and cognates to understand texts. • Remind students to underline passages and list words they don't understand. • Learn/Utilize/Display some words in the students' native language. • Provide and model sentence frames to help students participate in discussion. • Provide word banks to help students write. • Translate printed communications in native language for parents. • Hold conferences with translator present.	• Basic Skills Instruction • Provide after-school tutoring services. • Hold fall and spring parent conferences. • Make modifications to instructional plans based on I and RS Plan. • Utilize wait time effectively. • Develop a record system to encourage good behavior and completion of work. • Utilize scaffolding to support instruction. • Provide counseling if necessary to help students cope with challenges. • Utilize strategic grouping with a positive academic role model. • Utilize graphic organizers.	• Allow self-directed learning for growth though independent projects. • Challenge students with age-appropriate texts at higher reading levels. • Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge. • Provide for the development of self-understanding of one's relationships with people, societal institutions, nature and culture.

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Unit	3	**Unit Title:**	People & Our Environment	**Pacing:**	36 Days

Unit Summary: In this unit of study, students develop an understanding of what humans need to survive and the relationship between their needs and where they live. The crosscutting concept of cause and effect is called out as the organizing concept for the disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, and in obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas. This unit will also examine how humans impact the environment and explore the role of wildlife experts. #

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?

Objectives:

- Identify how plants and animals can change their environment.
- Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
- Explain that humans use natural resources for everything they do.
- Explain how things that people do to live can affect the world around them.
- Identify choices that people can make that reduce their impacts on the land, water,air, and other living things.
- Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.
- Understand how scientists such as wildlife experts look for patterns and order when making observations about the world.

NJSLS-Science Standards

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K-ESS3-3
K-2 ETS1-1

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Planning and Carrying Out Investigations With guidance, plan and conduct an investigation in collaboration with peers. **Obtaining, Evaluating, and Communicating Information** Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. **Asking Questions and Defining Problems** Ask questions based on observations to find more information about the natural and/or designed world(s).	**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. **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. **ETS1.A: Defining and Delimiting Engineering Problems** A situation that people want to change or create can be approached as a problem to be solved through engineering. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem.	**Cause and Effect** Events have causes that generate observable patterns. **Structure and Function** The shape and stability of structures of natural and designed objects are related to their function(s).

Interdisciplinary Connections: W.SE.K.6, SL.PE.K.1, K.DL.A.1, 6.1.2.CivicsCM.2

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Career Readiness, Life Literacies, and Key Skills: 9.1.2.CR.1, 9.4.2.CT.1, 9.4.2.CT.2		
Computer Science and Design Thinking: 9.4.2.DC.7, 8.1.2.DA.1		
Career Education: 9.2.2.CAP.1, 9.2.2.CAP.2		
Overview of Activity/Focus	**Instructional Materials**	**Technology Infusion**
• As a class, create a list of what is needed for a comfortable day. • After reading stories or watching videos about human impact on the environment and natural resources, develop strategies that can lessen negative impacts. • Discuss the role of wildlife experts in determining human impact on animals and habitats. • With guidance, collaborate in groups to develop a simple plan for bettering the school environment by reducing impact on resources. # • Communicate group solutions with the class in oral and/or written form, using sketches, drawings, diagrams, or models to help explain how the solution reduces the human impact on the environment. #	**Core Materials** *National Geographic Science* **Supplemental Resources** Mystery Science videos & activities Little Science Thinkers PBS Learning Media NatGeo Science Nat Geo video Humans on Earth The Clean Water Book: NJ SEEDS	Smart Board Applications Google Applications Chromebooks Gizmo IXL
Assessments		
Formative Assessments • Class Discussions • Recorded Observations of Life Comforts and Resources • Exit Tickets • Journal Responses	**Summative Assessments** • Group Project Presentations • Post-investigation Oral Assessments • Unit Assessment	

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Benchmark Assessments ● District-assigned Benchmark Assessments (e.g. LinkIt, content-specific benchmarks)	**Alternative Assessments** ● Alternative Choice Projects ● Oral Assessments

Differentiation			
Special Education	**MLL**	**At Risk**	**Gifted and Talented**
● **Modify and accommodate as listed in student IEP or 504 plan.** ● **Communicate clear, concise directions and repeat, reword, modify as necessary.** ● **Use visual aids in instruction.** ● **Utilize extended time and/or reduce number of items given for homework, quizzes, and tests.** ● **Vary formative assessment styles to drive next point of instruction.** ● **Create modified assessments.** ● **Allow students to utilize online audio books, when appropriate.** ● **Utilize assistive technology as appropriate.** ● **Utilize graphic organizers.** ● **Provide and model sentence frames/sentence starters.** ● **Utilize manipulatives as necessary.** ● **Provide breaks to allow for refocuing as necessary.**	● **Basic Skills Instruction** ● **Speech/Language Therapy** ● **Rosetta Stone** ● **Provide English/Native Language Dictionary for use.** ● **Place with native-language-speaking teacher/paraprofessional as available.** ● **Use target words and cognates to understand texts.** ● **Remind students to underline passages and list words they don't understand.** ● **Learn/Utilize/Display some words in the students' native language.** ● **Provide and model sentence frames to help students participate in discussion.** ● **Provide word banks to help students write.** ● **Translate printed communications in native language for parents.** ● **Hold conferences with translator present.**	● **Basic Skills Instruction** ● **Provide after-school tutoring services.** ● **Hold fall and spring parent conferences.** ● **Make modifications to instructional plans based on I and RS Plan.** ● **Utilize wait time effectively.** ● **Develop a record system to encourage good behavior and completion of work.** ● **Utilize scaffolding to support instruction.** ● **Provide counseling if necessary to help students cope with challenges.** ● **Utilize strategic grouping with a positive academic role model.** ● **Utilize graphic organizers.**	● **Allow self-directed learning for growth though independent projects.** ● **Challenge students with age-appropriate texts at higher reading levels.** ● **Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge.** ● **Provide for the development of self-understanding of one's relationships with people, societal institutions, nature and culture.**

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Unit	4	**Unit Title:**	Energy & The Sun	**Pacing:**	36 Days

Unit Summary: During this unit of study, students apply an understanding of the effects of the sun on the Earth's surface. The crosscutting concepts of cause and effect and structure and function are called out as organizing concepts for this disciplinary core idea. Students are expected to demonstrate grade-appropriate proficiency in developing and using models; planning and carrying out investigations; analyzing and interpreting data; and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Essential Questions:

How can we use science to keep a playground cool in the summertime?

Objectives:

- Identify the sun as the object that warms Earth's land, water, and air.
- Evaluate the effect of sunlight on soil, sand, rocks, and water.
- Evaluate the effect of sunlight on everyday items.
- Collect daily weather data and analyze the sun's impact on class actions.
- Work with a group to design and build a structure that will reduce the warming effect of sunlight on an area.

NJSLS-Science Standards
K-PS3-1, K-PS3-2, K-2-ETS1-1, K-2-ETS1-2, and K-2-ETS1-3

Science and Engineering Practices	**Disciplinary Core Ideas**	**Crosscutting Concepts**
Analyzing and Interpreting Data Analyze data from tests of an object or tool to determine if it works as intended.	PS3.B: Conservation of Energy and Energy Transfer Sunlight warms Earth's surface.	Cause and Effect Events have causes that generate observable patterns.

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Obtaining, Evaluating, and Communicating Information Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. **Planning and Carrying Out Investigations** With guidance, plan and conduct an investigation in collaboration with peers. **Asking Questions and Defining Problems** Ask questions based on observations to find more information about the natural and/or designed world(s). Define a simple problem that can be solved through the development of a new or improved object or tool.	**ETS1.A: Defining and Delimiting Engineering Problems** A situation that people want to change or create can be approached as a problem to be solved through engineering. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem. **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)* **ETS1.C: Optimizing the Design Solution** Because there is always more than one possible solution to a problem, it is useful to compare and test designs.	**Structure and Function** The shape and stability of structures of natural and designed objects are related to their function(s).
Interdisciplinary Connections: W.WR.K.5, SL.PE.K.1, 6.1.2.CivicsCM.2		
Career Readiness, Life Literacies, and Key Skills: 9.1.2.FP.2, 9.4.2.CT.1, 9.4.2.CT.2		
Computer Science and Design Thinking: 9.4.2.DC.7, 8.1.2.DA.1, 8.1.2.AP.4		
Overview of Activity/Focus	**Instructional Materials**	**Technology Infusion**

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• As a class, chart daily weather, and discuss how human and animal actions change in response to weather. • Conduct a shadow walk outside or in the classroom and record observations about light. • Conduct an investigation of the warming effect of sunlight by testing how paper plates of sand, soil, rocks, and water heat in direct sunlight and out of direct sunlight. Compare the relative temperature of each sample. • Utilize the engineering and design process to design and build a structure that will reduce the warming effects of the sun, such as a structure that can keep an ice cube from melting on the playground.	**Core Materials** *National Geographic Science* **Supplemental Resources** Mystery Science videos & activities Little Science Thinkers PBS Learning Media NatGeo Science Lesson: Warmth of the Sun Lesson: Casting Shadows Across Literacy and Science Lesson: Cooler in Shadows Song & Video Shadow Smile! Sid the Science Kid	Smart Board Applications Google Applications Chromebooks Gizmo IXL
Assessments		
Formative Assessments • Class Discussions • Recorded Observations of Weather and Reactions • Design Process Discussions and Prototype Drafts • Exit Tickets • Journal Responses	**Summative Assessments** • Completed Project and Data • Post-investigation Oral Assessments • Unit Assessment	
Benchmark Assessments • District-assigned Benchmark Assessments (e.g. LinkIt, content-specific benchmarks)	**Alternative Assessments** • Alternative Choice Projects • Oral Assessments	

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Differentiation			
Special Education	**MLL**	**At Risk**	**Gifted and Talented**
• Modify and accommodate as listed in student IEP or 504 plan. • Communicate clear, concise directions and repeat, reword, modify as necessary. • Use visual aids in instruction. • Utilize extended time and/or reduce number of items given for homework, quizzes, and tests. • Vary formative assessment styles to drive next point of instruction. • Create modified assessments. • Allow students to utilize online audio books, when appropriate. • Allow for collaboration through strategically selected groups. • Utilize assistive technology as appropriate. • Utilize graphic organizers. • Provide and model sentence frames/sentence starters. • Utilize manipulatives as necessary. • Provide breaks to allow for refocusing as necessary.	• Basic Skills Instruction • Speech/Language Therapy • Rosetta Stone • Provide English/Native Language Dictionary for use. • Place with native-language-speaking teacher/paraprofessional as available. • Use target words and cognates to understand texts. • Remind students to underline passages and list words they don't understand. • Learn/Utilize/Display some words in the students' native language. • Provide and model sentence frames to help students participate in discussion. • Provide word banks to help students write. • Translate printed communications in native language for parents. • Hold conferences with translator present.	• Basic Skills Instruction • Provide after-school tutoring services. • Hold fall and spring parent conferences. • Make modifications to instructional plans based on I and RS Plan. • Utilize wait time effectively. • Develop a record system to encourage good behavior and completion of work. • Utilize scaffolding to support instruction. • Provide counseling if necessary to help students cope with challenges. • Utilize strategic grouping with a positive academic role model. • Utilize graphic organizers.	• Allow self-directed learning for growth though independent projects. • Challenge students with age-appropriate texts at higher reading levels. • Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge. • Provide for the development of self-understanding of one's relationships with people, societal institutions, nature and culture.

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Unit	5	**Unit Title:**	Weather	**Pacing:**	36 Days

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

Note: Unlike other science units, the Weather unit is intended to become a part of the classroom routine throughout the year. Some weather patterns are not obvious unless the students collect data over long periods of time. For example, in some locations it is sunnier during some parts of a year than others. The temperature outside will change from fall, winter, spring, to summer. Also, during some periods, the weather data should be recorded in the morning and then again in the afternoon. Students will be able to observe patterns in temperature through the course of the day.

Essential Questions:
What is the weather like today and how is it different from yesterday?
How can someone predict what the weather will be tomorrow?

Objectives:
- Explain that weather is what the air is like outside.
- Describe how weather influences people's actions.
- Describe different types of weather: sunny, windy, cloudy, rainy, snowy.
- Infer weather from visual evidence without going outside such as whether the wind is blowing.
- Observe local weather patterns to describe patterns over time.

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- Describe weather patterns.
- Describe and compare two kinds of severe weather - thunderstorms and tornadoes, blizzards and hurricanes.
- Describe ways communities help one another after severe weather.
- Ask questions about weather forecasts to find out how to solve the problem of staying safe from severe weather.
- Connect weather patterns with the career of a weather expert.

NJSLS-Science Standards
K-ESS2-1, K-ESS3-2, K-2-ETS1-1

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Planning and Carrying Out Investigations With guidance, plan and conduct an investigation in collaboration with peers. **Asking Questions and Defining Problems** Ask questions based on observations to find more information about the natural and/or designed world(s). Define a simple problem that can be solved through the development of a new or improved object or tool. **Developing and Using Models** Develop a simple model based on evidence to represent a proposed object or tool. **Analyzing and Interpreting Data** Analyze data from tests of an object or tool to determine if it works as intended.	**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. **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. **ETS1.A: Defining and Delimiting Engineering Problems** A situation that people want to change or create can be approached as a problem to be solved through engineering.	**Cause and Effect** Events have causes that generate observable patterns. **Patterns** Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.

	Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem.	

Interdisciplinary Connections: W.WR.K.5, SL.PE.K.1, K.DL.A.1, 6.1.2.CivicsCM.2

Career Readiness, Life Literacies, and Key Skills: 9.1.2.CR.1, 9.1.2.CR.2, 9.4.2.CT.1, 9.4.2.CT.2

Computer Science and Design Thinking: 9.4.2.DC.7, 9.4.2.TL.7, 8.1.2.IC.1, 8.1.2.DA.4

Career Education: 9.2.2.CAP.1, 9.2.2.CAP.2

Overview of Activity/Focus	Instructional Materials	Technology Infusion
• As a class, chart daily weather, and discuss how human and animal actions change in response to weather. • Generate lists of how people respond to everyday weather (clothing, activities…). • Watch multimedia to learn about weather patterns and severe weather. • Compare and contrast different types of severe weather and review safety precautions for severe weather. • Identify ways communities help one another after severe weather by looking at local or national events. • Periodically assess daily weather data to identify short-term and long-term weather patterns. • Watch a video on weather forecasting careers, discussing the education and responsibilities of the job.	**Core Materials** *National Geographic Science* **Supplemental Resources** Mystery Science videos & activities Little Science Thinkers PBS Learning Media NatGeo Science Lesson: Watching Weather Lesson: Weather Patterns Lesson: Weather Walks Lesson: About the Weather	Smart Board Applications Google Applications Chromebooks Gizmo IXL Weather Whiteboard Interactive

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• Make a weather poster with tips for one type of weather.		

Assessments	
Formative Assessments • Class Discussions • Recorded Observations of Weather and Reactions • Exit Tickets • Journal Responses	**Summative Assessments** • Weather Posters • Post-investigation Oral Assessments • Unit Assessment
Benchmark Assessments • District-assigned Benchmark Assessments (e.g. LinkIt, content-specific benchmarks)	**Alternative Assessments** • Alternative Choice Projects • Oral Assessments

Differentiation			
Special Education	**MLL**	**At Risk**	**Gifted and Talented**
• **Modify and accommodate as listed in student IEP or 504 plan.** • **Communicate clear, concise directions and repeat, reword, modify as necessary.** • **Use visual aids in instruction.** • **Utilize extended time and/or reduce number of items given for homework, quizzes, and tests.** • **Vary formative assessment styles to drive next point of instruction.** • **Create modified assessments.** • **Allow students to utilize online audio books, when**	• **Basic Skills Instruction** • **Speech/Language Therapy** • **Rosetta Stone** • **Provide English/Native Language Dictionary for use.** • **Place with native-language-speaking teacher/paraprofessional as available.** • **Use target words and cognates to understand texts.** • **Remind students to underline passages and list words they don't understand.** • **Learn/Utilize/Display some words in the students' native language.** • **Provide and model sentence**	• **Basic Skills Instruction** • **Provide after-school tutoring services.** • **Hold fall and spring parent conferences.** • **Make modifications to instructional plans based on I and RS Plan.** • **Utilize wait time effectively.** • **Develop a record system to encourage good behavior and completion of work.** • **Utilize scaffolding to support instruction.** • **Provide counseling if necessary to help students cope with challenges.** • **Utilize strategic grouping with**	• **Allow self-directed learning for growth though independent projects.** • **Challenge students with age-appropriate texts at higher reading levels.** • **Allow for the development and application of productive thinking skills to enable students to re-conceptualize existing knowledge and/or generate new knowledge.** • **Provide for the development of self-understanding of one's relationships with people, societal institutions, nature and culture.**

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appropriate. • **Allow for collaboration through strategically selected groups.** • **Utilize assistive technology as appropriate.** • **Utilize graphic organizers.** • **Provide and model sentence frames/sentence starters.** • **Utilize manipulatives as necessary.** • **Provide breaks to allow for refocusing as necessary.**	**frames to help students participate in discussion.** • **Provide word banks to help students write.** • **Translate printed communications in native language for parents.** • **Hold conferences with translator present.**	**a positive academic role model.** • **Utilize graphic organizers.**	

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