Quinton Township School District
Science
Grade 3
Pacing Guide

Unit	1	**Unit Title:**	Weather and Climate	**Pacing:**	26 Days

Unit Summary: In this unit of study, students organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. The crosscutting concepts of *patterns, cause and effect*, and the *influence of engineering, technology, and science on society and the natural world* are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in a*sking questions and defining problems, analyzing and interpreting data, engaging in argument from evidence*, and *obtaining, evaluating, and communicating information*. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Essential Questions:

What is the typical weather near our home?
How can we protect people from weather-related hazards?

Objectives:

- Define and describe weather; explain that weather changes over time.
- Identify and describe instruments that are used to measure weather and the weather data that these instruments measure.
- Measure and record two types of changes in weather - wind, speed and air temperature; analyze weather data and interpret patterns to construct reasonable explanations from the data.
- Use a map key to interpret the symbols and colors used on a weather map; make weather predictions using weather maps.
- Identify the sequence of seasons; describe patterns of change in the seasons over time.
- Analyze data to identify sequences of seasons over time; analyze data to predict patterns of change in seasons over time.
- Represent data in graphical displays to describe typical weather conditions during a particular season; compare and contrast

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data to find patterns of change for different seasons.

- Define climate; differentiate between weather and climate; explore the different climate zones of the United States.
- Obtain and combine information to describe climates in different regions of the world; analyze the information to draw conclusions.
- Identify and describe a variety of natural hazards such as thunderstorms, hurricanes, and floods; describe some of the imparts of natural hazards.
- Describe how humans can reduce the impact of flooding, wind, and lightning.
- Conceptualize a house design that reduces the impacts of a weather-related event; identify the merits of the design solution.
- Connect the concept of weather with the career of a severe-storms researcher.

NJSLS-Science Standards: 3-ESS2-1, 3-ESS2-2, 3-ESS3-1, and 3-5-ETS1-1

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Planning and Carrying Out Investigations Plan and conduct investigations collaboratively to produce evidence to answer a question. **Analyzing and Interpreting Data** Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. **Engaging in Argument from Evidence** Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.	**Weather and Climate** Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. **Natural Hazards** A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.	**Patterns** Patterns can be used as evidence to support an explanation. **Cause and Effect** Cause and effect relationships are routinely identified, tested, and used to explain change.

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Obtaining, Evaluating, and Communicating Information Obtain and combine information from books and other reliable media to explain phenomena.		

Interdisciplinary Connections: W.WR.3.5, SL.PE.3.1, 3.DL.A.1, 3.DL.A.2

Career Readiness, Life Literacies, and Key Skills: 9.4.5.CI.3, 9.4.5.CT.1,9.4.5.CT.3, 9.4.5.CT.4

Computer Science and Design Thinking: 9.4.5.IML.2, 9.4.5.IML.3, 9.4.5.IML.6, 9.4.5.IML.7

Career Education: 9.2.5.CAP.4

Overview of Activity/Focus	Instructional Materials	Technology Infusion
• Using tools such as thermometers, anemometers, rain gauges, collect firsthand data and use multiple resources (e.g., Weather Bug, NOAA) to compare with weather data collected over longer periods of time. • Create graphical displays of data and analyze data, looking for patterns of change that can be used to make predictions about typical weather conditions for a particular region and time of year. • Use long-term patterns in weather to describe climates in a variety of regions around the world. • Research with trade books and media resources severe weather hazards and their effects on communities, finding examples of how communities solve problems	**Core Materials** *National Geographic Science* **Supplemental Resources** Mystery Science Little Science Thinkers PBS Learning Media NatGeo Science NW Weather Service NOAA Educational Resources	Smart Board Applications Google Applications Chromebooks Gizmo IXL

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caused by severe weather. ● In pairs or small groups, research ways that the Gloucester City community reduces the effects of severe weather. ● Create a presentation of community efforts. ● Through the media, examine careers of severe storm researchers.		

Assessments	
Formative Assessments ● Class Discussions ● Self Assessment ● Science Investigation Data Collections	**Summative Assessments** ● Presentations ● 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.** ● **Communicate clear, concise directions and repeat, reword, modify as necessary.** ● **Use visual aids in lessons.** ● **Utilize extended time and/or reduce item number for homework and tests.** ● **Vary formative assessment**	● **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.**	● **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**	● **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**

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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.	• 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.	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.	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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Quinton Township School District
Science
Grade 3

Unit	2	**Unit Title:**	Forces and Motion	**Pacing:**	25 Days

Unit Summary: In this unit of study, students are able to determine the effects of balanced and unbalanced forces on the motion of an object. The crosscutting concepts of *patterns* and *cause and effect* are identified as organizing concepts for these disciplinary core ideas. In the third-grade performance expectations, students are expected to demonstrate grade-appropriate proficiency by planning and carrying out investigations. Students use these practices to demonstrate understanding of the core ideas.

Essential Questions:

How do equal and unequal forces on an object affect the object?

Objectives:

- Define a force as a push or a pull on an object; know that every force has a strength and direction.
- Recognize that objects in contact exert forces on each other; define balanced force and net force.
- Define unbalanced forces; describe the effects of net force.
- Recognize that forces can change an object's speed or direction.
- Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
- Identify the pattern of an object's motion; define regular motion.
- Observe and measure the pattern of an object's motion; predict the future motion of an object moving in a regular motion.
- Make observations and measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

NJSLS-Science Standards: 3-PS2-1, 3-PS2-2, 3-PS2-3, 3-PS2-4

Science and Engineering Practices	**Disciplinary Core Ideas**	**Crosscutting Concepts**

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Planning and Carrying Out Investigations Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.	**Forces and Motion** Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. The patterns of an object's motion in various situations can be observed and measured; when past motion exhibits a regular pattern, future motion can be predicted from it. **Types of Interactions** Objects in contact exert forces on each other.	**Patterns** Patterns can be used as evidence to support an explanation. **Cause and Effect** Cause and effect relationships are routinely identified, tested, and used to explain change. - **Connections to Nature of Science** **Science Knowledge is Based on Empirical Evidence** Science findings are based on recognizing patterns. **Scientific Investigations Use a Variety of Methods** Science investigations use a variety of methods, tools, and techniques.

Interdisciplinary Connections: W.WR.3.5, SL.PE.3.1, 3.DL.A.1, 3.DL.A.2

Career Readiness, Life Literacies, and Key Skills: 9.4.5.CI.3, 9.4.5.CT.1,9.4.5.CT.3, 9.4.5.CT.4

Computer Science and Design Thinking: 9.4.5.IML.2, 9.4.5.IML.3, 9.4.5.IML.6, 9.4.5.IML.7

Career Education: 9.2.5.CAP.4

Overview of Activity/Focus	Instructional Materials	Technology Infusion
• Observe everyday examples of force and motion on the playground, with seesaws and swings and by kicking and	**Core Materials** *National Geographic Science*	Smart Board Applications Google Applications

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<table>
<tr>
<td>throwing soccer balls, identifying the cause-and-effect relationships at work and the objects exerting forces on one another. Use qualitative descriptions when identifying the relative strength (greater than, less than, equal) and direction of the forces, even if an object is at rest.
● Ask questions and analyze and interpret data to identify patterns of change in the motion of objects and to make predictions about an object's future motion. This can be done on the playground (back-and-forth motion of a child swinging on a swing or in the up-and-down motion of a seesaw) or in the classroom (marbles rolling back and forth in bowls or tops spinning across the floor).
● Create predictions and conjectures based on investigations.</td>
<td>Supplemental Resources
Mystery Science videos & activities
Little Science Thinkers
PBS Learning Media
NatGeo Science
Project: Robo Arm
Lessons: K5 Learning</td>
<td>Chromebooks
Gizmo
IXL</td>
</tr>
<tr><td colspan="3">Assessments</td></tr>
<tr>
<td colspan="2">Formative Assessments
● Class Discussions
● Investigation Data
● Exit Tickets
● Journal Responses</td>
<td>Summative Assessments
● Predictions, Data, and Results
● Post-investigation Oral Assessments
● Unit Assessment</td>
</tr>
<tr>
<td colspan="2">Benchmark Assessments
● District-assigned Benchmark Assessments (e.g. LinkIt, content-specific benchmarks)</td>
<td>Alternative Assessments
● Alternative Choice Projects
● Oral Assessments</td>
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<tr><td colspan="3">Differentiation</td></tr>
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Special Education	MLL	At Risk	Gifted and Talented
• Modify and accommodate as 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.	• 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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Quinton Township School District
Science
Grade 3

Unit	3	**Unit Title:**	Electrical and Magnetic Forces	**Pacing:**	23 Days

Unit Summary: In this unit of study, students determine the effects of balanced and unbalanced forces on the motion of an object and the cause-and-effect relationships of electrical or magnetic interactions to define a simple design problem that can be solved with magnets. The crosscutting concept of *cause and effect*, and the *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 these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in *asking questions and defining problems*. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Essential Questions:

How can we use our understanding about magnets to solve problems?

Objectives:

- Identify magnetic force as a force that can act at a distance; recognize that the forces between two magnets depend on their orientation relative to each other.
- Identify evidence that magnetic forces do not require that objects be in contact; observe the effects of a magnet's distance apart from an object, and orientation on the force it exerts.
- Identify evidence that electromagnets can exert a force without being in contact with an object; change the size of force produced by an electromagnet.
- Identify electric force as a force that can act at a distance; recognize that the electric force between two objects depends on the properties of the objects; observe the effect of distance on the force exerted by a charged object.
- Identify evidence that electric forces between a pair of objects do not require that the objects be in contact; observe attractive and repulsive effects of electric forces.
- Ask questions to determine cause-and-effect relationships of electric or magnetic interactions between two objects not in

contact with each other.

- Define a design problem that can be solved by applying scientific ideas about magnets; specify criteria for success and constraints on materials, time, or cost.
- Connect concepts about forces, motion, and patterns to the career of a roller coaster designer.

NJSLS-Science Standards: 3-PS2-3, 3-PS2-4, and 3-5-ETS1-1

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Analyzing and Interpreting Data Analyze and interpret data to make sense of phenomena using logical reasoning. **Asking Questions and Defining Problems** Ask questions that can be investigated based on patterns such as cause and effect relationships. Define a simple problem that can be solved through the development of a new or improved object or tool. Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost.	**Types of Interactions** Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other. **Defining and Delimiting Engineering Problems** Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one	**Cause and Effect** Cause and effect relationships are routinely identified, tested, and used to explain change. - **Connections to Engineering, Technology, and Applications of Science** **Interdependence of Science, Engineering, and Technology** Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process.

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	meets the specified criteria for success or how well each takes the constraints into account.	
Interdisciplinary Connections: W.WR.3.5, SL.PE.3.1, 3.DL.A.1, 3.DL.A.2		
Career Readiness, Life Literacies, and Key Skills: 9.4.5.CI.3, 9.4.5.CT.1,9.4.5.CT.3, 9.4.5.CT.4		
Computer Science and Design Thinking: 9.4.5.IML.2, 9.4.5.IML.3, 9.4.5.IML.6, 9.4.5.IML.7		
Career Education: 9.2.5.CAP.4		
Overview of Activity/Focus	**Instructional Materials**	**Technology Infusion**
• Conduct hands-on investigations of electrical and magnetic forces, gathering information about how both work in contact with objects and apart from direct contact. • Follow the engineering and design process to solve problems by applying scientific ideas about magnets. • As a class, create a list of the properties of magnets. • Brainstorm a list of everyday objects that use magnets, and discuss the function of the magnet(s) in each object. • In small groups or pairs, discuss possible everyday problems that might be solved using magnets. For example, they could construct a latch to keep a door shut. • As a class, determine possible criteria that might be used to determine how successful the devices might be, and discuss possible constraints (on materials, time, or cost) that might affect each group's design solution. • Create a presentation (poster, slide show, drawings, or	**Core Materials** *National Geographic Science* **Supplemental Resources** Mystery Science videos & activities PBS Learning Media NatGeo Science Lessons: Science Penguin	Smart Board Applications Google Applications Chromebooks Gizmo IXL

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actual physical model) to share both the design problem and solution with the class. ● Compare different proposals for solutions on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.		

Assessments	
Formative Assessments ● Class Discussions ● Group Investigation Data ● Exit Tickets ● Journal Responses	**Summative Assessments** ● Magnet Project Presentations ● 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.**	● **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.**	● **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**	● **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**

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• **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.**	• **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.**	**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.**	**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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Quinton Township School District
Science
Grade 3

Unit	4	**Unit Title:**	Traits	**Pacing:**	26 Days

Unit Summary: In this unit of study, students acquire an understanding that organisms have different inherited traits and that the environment can also affect the traits that an organism develops. The crosscutting concepts of *patterns* and *cause and effec*t are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency *in analyzing and interpreting data, constructing explanations*, and *designing solutions*. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Essential Questions:

What kinds of traits are passed on from parent to offspring?
What environmental factors might influence the traits of a specific organism?

Objectives:

- Explain how many characteristics of organisms are inherited from their parents.
- Explain that different organisms vary in how they function because they have different inherited information.
- Explain how some characteristics or organisms result from individuals' interactions with the environment; explain that different organisms vary in how they look and function because environmental factors, like diet, weather, and learned behaviors, affect the traits that an organism develops.

NJSLS-Science Standards: 3-LS3-1 and 3-LS3-2

Science and Engineering Practices	**Disciplinary Core Ideas**	**Crosscutting Concepts**
Analyzing and Interpreting Data Analyze and interpret data to make sense of phenomena using logical reasoning.	**Inheritance of Traits** Many characteristics of organisms are inherited from their parents.	**Patterns** Similarities and differences in patterns can be used to sort and classify natural phenomena.

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Constructing Explanations and Designing Solutions Use evidence (e.g., observations, patterns) to support an explanation.	Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. **Variation of Traits** Different organisms vary in how they look and function because they have different inherited information. The environment also affects the traits that an organism develops.	**Cause and Effect** Cause and effect relationships are routinely identified and used to explain change.
Interdisciplinary Connections: W.WR.3.5, SL.PE.3.1, 3.DL.A.1, 3.DL.A.2		
Career Readiness, Life Literacies, and Key Skills: 9.4.5.CI.3, 9.4.5.CT.1,9.4.5.CT.3, 9.4.5.CT.4		
Computer Science and Design Thinking: 9.4.5.IML.2, 9.4.5.IML.3, 9.4.5.IML.6, 9.4.5.IML.7		

Overview of Activity/Focus	Instructional Materials	Technology Infusion
• Observe and record external traits of animals such as body coverings; type, shape, and number of external features; and type, shape, and color of eyes. • Observe and record external traits of plants such as the type of root system or the shape, color, and average size of leaves. • Draw conclusions about parents and their offspring of organisms from the same group. Which traits are	**Core Materials** *National Geographic Science* **Supplemental Resources** Mystery Science videos & activities Little Science Thinkers PBS Learning Media	Smart Board Applications Google Applications Chromebooks Gizmo IXL

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inherited and which are affected by the environment. ● To investigate how the environment influences traits, plant the same type of seedling in different locations, providing variations of light, water, or soil. Collect data about rates of growth, height, and heartiness of the plant. ● Analyze data and make a conjecture about how the environment influenced the traits of the plant.	NatGeo Science Lesson: Guppies, Guppies Everywhere	

Assessments	
Formative Assessments ● Class Discussions ● Recorded Observations ● Exit Tickets ● Journal Responses	**Summative Assessments** ● Completed Conjectures ● 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**	● **Basic Skills Instruction** ● **Speech/Language Therapy** ● **Rosetta Stone** ● **Provide English/Native Language Dictionary for use.** ● **Place with native-language-speaking teacher/paraprofessional as available.**	● **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.**	● **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**

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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.	• 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.	• 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.	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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Quinton Township School District
Science
Grade 3

Unit	5	**Unit Title:**	Continuing the Cycle	**Pacing:**	25 Days

Unit Summary: In this unit of study, students develop an understanding of the similarities and differences in organisms' life cycles. In addition, students use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. The crosscutting concepts of *patterns* and *cause and effect* are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in *developing and using models and constructing explanations and designing solutions*. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Essential Questions:

Do all living things have the same life cycle?
Are there advantages to being different?

Objectives:

- Explain that reproduction is essential to the continued existence of every kind of organism; explain that living things have unique and diverse life cycles.
- Explain life cycle diagrams; describe the unique life cycle of a jalapeno pepper plant.
- Describe the unique life cycle of a ladybug.
- Describe the life cycle of a leopard frog.
- Describe the sequence of stages in the life cycle of a spotted salamander.
- Develop two models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
- Explain how sometimes the difference in characteristics between individuals of the same species provide advantages in surviving.

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- Explain how sometimes the difference in characteristics between individuals of the same species provide advantages in finding mates and reproducing.
- Construct an explanation for why the pink form of katydids is less common in adults than hatchlings.

NJSLS-Science Standards: 3-LS1-1 and 3-LS4-2

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models Develop models to describe phenomena. **Constructing Explanations and Designing Solutions** Use evidence (e.g., observations, patterns) to construct an explanation	**Growth and Development of Organisms** Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1) **Natural Selection** Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.	**Patterns** Patterns of change can be used to make predictions. **Cause and Effect** Cause and effect relationships are routinely identified and used to explain change.

Interdisciplinary Connections: W.WR.3.5, SL.PE.3.1, 3.DL.A.1, 3.DL.A.2

Career Readiness, Life Literacies, and Key Skills: 9.4.5.CI.3, 9.4.5.CT.1,9.4.5.CT.3, 9.4.5.CT.4

Computer Science and Design Thinking: 9.4.5.IML.2, 9.4.5.IML.3, 9.4.5.IML.6, 9.4.5.IML.7

Career Education: 9.2.5.CAP.4

Overview of Activity/Focus	Instructional Materials	Technology Infusion
• While observing and studying life cycles in online and multimedia resources, look closely for patterns of change	**Core Materials** *National Geographic Science*	Smart Board Applications Google Applications

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and make predictions based on the patterns. ● Sort and classify a variety of organisms using observed similarities and differences. ● Working in groups, develop models to describe the unique and diverse life cycles of organisms. Draw diagrams, build physical models, or create presentations to show the patterns of change that make up the life cycles of given organisms. ● Conduct research on one organism to determine characteristics that offer advantages in survival, finding mates, and reproducing.	**Supplemental Resources** Mystery Science videos & activities Little Science Thinkers PBS Learning Media Lesson: Let's Hear It for Ladybugs	Chromebooks Gizmo IXL

Assessments	
Formative Assessments ● Class Discussions ● Investigation Data ● Exit Tickets ● Journal Responses	**Summative Assessments** ● Life Cycle Projects ● 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**	● **Basic Skills Instruction** ● **Speech/Language Therapy** ● **Rosetta Stone** ● **Provide English/Native**	● **Basic Skills Instruction** ● **Provide after-school tutoring services.** ● **Hold fall and spring parent**	● **self-directed learning for growth though independent projects.** ● **Challenge students with**

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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.	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.	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.	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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Quinton Township School District
Science
Grade 3

Unit	6	**Unit Title:**	Organisms and the Environment	**Pacing:**	22 Days

Unit Summary: In this unit of study, students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of *cause and effect* and the *interdependence of science, engineering, and technology* are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in *engaging in argument from evidence*. Students are also expected to use this practice to demonstrate understanding of the core ideas. #

Essential Questions:

Why don't we see alligators in the arctic?

Objectives:

- Explain how being part of a group helps animals obtain food, protect and defend themselves, and cope with change.
- Construct an argument that some animals form groups that help members survive.
- Explain how for cold and warm environments, wet and dry environments, and light and dark environments, some kinds of organisms survive well, some survive less well, and some cannot survive at all.
- Construct an argument with evidence that is a p;articular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
- Connect the concepts of consistent patterns and natural systems with the career of a marine ecologist.

NJSLS-Science Standards: 3-LS2-1 and 3-LS4-3

Science and Engineering Practices	**Disciplinary Core Ideas**	**Crosscutting Concepts**
Engaging in Argument from Evidence	**Social Interactions and Group Behavior**	**Cause and Effect**

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Construct an argument with evidence, data, and/or a model.	Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size. **Adaptation** For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.	Cause and effect relationships are routinely identified and used to explain change.
Interdisciplinary Connections: W.WR.3.5, SL.PE.3.1, 3.DL.A.1, 3.DL.A.2		
Career Readiness, Life Literacies, and Key Skills: 9.4.5.CI.3, 9.4.5.CT.1,9.4.5.CT.3, 9.4.5.CT.4		
Computer Science and Design Thinking: 9.4.5.IML.2, 9.4.5.IML.3, 9.4.5.IML.6, 9.4.5.IML.7		
Career Education: 9.2.5.CAP.4		
Overview of Activity/Focus	**Instructional Materials**	**Technology Infusion**
• With partners or in groups, conduct research on animals that form groups, determining how being part of a group is beneficial to survival and reproduction. First, research indigenous animals (e.g., squirrels, coyotes, deer, birds, or fish), and then investigate other animals of interest, such as lions, sea turtles, or penguins. For each animal studied, identify the social structure of the group and how this structure supports individuals in their need to obtain food, defend themselves, and reproduce. • Complete a Venn diagram for 2 animals studied, comparing group structures and the functions that define	**Core Materials** *National Geographic Science* **Supplemental Resources** Mystery Science videos & activities Little Science Thinkers Magic School Bus: Inside a Beehive Video: Biomes and Ecosystems for Kids	Smart Board Applications Google Applications Chromebooks Gizmo IXL

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each. ● Construct arguments based on investigation and Venn diagram, using cause-and-effect relationships to show why some animals form groups and how this is advantageous to survival and reproduction. ● Investigate the organisms (plants and animals) that live in certain environments and determine what traits and behaviors allow these organisms to survive and reproduce in that environment. Identify examples of organisms that would survive less well, or not at all, in that environment, and give evidence to support their thinking.		

Assessments	
Formative Assessments ● Class Discussions ● Investigation Data ● Exit Tickets ● Journal Responses	**Summative Assessments** ● Venn Diagrams ● Written Arguments with Data Support ● 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**	● **Basic Skills Instruction** ● **Speech/Language Therapy**	● **Basic Skills Instruction** ● **Provide after-school tutoring**	● **self-directed learning for growth though independent**

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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.	• 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.	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.	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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Quinton Township School District
Science
Grade 3

Unit	7	**Unit Title:**	Using Evidence to Understand Change in Environments	**Pacing:**	28 Days

Unit Summary: In this unit of study, students develop an understanding of the types of organisms that lived long ago and also about the nature of their environments. Students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of *systems and system models*; *scale, proportion, and quantity*; and *the influence of engineering, technology, and science on society and the natural world* are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in *asking questions and defining problems*, *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.

Essential Questions:

What do fossils tell us about the organisms and the environments in which they lived?

Objectives:

- Describe how populations live and interact in a variety of ecosystems. (2 Days)
- Describe how natural events, the availability of water, and shifts in temperature can change an environment.
- Explain how change in an environment's physical characteristics, temperature, or availability of resources affect the organisms living there.
- Describe how living things make changes to the environments that affect the organisms living there.
- Describe how humans make changes to the land that affect the organisms living there.
- Describe how changes people make affect living things and change ecosystems.
- Make a claim about the merit of solutions to the drop in salmon population in the Columbia River.

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- Explain that some kinds of plants and animals that once lived on Earth are no longer found anywhere; explain that fossils provide evidence about the types of organisms that lived long ago and the nature of their environments.
- Explain that fossils provide evidence about the types of organisms that lived long ago and the nature of their environments.
- Analyze and interpret data from pictures of fossils around the world; provide evidence of the organisms and the environments in which they lived long ago.

NJSLS-Science Standards: 3-LS4-1, 3-LS4-4, 3-5-ETS1-1, 3-5-ETS1-2, and 3-5-ETS1-3

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Analyzing and Interpreting Data Analyze and interpret data to make sense of phenomena using logical reasoning. **Engaging in Argument from Evidence** Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. **Asking Questions and Defining Problems** Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost.	**Evidence of Common Ancestry and Diversity** Some kinds of plants and animals that once lived on Earth are no longer found anywhere. Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. **Biodiversity and Humans** Populations live in a variety of habitats, and change in those habitats affects the organisms living there. **Ecosystem Dynamics, Functioning, and Resilience** When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.	**Scale, Proportion, and Quantity** Observable phenomena exist from very short to very long time periods. **Systems and System Models** A system can be described in terms of its components and their interactions. - - - - - - - - - - - - - - - - **Connections to Engineering, Technology, and Applications of Science** **Interdependence of Engineering, Technology, and Science on Society and the Natural World** Knowledge of relevant scientific concepts and research findings is important in engineering. **Influence of Science, Engineering, and Technology on Society & the Natural World** People's needs and wants change over time, as do their demands for new and improved technologies.

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	Defining and Delimiting Engineering Problems Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.	**Connections to Nature of Science** **Scientific Knowledge Assumes an Order and Consistency in Natural Systems** Science assumes consistent patterns in natural systems

Interdisciplinary Connections: W.WR.3.5, SL.PE.3.1, 3.DL.A.1, 3.DL.A.2

Career Readiness, Life Literacies, and Key Skills: 9.4.5.CI.3, 9.4.5.CT.1,9.4.5.CT.3, 9.4.5.CT.4

Computer Science and Design Thinking: 9.4.5.IML.2, 9.4.5.IML.3, 9.4.5.IML.6, 9.4.5.IML.7

Overview of Activity/Focus	Instructional Materials	Technology Infusion
• Study fossils (if actual fossils are not available, pictures and diagrams found in books and other media sources) by observing fossils of a variety of organisms, both plant and animal, and observe diagrams of fossils within layers of rock. • Identify whether the organism lived on land or in water and identify the type of environment that existed when the layers of rock were formed. • Analyze the types of changes that might have occurred in an environment when fossils were formed and what effects these changes might have had on the organisms	**Core Materials** *National Geographic Science* **Supplemental Resources** Mystery Science videos & activities Little Science Thinkers PBS Learning Media	Smart Board Applications Google Applications Chromebooks Gizmo IXL

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<table>
<tr><td colspan="2">that lived in the environment as it changed over time.
● Brainstorm a list of environmental changes that might affect the organisms that live in the environment.
● As a class or in small groups, define a problem that occurs when the environment changes. As a class, determine criteria that can be used to weigh a possible solution's viability.
● In small groups, conduct research using books and other reliable media sources to determine possible solutions/ways in which organisms can solve the problem.
● Make written claims about the merit of each of the various responses (solutions) by organisms based on how well the responses meet criteria; use research data as evidence to support thinking.</td><td></td><td></td></tr>
<tr><td colspan="3">Assessments</td></tr>
<tr><td>Formative Assessments
● Class Discussions
● Brainstormed List
● Class-Generated Criteria
● Exit Tickets
● Journal Responses</td><td colspan="2">Summative Assessments
● Written Evidence-Based Claims
● Post-investigation Oral Assessments
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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.	• 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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