

Science Curriculum

1st Grade

Prepared by:

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Superintendent of Schools:

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Approved by the Midland Park Board of Education on

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TITLE

Course Description:

Grade one science is taught in four units throughout the school year. The first unit, Sky Patterns, students will learn of long and short term patterns that can be seen in the sky relating to day and nighttime, phases of the moon, star constellations, and seasons. Students will examine the impacts of these patterns on plant and animal life. The Second unit, Light, Shadows and Sounds; students develop an understanding of the relationship between sound and vibrating materials as well as between the availability of light and the ability to see objects. The idea that light travels from place to place can be understood by students at this level by placing objects made with different materials in the path of a beam of light and determining the effect on the different materials. In the third unit, Amazing Animals, students will compare and contrast various animal structures and functions that help an animal adapt and live in their habitat. Additionally, students will describe patterns of animal behaviors that help animals and their young survive. The final science unit, All About Plants, students develop an understanding of how plants use their parts to help them survive, grow, and meet their needs. Students will examine the life cycle of plants and determine that plants are almost identical to their parents. Students will explore various types of seeds and observe their growing patterns to identify similarities and differences of types of plants. The science curriculum is a hands-on, open-ended and sequential process of investigating the biological and physical world. As part of the spiraling curriculum, aspects of physical science, life science, earth and space science, and engineering; technology and applications of science are taught throughout the year. A guided inquiry program gives students the opportunity to explore topics and concepts through investigations. Participating in this hands-on program helps students foster a life-long enjoyment of learning science, observe science in the world around them and meet the science standards for New Jersey Public Schools. Spotlights on various scientists will help promote diversity and cultural awareness to our young learners.

Course Sequence:

Unit 1: Sky Patterns

Unit 2: Light, Shadows and Sound

Unit 3: Amazing Animals

Unit 4: All About Plants

Prerequisite: Kindergarten Science

Unit 1

Content Area: Science**Unit Title:** Sky Patterns**Grade Level:** 1st Grade**Core Ideas:**

Students will learn of long and short term patterns that can be seen in the sky relating to day and nighttime, phases of the moon, star constellations, and seasons. Students will examine the impacts of these patterns on plant and animal life.

Standards (Content and Technology):**CPI#:****Statement:****Performance Expectations (NJSLs)****1-ESS1-1**

Use observations of the sun, moon, and stars to describe patterns that can be predicted.
 [Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.]

1-ESS1-1
Science and Engineering Practices

Analyzing and Interpreting Data
 Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.

1-ESS1-1
Disciplinary Core Ideas

The Universe and its Stars

- Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.

1-ESS1-1
Crosscutting Concepts

Patterns

- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

- Science assumes natural events happen today as they happened in the past.
- Many events are repeated

1-ESS1-2

Make observations at different times of year to relate the amount of daylight to the time of year.
 [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.]

1-ESS1-2 <i>Science and Engineering Practices</i>	<p>Planning and Carrying out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> ● Make observations (firsthand or from media) to collect data that can be used to make comparisons
1-ESS1-2 <i>Disciplinary Core Ideas</i>	<p>Earth and the Solar System</p> <ul style="list-style-type: none"> ● Seasonal patterns of sunrise and sunset can be observed, described, and predicted.
1-ESS1-2 <i>Crosscutting Concepts</i>	<p>Patterns</p> <ul style="list-style-type: none"> ● Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.

Career Readiness, Life Literacies, and Key Skills	
9.1.2.CAP.1	<p>Core Idea: Different types of jobs require different knowledge and skills.</p> <p>Performance Expectation: Make a list of different types of jobs and describe the skills associated with each job.</p>
9.4.2.CI.2	<p>Core Ideas: Brainstorming can create new, innovative ideas.</p> <p>performance Expectation: Demonstrate originality and inventiveness in work.</p>
9.4.2CT.3	<p>Core Idea: Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.</p>
9.4.2GCA:1	<p>Core Idea: Individuals from different cultures may have different points of view and experiences. Performance Expectations: Articulate the role of culture in everyday life by describing one’s own culture and comparing it to the cultures of other individuals.</p>
9.4.2.IML.2	<p>Core Idea: Digital Tools can be used to display data in various ways.</p> <p>Performance Expectation: Represent data in a visual format to tell a story about the data.</p>
9.4.2.IML.3	<p>Core Idea: A variety of diverse sources, contexts, disciplines, and culture provide valuable and necessary information that can be used for different purposes.</p> <p>Performance Expectation: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults.</p>
Computer Science and Design Thinking	
8.1.2.NI.1	<p>Model and describe how individuals use computers to connect individuals, places, information, and ideas through a network.</p>
8.1.2.DA.1	<p>Collect and present data, including climate change data, in various visual formats.</p>
8.1.2.DA.3	<p>Identify and describe patterns in data visualizations.</p>
8.1.2.DA.4	<p>Make predictions based on data using charts and graphs.</p>
8.1.2.AP.2	<p>Model the way programs store and manipulate data by using numbers or other symbols to represent information.</p>

8.2.2.ITH.1 8.2.2.ITH.2	<u>Identify products that are designed to meet human wants or needs.</u> Explain the purpose of a product and its value.
8.2.2.ITH.3	Identify how technology impacts or improves life.
8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks.
Intercultural Statements (Amistad, Holocaust, LGBT, SEL)	
Diversity and Inclusion Mandate	Legislative Language: Highlight and promote diversity, including economic diversity, equity, inclusion, tolerance, and belonging in connection with gender and sexual orientation, race, ethnicity, disabilities, and religious tolerance
SEL: Self-Awareness	Recognize the importance of self-confidence in handling daily tasks and challenges
SEL: Self Management	Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals
SEL: Self-Awareness	Demonstrate an awareness of the expectations for social interactions in a variety of settings
SEL: Responsible Decision Making	Develop, implement and model effective problem solving and critical thinking skills
SEL: Relationship Skills	Utilize positive communication and social skills to interact effectively with others
Interdisciplinary Connection	
ELA/Literacy & Math Connections:	
RI. 1.1.	Ask and answer questions about key details in a text.
RI.1.2	Retell stories, including key details, and demonstrate understanding of their central message or lesson.
RI. 1.4	Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.
RI. 1.7	Use illustrations and details in a story to describe its characters, setting, or events.
RL.1.1	Ask and answer questions about key details in a text.
R.L. 1.7	Use illustrations and details in a story to describe its characters, setting, or events.

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W.1.1	Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.
W.1.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
1.MD.B.3.	B. Tell and write time. 3. Tell and write time in hours and half-hours using analog and digital clocks

1.NBT.B.2	B. Understand place value. 2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a “ten.” b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	
<div><div>Unit Essential Question(s):<ul style="list-style-type: none">• What patterns can we observe in the sky?• When can we see different objects in the sky?• What are the day and night patterns?• What long-term patterns exist during the year?</div><div>Unit Enduring Understandings:<ul style="list-style-type: none">• Students will observe that long and short term patterns appear in the sky.• Students will identify the objects in the sky and make observations about what objects are present during the day and night.• Students will recognize patterns that occur over several days, weeks, or months.</div></div>		
<div>Formative Assessments: Three-dimensional thinking as seen in Inspire Curriculum, Turn and Talk activities, Quick Checks</div> <div>Summative/Benchmark Assessment(s): Vocabulary Checks, Module Projects, completed activity sheets. Alternative Assessments: Posters, Projects, question and answer discussions, teacher observation</div>		
<div><div>Resources/Materials: Inspire Science Curricula,Mystery Science, modeling clay, masking tape, paper plates, string, Oreo Cookies</div><div>Key Vocabulary: Earth, moon, planet, star, Sun, horizon, Moon phases, sunrise, sunset, season, fall, spring, summer, winter</div></div>		
Lesson Name/Topic	Student Learning Objective(s) Suggested Tasks/Activities:	Day(s) to Complete

Lesson 1: Objects in the sky	<ul style="list-style-type: none"> • Students will observe that long and short term patterns appear in the sky. • Students will identify the objects in the sky and make observations about what objects are present during the day and night. <ul style="list-style-type: none"> • Using photographs and videos, students will observe and identify objects that appear in the night and day sky. • Students will conduct research about objects in the sky and build a model of a chosen object. • Students will identify similarities and differences between the day and night sky. • Students will identify the sun as a star in our solar system and the importance of the sun to life on earth. • Students will explore the history of constellations as patterns in the night sky. • Students will construct models of constellations. • Students will identify tools that help you observe objects in the night sky and communicate why they are helpful. • Job Exploration: Astronomer • Students will learn about Myan civilization and their impact on scientific discovery. 	8 Days
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	<ul style="list-style-type: none"> • <i>Mystery Science:</i> Spinning Sky/ Sun and daily patterns 	
Lesson 2: Day and Night Patterns	<ul style="list-style-type: none"> • Students will make observations and predict patterns of day and night. <ul style="list-style-type: none"> • Students will view information of a sundial and describe the pattern of the movement. • Hands-on Activity to build and use a sundial • Use flashlights and models to represent the earth and moon to understand daytime and nighttime • Phases of the Moon: Oreo activity • <i>Mystery Science:</i> Spinning Sky/ Lesson 3: Sun and Daily Patterns 	6 Days


Lesson 3: Patterns During the Year	<ul style="list-style-type: none">● Students will recognize patterns that occur over several days, weeks, or months.		<ul style="list-style-type: none">● Track daylight hours throughout the year in a graph to discuss and describe changes● Use a thermometer to determine temperature and how it relates to seasons (summer/ hot, winter/ cold)● Identify and describe the changes in seasons● Observe and discuss the impact the seasons have on people and animals● Job Exploration: Climatologists● Use a map of the United States to determine the temperature of different places● Mystery Science: Spinning Sky/ Daylight and Seasonal Patterns	7 Days
Lesson 4: STEM Project	<ul style="list-style-type: none">● Students will rely on knowledge gained throughout the unit of study to record data and describe patterns they observed about seasonal <u>changes</u>.		<ul style="list-style-type: none">● Students will create sketches and models that determine the impact of the seasons on humans, plants, and animals.	2 Days
Teacher Notes: Various non-fiction books on the topic of space and weather should be available for student use.				
Additional Resources: New Jersey State Science Standards Extension Reading can be assigned on Raz Kids Mystery Science Brainpop Jr. Various Pictures Books based on unit of study available for classroom use Flocabulary				
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Students with Disabilities	English Language Learners	Gifted and Talented Students	Students at Risk	504Students

<ul style="list-style-type: none"> ● Rephrase questions, directions, and explanations ● Allow extended time to answer questions, and permit drawing as an explanation ● Consult with Case Managers 	<ul style="list-style-type: none"> ● Rephrase questions, directions, and explanations ● Allow extended time to answer questions ● Provide Visual Aids that are labeled with vocabulary terms 	<ul style="list-style-type: none"> ● Provide extension activities ● Build on students' intrinsic motivations ● Provide Higher level questions ● Provide Open Ended Questions 	<ul style="list-style-type: none"> ● Provide extended time to complete tasks ● Consult with Guidance Counselors and follow I&RS procedures/ action plans ● Provide multimedia resources such as 	<ul style="list-style-type: none"> ● Consult with 504 Plan for modifications and accommodations ● Rephrase questions, directions, and explanations ● Provide multimedia resources such as
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<p>and follow IEP accommodations /modifications</p> <ul style="list-style-type: none"> ● Pre Teach vocabulary ● Provide multimedia resources such as apps, picture books, etc 	<ul style="list-style-type: none"> ● Pre Teach vocabulary ● Provide multimedia resources such as apps, picture books, etc 	<p>apps, picture books, etc</p> <ul style="list-style-type: none"> ● Provide multimedia resources such as apps, picture books, etc 	<p>apps, picture books, etc</p> <ul style="list-style-type: none"> ● Pre Teach vocabulary
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Unit 2
Content Area: Science
Unit Title: Light, Shadows and Sound
Grade Level: 1st Grade
<p>Core Ideas:</p> <p>Students develop an understanding of the relationship between sound and vibrating materials as well as between the availability of light and the ability to see objects. The idea that light travels from place to place can be understood by students at this level by placing objects made with different materials in the path of a beam of light and determining the effect on the different materials.</p>

	
Standards (Content and Technology):	
CPI#:	Statement:
Performance Expectations (NJSLs)	
K-2ETS1-3 K-2ETS1-3 <i>Science and Engineering Practices</i> K-2ETS1-3 <i>Disciplinary Core Ideas</i> 1-PS4-1	Analyze data from tests of two objects designed to solve the same problem to compare the strengths <u>and weaknesses of how each performs.</u> Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. <ul style="list-style-type: none"> ● <u>Analyze data from tests of an object or tool to determine if it works as intended</u> Optimizing the Design Solution <ul style="list-style-type: none"> ● Because there is always more than one possible solution to a problem, it is useful to compare <u>and test designs.</u> Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
1-PS4-1 <i>Science and Engineering Practices</i>	Constructing Explanations and Design Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. <ul style="list-style-type: none"> ● Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena
1-PS4-1 <i>Disciplinary Core Ideas</i>	Wave Properties <ul style="list-style-type: none"> ● Sound can make matter vibrate, and vibrating matter can make sound.
1-PS4-1 <i>Crosscutting Concepts</i>	Connections to Nature of Science Scientific Investigations Use a Variety of Methods <ul style="list-style-type: none"> ● Science investigations begin with a question. ● Scientists use different ways to story the world.

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1-PS4-2	Make observations to construct an evidence-based account that objects can be seen only when illuminated. [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]
1-PS4-2 <i>Science and Engineering Practices</i>	Constructing Explanations and Design Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. <ul style="list-style-type: none"> ● Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena
1-PS4-2 <i>Disciplinary Core Ideas</i>	Electromagnetic Radiation <ul style="list-style-type: none"> ● Objects can be seen if light is available to illuminate them or if they give off their own light.

1-PS4-2 <i>Crosscutting Concepts</i>	Cause and Effect <ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes
1-PS4-3 1-PS4-3 <i>Science and Engineering Practices</i>	Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror). The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to <u>discuss the speed of light.</u>] [Assessment Boundary: Assessment does not include the speed of light.] Planning and Carrying Out Investigations <ul style="list-style-type: none"> Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question
1-PS4-3 <i>Disciplinary Core Ideas</i>	Electromagnetic Radiation <ul style="list-style-type: none"> Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam.
1-PS4-3 <i>Crosscutting Concepts</i>	Cause and Effect <ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes
1-PS4-4	Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.] [Assessment Boundary: Assessment does not include technological details for how communication devices work.]
1-PS4-4 <i>Science and Engineering Practices</i>	Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. <ul style="list-style-type: none"> Use tools and materials provided to design a device that solves a specific problem.
1-PS4-4 <i>Disciplinary Core Ideas</i>	Information Technologies and Instrumentation <ul style="list-style-type: none"> People also use a variety of devices to communicate (send and receive information) over long distances
1-PS4-4 <i>Crosscutting Concepts</i>	Connections to Engineering, Technology, and Applications of Science Influence of Engineering, Technology, and Science, on Society and the Natural World • People depend on various technologies in their lives; human life would be very different without technology.
Career Readiness, Life Literacies, and Key Skills	

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9.1.2.CAP.1	<ul style="list-style-type: none"> Make a list of different jobs and describe the skills associated with each job. Different types of jobs require different knowledge and skills.
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9.4.2.CI.1	<ul style="list-style-type: none"> ● Brainstorming can create new, innovative ideas. ● Demonstrate openness to new ideas and perspectives
9.4.2.CT.3	<ul style="list-style-type: none"> ● Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem. ● Use a variety of types of thinking to solve problems (e.g. inductive, deductive)
Computer Science and Design Thinking	
8.2.2.IH.4	<ul style="list-style-type: none"> ● Identify how various tools reduce work and improve daily tasks.
8.2.2.IH.5	<ul style="list-style-type: none"> ● Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution
8.2.2.ED.1	<ul style="list-style-type: none"> ● Communicate the functions of a product or device.
8.2.2.ED.3	<ul style="list-style-type: none"> ● Select and use appropriate tools and materials to build a product using the design process.
Intercultural Statements (Amistad, Holocaust, LGBT, SEL)	
SEL: Self-Awareness	Recognize and identify the thoughts, feelings, and perspective of others.
SEL: Responsible Decision Making	Identify the consequences associated with one's actions in order to make constructive choices
SEL: Relationship Skills	Identify who, when, where, or how to seek help for oneself or others when needed
<u>Interdisciplinary Connection</u> ELA/ Literacy Connections & Math Connections	
RL.1.2 RL.1.5	<u>Retell stories, including key details, and demonstrate understanding of their central message or lesson.</u> Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.
W.1.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
1.MD.A.2	A. Measure lengths indirectly and by iterating length units. 2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
1.MD.B.3	B. Tell and write time. 3. Tell and write time in hours and half-hours using analog and digital clocks.
1.MD.C.4	C. Represent and interpret data. 4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Unit Essential Question(s):

- What happens when light hits an object?
- Do we need light to see?
- How does light interact with materials?
- How do we use light to communicate?
- How are sounds made?
- How does movement cause sound?
- How can we describe sounds?
- Why is sound important?

Unit Enduring Understandings:

- Students will make observations and construct explanations to observe what causes objects to be seen when illuminated.
- Students will carry out investigations to determine the effect of placing objects in the path of a beam of light.
- Students will construct explanations and design solutions for people who use modern technology to communicate over a distance.

Formative Assessments: Student claim-evidence-reasoning activities as included in Inspire Science Curriculum Materials, Three-dimensional thinking questions, Quizzes, Science Probe experiments
Summative/Benchmark Assessment(s): Lesson review, Tests, and Vocabulary Checks
Alternative Assessments: Observations, questions and answer, verbal explanations, drawings and labels

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Resources/Materials:

Flashlights, aluminum foil, wax paper, plastic wrap, hand held mirrors, batteries, shoe box with a mystery object

Key Vocabulary:

illuminate, light, material, opaque, shadow, translucent, transparent, mirror, reflect

Lesson Name/Topic	Student Learning Objective(s) Suggested Tasks/Activities:	Day(s) to Complete
Sound	<ul style="list-style-type: none"> • Students will plan and conduct an investigation to provide evidence that vibrating material can make sound. • Take a sound scavenger hunt to discover why sounds are soft or loud. • Station activities to explore with sounds with vibration (triangle, dancing rice, tuning fork) • Identify how sounds travel through the ear and to the brain. 	6 Days

	<ul style="list-style-type: none"> • Students will create a kazoo that will create sounds by vibrations. 	
Light	<ul style="list-style-type: none"> • Students will make observations and construct explanations to observe what causes objects to be seen when illuminated. • Job exploration: A photographer • Students will make observations and use evidence to determine that objects in darkness can only be seen when illuminated. • Experiment: Place item in dark box: observe item with lights off and lights on. • Determine that light is a form of energy and determine objects that provide light • Use sources of light to determine that it travels in a straight line • Problem Solving and Reasoning Project: How can you illuminate a dark cave? • Mystery Science: Lights and Sounds/ Can you see in the Dark? 	6 Days
Light and Materials	<ul style="list-style-type: none"> • Students will carry out investigations to determine the effect of placing objects in the path of a beam of light. • Students will complete several science investigations and experiments to determine that shadows occur and can change when an object blocks a light source • Students will observe interactions of transparent, translucent, and opaque materials with light. • Mystery Science: Lights and Sounds/ Light, Materials, Transparent and Opaque 	6 Days
Light Uses	<ul style="list-style-type: none"> • Students will construct explanations and design solutions for people who use modern technology to communicate over a distance. • Students will use several media sources to observe how lights and sounds are used to communicate. • Students will create predictions and determine what happens when a light shines on a mirror. • Students will identify ways that mirrors help us • Students will research and explain the importance of lighthouses and smoke detectors as sources of communication • Students will design a light message using various materials and a light source. • Mystery Science: Lights and Sounds/Light 	7 Days

	Communication and Engineering How can you send a secret message to someone far away?	
Teacher Notes: Discuss and collaborate station activities for sound and light with Enrichment Teacher		
Additional Resources: Mystery Science, Brainpop Jr., Various picture books, New Jersey State Standards		

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Students with Disabilities	English Language Learners	Gifted and Talented Students	Students at Risk	504Students
<ul style="list-style-type: none"> ● Rephrase questions, directions, and explanations ● Allow extended time to answer questions, and permit drawing as an explanation ● Consult with Case Managers and follow IEP accommodations /modifications ● Pre Teach vocabulary ● Provide 	<ul style="list-style-type: none"> multimedia resources such as apps, picture books, etc ● Rephrase questions, directions, and explanations ● Allow extended time to answer questions ● Provide Visual Aids that are labeled with vocabulary terms ● Pre Teach vocabulary 	<ul style="list-style-type: none"> ● Provide multimedia resources such as apps, picture books, etc ● Provide extension activities ● Build on students' intrinsic motivations ● Provide Higher level questions ● Provide Open Ended Questions ● Provide multimedia 	<ul style="list-style-type: none"> resources such as apps, picture books, etc ● Provide extended time to complete tasks ● Consult with Guidance Counselors and follow I&RS procedures/ action plans ● Provide multimedia resources such as apps, picture books, etc ● Pre Teach 	<ul style="list-style-type: none"> vocabulary ● Consult with 504 Plan for modifications and accommodations ● Rephrase questions, directions, and explanations ● Provide multimedia resources such as apps, picture books, etc ● Pre Teach vocabulary
<div></div>				
Unit 3				
Content Area: Science				
Unit Title: Amazing Animals				
Grade Level: 1st Grade				
<p>Core Ideas:</p> <p>Students will compare and contrast various animal structures and functions that help an animal adapt and live in their habitat. Additionally, students will describe patterns of animal behaviors that help animals and their young</p>				

survive.	
Standards (Content and Technology):	
CPI#:	Statement:
Performance Expectations (NJSLs)	

K-2ETS1-1 Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2ETS1-1 *Science and Engineering Practices*

Asking Questions and Defining Problems

Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions.

- 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.

K-2ETS1-1 Defining and Delimiting Engineering Problems

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<i>Disciplinary Core Ideas</i>	<ul style="list-style-type: none"> ● A situation that people want to change or create can be approached as a problem to be solved through engineering. ● Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool. ● Before beginning to design a solution, it is important to clearly understand the problem.
1-LS1-1	Use materials to design a solution to a human problem by mimicking how plants and/ or animals use their external parts to help them survive, grow, and meet their needs.
1-LS1-1 <i>Science and Engineering Practices</i>	<p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> ● Use materials to design a device that solves a specific problem or a solution to a specific problem.
1-LS1-1 <i>Disciplinary Core Ideas</i>	<p>LS1.A: Structure and Function</p> <ul style="list-style-type: none"> ● All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. <p>LS1.D: Information Processing</p> <ul style="list-style-type: none"> ● Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.

1-LS1-1 <i>Crosscutting Concepts</i> 1-LS1-2	Structures and Function <ul style="list-style-type: none"> • The shape and stability of structures of natural and designed objects are related to their function(s). Influence of Engineering, Technology, and Science on Society and the Natural World • Every human-made product is designed by applying some knowledge of the natural world and is <u>built using materials derived from the natural world</u> . Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
1-LS1-2 <i>Science and Engineering Practices</i>	Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information. <ul style="list-style-type: none"> • Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world
1-LS1-2 <i>Disciplinary Core Ideas</i>	LS1.B: Growth and Development of Organisms <ul style="list-style-type: none"> • Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.
1-LS1-2 <i>Crosscutting Concepts</i>	Patterns <ul style="list-style-type: none"> • Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. Scientific Knowledge is Based on Empirical Evidence <ul style="list-style-type: none"> • Scientists look for patterns and order when making observations about the world.
1-LS3-1	Make observations to conduct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
1-LS3-1 <i>Science and Engineering Practices</i>	Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. <ul style="list-style-type: none"> • Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
1-LS3-1	LS3.A: Inheritance of Traits

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<i>Disciplinary Core Ideas</i>	<ul style="list-style-type: none"> • Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents. LS3.B: Variation of Traits <ul style="list-style-type: none"> • Variation of Traits Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.
1-LS3-1 <i>Crosscutting Concepts</i>	Patterns <ul style="list-style-type: none"> • Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.
1-PS4-1	Plan and conduct an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

1-PS4-1 <i>Science and Engineering Practices</i>	<p>Planning and Carrying Out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question.
1-PS4-1 <i>Disciplinary Core Ideas</i>	<p>PS4.A: Wave Properties</p> <ul style="list-style-type: none"> Sound can make matter vibrate, and vibrating matter can make sound.
1-PS4-1 <i>Crosscutting Concepts</i>	<p>Cause and Effect</p> <ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes.
1-PS4-4	Use tools and materials to design and build a device that uses light or sound to solve the problems of communicating over a distance.
1-PS4-4 <i>Science and Engineering Practices</i>	<p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> Use tools and materials provided to design a device that solves a specific problem.
1-PS4-4 <i>Disciplinary Core Ideas</i>	<p>Information Technologies and Instrumentation</p> <ul style="list-style-type: none"> People also use a variety of devices to communicate (send and receive information) over long distances.
1-PS4-4 <i>Crosscutting Concepts</i>	<p>Connections to Engineering, Technology, and Applications of Science</p> <p>Influence of Engineering, Technology, and Science, on Society and the Natural World</p> <ul style="list-style-type: none"> People depend on various technologies in their lives; human life would be very different without technology
Career Readiness, Life Literacies, and Key Skills	
9.1.2.CR.1	<ul style="list-style-type: none"> There are actions an individual can take to help to make this world a better place. Recognize ways to volunteer in the classroom, school, and community.
9.1.2.CR.2	<ul style="list-style-type: none"> There are actions an individual can take to help to make this world a better place. List ways to give back, including making donations, volunteering, and starting a business.
9.1.2.CAP.1	<ul style="list-style-type: none"> Make a list of different jobs and describe the skills associated with each job.
9.4.2.CT.1	<ul style="list-style-type: none"> Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.
9.4.2.DC.7	<ul style="list-style-type: none"> Young people can have a positive impact on the natural world in the fight against climate change. Describe actions peers can take to positively impact climate changes.
9.4.2.TL.2	<ul style="list-style-type: none"> Digital tools have a purpose Create a document using a word processing application.
9.4.2.TL.6	<ul style="list-style-type: none"> Illustrate and communicate ideas and stories using multiple digital tools.
Computer Science and Design Thinking	

8.1.2.NI.1	Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network.
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8.2.2.ED.1	Communicate the function of a product or device.
8.2.2.ED.2	Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
8.2.2.ED.3	Select and use appropriate tools and materials to build a product using the design process.
8.2.2.ITH.2	Explain the purpose of a product and its value.
8.2.2.ITH.5	Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.

Intercultural Statements (Amistad, Holocaust, LGBT, SEL)

SEL: Relationship Skills	Identify ways to resist inappropriate social pressure
SEL: Responsible Decision Making	Evaluate personal, ethical, safety, and civic impacts of decisions.

Interdisciplinary Connection

ELA/Literacy & Math Connections

RI.1.1	Ask and answer questions about key details in a text.
RI 1.7	Use the illustrations and details in a text to describe its key ideas.
RI. 1.9 W. 1.2	Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, <u>descriptions, or procedures</u>). Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.
W.1.3	Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.
1.MD.C.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
1.G.A.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

Unit Essential Question(s):

- How do animal body parts help them survive?
- What structures do animals have?
- What are the functions of different animal body parts?
- How are animals similar to and different from their offspring?
- How does an animal's behavior help it survive?

Unit Enduring Understandings:

- Students will learn about basic animal structures and functions, traits that are passed down, and ways animals behave that help them survive.
- Students will identify and compare similarities and differences among different types of animals.
- Students will learn the functions of common animal structures.
- Students will compare animals similar to and different from their offspring.
- Students will identify ways an animal's behavior helps it survive.

Formative Assessments: Question and Answer, Activity pages, Written Claims**Summative/Benchmark Assessment(s):** Unit Assessment**Alternative Assessments:** STEM Projects, Science Experiments/ Investigations

Resources/Materials: Hatching butterfly kits, magnifying glasses, photographs of various animals

Key Vocabulary:

amphibian, bird, reptile, fish, insect, mammal, protection, trait, behavior, learn, signal

Lesson Name/Topic**Student Learning Objective(s)****Suggested Tasks/Activities:****Day(s) to Complete**

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Lesson 1:
Animal Structures

- Students will observe and name body parts that are helpful to an animal.
 - Students will identify and compare common animal structures.

- Use pictures of various animals for students to name and identify parts that would be helpful and keep them safe.
- Structure of a bird that helps it catch food.
- **Mystery Science Experiment:** How Animals Use Their Beaks to Eat Food. • Students will observe various animals and name similarities and differences of their structures.
- Students will learn of various animal groups and their common structures and functions.
- **Mystery Science:** Plant and Animal

7 Days

		Superpowers/ Lesson 1 Why do birds have beaks?	
Lesson 2: Functions of Animal Structures	<ul style="list-style-type: none"> Students will explore the function of animal structures. 	<ul style="list-style-type: none"> Observe and identify various ways that animals move. <ul style="list-style-type: none"> Utilizing media, students will explore different ways that animals protect themselves. Research how people study animals and mimic their structures and functions for protection. Hands-on Activity: Butterfly Growing Kit. Make observations on the life cycle of a butterfly Mystery Science: Plant and Animal Superpowers/ Lesson 3 Why are polar bears white? 	6 Days
Lesson 3: Animals and Their Parents	<ul style="list-style-type: none"> Students will compare animals and their young to identify similarities and differences. 	<ul style="list-style-type: none"> Use various pictures of birds with their offspring, discuss similarities and differences. Pair animals to their offspring. Discuss traits that parents and their offspring share. Identify how animals change as they grow. Mystery Science: Plant and Animal Superpowers/ Why do family members look alike? 	6 Days
Lesson 4: Animal Behaviors	<ul style="list-style-type: none"> Students will describe patterns of animal behaviors that help animals and their young survive. 	<ul style="list-style-type: none"> Explore patterns in behavior that animals exhibit and communicate their understanding by viewing various videos and pictures of adult animals taking care of their babies. Students will determine that animals often feed, clean, and protect their offspring. <ul style="list-style-type: none"> Using curriculum materials, students will identify ways that parents and offspring communicate their needs with each other. 	7 Days
Technology Project	<ul style="list-style-type: none"> Students will identify threats to animals and habitats and 	<ul style="list-style-type: none"> Students will work collaboratively with a partner to use digital tools to create a poster to save a habitat and animals that 	2 Days

	communicate ways to help preserve animal habitats.	are being threatened. (For example: not throwing garbage in the ocean which causes harm to fish)	
STEM Project	<ul style="list-style-type: none"> Students will apply their knowledge of animal structures to design protective gear. 	<ul style="list-style-type: none"> Students will review animal parts that help protect them. Students will design and sketch protective gear and present a plan and verbally discuss how their design will help protect a person who uses the gear. 	3 Days

Teacher Notes:

- Collaborate with technology teacher in order to implement digital tools.
- Orders for caterpillars must be made 3 weeks prior to unit.

Additional Resources:

New Jersey State Science Standards

Extension Reading can be assigned on Raz Kids

Mystery Science

Brainpop Jr.

Various Pictures Books based on unit of study available for classroom use

Flocabulary



Students with Disabilities	English Language Learners	Gifted and Talented Students	Students at Risk	504Students
<ul style="list-style-type: none"> Rephrase questions, directions, and explanations Allow extended time to answer questions, and permit drawing as an explanation Consult with Case Managers and follow IEP accommodations /modifications Pre Teach vocabulary Provide multimedia resources such as apps, picture books, etc 	<ul style="list-style-type: none"> Rephrase questions, directions, and explanations Allow extended time to answer questions Provide Visual Aids that are labeled with vocabulary terms Pre Teach vocabulary Provide multimedia resources such as apps, picture books, etc 	<ul style="list-style-type: none"> Provide extension activities Build on students' intrinsic motivations Provide Higher level questions Provide Open Ended Questions Provide multimedia 	<ul style="list-style-type: none"> Provide extended time to complete tasks Consult with Guidance Counselors and follow I&RS procedures/ action plans Provide multimedia resources such as apps, picture 	<ul style="list-style-type: none"> Consult with 504 Plan for modifications and accommodations Rephrase questions, directions, and explanations Provide multimedia resources such as apps, picture books, etc Pre Teach vocabulary

		resources such as books, etc apps, picture books, etc ● Pre Teach vocabulary	
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Unit 4

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Content Area: Science	
Unit Title: Plants	
Grade Level: 1	
Core Ideas: Students develop an understanding of how plants use their parts to help them survive, grow, and meet their needs. Students will examine the life cycle of plants and determine that plants are almost identical to their parents. Students will explore various types of seeds and observe their growing patterns to identify similarities and differences of types of plants.	
Standards (Content and Technology):	
CPI#:	Statement:
Performance Expectations (NJSLs)	
K-2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
K-2-ETS1-2 <i>Science and Engineering Practices</i>	Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. <ul style="list-style-type: none"> ● Develop a simple model based on evidence to represent a proposed object or tool.
K-2-ETS1-2 <i>Disciplinary Core Ideas</i>	ETS1.B: Developing Possible Solutions <ul style="list-style-type: none"> ● 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.

K-2-ETS1-2 <i>Crosscutting Concepts</i> 1-LS1-1.	<p>Structure and Function</p> <ul style="list-style-type: none"> ● The shape and stability of structures of natural and designed objects are related to their <u>function(s)</u>. <p>Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.* [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.]</p>
1-LS1-1. <i>Science and Engineering Practices</i>	<p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> ● Use materials to design a device that solves a specific problem or a solution to a specific problem.
1-LS1-1. <i>Disciplinary Core Ideas</i>	<p>LS1.A: Structure and Function</p> <ul style="list-style-type: none"> ● All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. <p>LS1.D: Information Processing</p> <ul style="list-style-type: none"> ● Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.
1-LS1-1. <i>Crosscutting Concepts</i>	<p>Structure and Function</p> <ul style="list-style-type: none"> ● The shape and stability of structures of natural and designed objects are related to their function(s). <p>Connections to Engineering, Technology, and Applications of Science Influence of Engineering, Technology, and Science on Society and the Natural World</p> <ul style="list-style-type: none"> ● Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.
1-LS3-1	<p>Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</p>

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1-LS3-1 <i>Science and Engineering Practices</i>	<p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> ● Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
1-LS3-1 <i>Disciplinary Core Ideas</i>	<p>Inheritance of Traits</p> <ul style="list-style-type: none"> ● Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents. <p>Variation of Traits</p> <ul style="list-style-type: none"> ● Individuals of the same kind of plant or animal are recognizable as similar but can also vary

	in many ways.
1-LS3-1 <i>Crosscutting Concepts</i>	Patterns <ul style="list-style-type: none"> ● Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.
K-2ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
K-2ETS1-3 <i>Science and Engineering Practices</i>	Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. <ul style="list-style-type: none"> ● Analyze data from tests of an object or tool to determine if it works as intended.
K-2ETS1-3 <i>Disciplinary Core Ideas</i>	Optimizing the Design Solution <ul style="list-style-type: none"> ● Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
Career Readiness, Life Literacies, and Key Skills	
9.1.2.CR.1	Recognize ways to volunteer in the classroom, school, and community.
9.1.2.CR.2	List ways to give back, including making donations, volunteering, and starting a business.
9.1.2.CAP.1	Different types of jobs require different knowledge and skills. Make a list of different types of jobs and describe the skills associated with each job.
9.4.2.CT.1	Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.
9.4.2.DC.7	Describe actions peers can take to positively impact climate change.
Computer Science and Design Thinking	
8.1.2.DA.4	Make predictions based on data using charts or graphs.
8.2.2.ED.1	Communicate the function of a product or device.
8.2.2.ED.2	Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
8.2.2.ED.3	Select and use appropriate tools and materials to build a product using the design process.
8.2.2.ED.4	Identify constraints and their role in the engineering design process.
8.2.2.ITH.2	Explain the purpose of a product and its value.
8.2.2.ITH.5	Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.
8.2.2.ETW.1	Classify products as resulting from nature or produced as a result of technology.
8.2.2.ETW.2	Identify the natural resources needed to create a product.
Intercultural Statements (Amistad, Holocaust, LGBT, SEL)	

SEL: Responsible Decision Making	Evaluate Personal, ethical, safety, and civic impact of decisions
SEL: Self Management	Recognize the skills needed to establish and achieve personal and educational goals
Interdisciplinary Connection	

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ELA/Literacy & Math Connections	
RL.1.1	Ask and answer questions about key details in a text.
RL.1.2	Retell stories, including key details, and demonstrate understanding of their central message or lesson.
RL.1.3	Describe characters, settings, and major event(s) in a story, using key details.
RL.1.5	Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.
RL.1.7	Use illustrations and details in a story to describe its characters, setting, or events.
W.1.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
1.MD.A.2	A. Measure lengths indirectly and by iterating length units. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
<div> <div> Unit Essential Question(s): <ul style="list-style-type: none"> • What are the functions of common plant structures? • What patterns can you find between different plants? • What do plant structures do? • How do plants grow and survive? • How are plants similar and different from their offspring? • How do plants use their parts to meet their needs? </div> <div> Unit Enduring Understandings: <ul style="list-style-type: none"> • Students will understand how plant structures help plants live. • Students will construct explanations of plants' external parts and how their structures help them survive. • Students will understand that plants external functions are directly related to their structures in order for them to survive. • Students will develop the understanding that plants have almost identical structures to their parents and that these structures help the plant </div> </div>	

- survive.
- Students will construct explanations about patterns found when exploring plants and their offspring.
- Students will analyze and interpret data about how a plant's structure and function helps it survive and grow.



Formative Assessments: Inspire Curriculum's Three dimensional Thinking questions, turn and talk activities, quick checks, activity pages, science probe activities

Summative/Benchmark Assessment(s): Vocabulary Checks, Stem/ Module Projects, Unit

Assessment Alternative Assessments: Teacher observations, question and answer,

Resources/Materials:

Magnifying Glasses, flashlights, batteries, various live plants, food coloring, celery

Key Vocabulary:

Structure, flower, fruit, function, leaf, root, seed, stem, inherit, offspring, parents, seedling, need, pollen, survive



Lesson Name/Topic	Student Learning Objective(s) Suggested Tasks/Activities:	Day(s) to Complete
Plant Parts	<ul style="list-style-type: none"> ● Students will understand how plant structures help plants live. ● Students will construct explanations of plants' external parts and how their structures help them survive. ● View time lapse video of plant growing in order to make predictions/ discussion of what a plant needs to survive. ● Students will observe that plants are made of many separate parts. ● Students will compare various types of plants to analyze their similarities and differences. 	8 Days

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	<ul style="list-style-type: none"> ● Students will use magnifying glass, flashlight and touch to make observations about various plant parts. 	
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Functions of Plant Parts	<ul style="list-style-type: none"> ● Students will understand that plants external functions are directly related to their structures in order for them to survive. ● Students will identify what a plant needs to survive. ● Using a real plant and a light source, students will determine that a plant will move to best absorb the light. ● Students will conduct experiments to identify how water moves through a stem. 	6 Days
Plant Parents and their Offspring	<ul style="list-style-type: none"> ● Students will identify that plants have almost identical structures to that of their parents. ● Students will determine that the life cycle of a plant is a pattern of nature. ● Students will analyze and interpret data on how plants' structures and functions help it <u>survive and grow</u>. ● Students will analyze and interpret data about how a plants' structure and function helps it survive and grow. ● Students will complete activities and hands-on investigations to identify that adult plants create seeds which grow new plants of the same species. ● Students will plant seeds to observe and record changes in a plant over time. ● Students will learn ways that seeds travel and are planted from one area to another. ● Students will create diagrams of the life cycle of a plant. 	8 Days 7 Days
Caring for our Planet	<ul style="list-style-type: none"> ● Students will identify the negative impacts that humans have on plants and examine ways to make a positive difference on our local environment. ● Earth Day activities ● Discuss what natural material/ resources come from plants and the importance of preservation. ● Students will brainstorm ways to be a responsible citizen to care for the 	6 Days

	<p>environment.</p> <ul style="list-style-type: none"> Students will plant flowers in front of the school building. 	
Stem Project	<p>Utilizing knowledge gained from the past unit, students will complete the design process to create a way to help a plant meet their needs to survive.</p> <p>Students will design and build a solar powered light stand.</p>	3 Days
<p>Teacher Notes: Have various seed packets, soil and small planting pots available for student use. Plant seeds 1 to 2 weeks before beginning the unit, so students can observe growth of plants throughout the unit.</p>		
<p>Additional Resources: New Jersey State Science Standards Extension Reading can be assigned on Raz Kids Mystery Science Brainpop Jr. Various Pictures Books based on unit of study available for classroom use Flocabulary</p>		

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Students with Disabilities	English Language Learners	Gifted and Talented Students	Students at Risk	504Students
<ul style="list-style-type: none"> Rephrase questions, directions, and explanations Allow extended time to answer questions, and permit drawing as an explanation Consult with Case Managers and follow IEP accommodations /modifications Pre Teach vocabulary Provide 	<ul style="list-style-type: none"> Rephrase questions, directions, and explanations Allow extended time to answer questions Provide Visual Aids that are labeled with vocabulary terms Pre Teach vocabulary Provide multimedia resources such as 	<ul style="list-style-type: none"> Provide extension activities Build on students' intrinsic motivations Provide Higher level questions Provide Open Ended Questions Provide 	<ul style="list-style-type: none"> Provide extended time to complete tasks Consult with Guidance Counselors and follow I&RS procedures/ action plans Provide multimedia 	<ul style="list-style-type: none"> Consult with 504 Plan for modifications and accommodations Rephrase questions, directions, and explanations Provide multimedia resources such as apps, picture books, etc Pre Teach vocabulary

multimedia resources such as apps, picture books, etc	apps, picture books, etc	multimedia resources such as apps, picture books, etc	resources such as apps, picture books, etc ● Pre Teach vocabulary	
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