Long Beach Island Consolidated School District

Grade: 3	Content Area: Science

Original Adoption: October 23, 2018
Revised on: August 7, 2019
Revised by: C. McBride

Introduction

Students in third grade science explore seven units through which they develop an understanding of concepts including forces and motion, inherited traits and life cycles, organisms and their environment, and weather and climate. Throughout these units, students apply a range of science and engineering practices such as asking questions, developing and using models, analyzing data, and engaging in argument from evidence as well as cross cutting concepts of patterns and cause and effect, to explain phenomena. A variety of assessment methods are used in which students apply these practices to demonstrate proficiency in these core ideas. Engineering and technology concepts are integrated throughout the units as well.

Recommended Pacing Guide	
Unit 1: Engineering	**20 days**
Unit 2:Forces	**20 Days**
Unit 3: Motion	**20 Days**
Unit 4: Life Cycles and Inherited Traits	**20 Days**
Unit 5: Organisms and Their Environments	**20 Days**
Unit 6: Fossils	**20 days**
Unit 7: Weather and Patterns	**20 days**

Grade: 3	**Content Area: Science**

Unit 1: Engineering	**Duration: 20 days**

Standards/Learning Targets

New Jersey Student Learning Standards:

- **3-5-ETS1-1**
  Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- **3-5-ETS1-2**
  Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- **3-5-ETS1-3**
  Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Performance Expectation

3-5-ETS1-1

Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

Science and Engineering Practices	**Disciplinary Core Ideas**
Asking Questions and Defining Problems- ● Ask questions based on observations to find more information about the natural and/or designed world(s). ● Define a simple problem that can be solved through the development of a new or improved object or tool. ● Apply scientific ideas to solve design problems. ● Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.	**ETS1.A: 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. (3-5-ETS1-1)

Grade: 3	Content Area: Science

	● A situation that people want to change or create can be approached as a problem to be solved through engineering. ● Asking questions, making observations, and gathering information are helpful in thinking about problems. ● Before beginning to design a solution, it is important to clearly understand the problem.
Crosscutting Concepts	**Learning Objectives**
Engineering and Society ● People's needs and wants change over time, as do their demands for new and improved technologies.	● Students ask questions and make observations to gather information about a situation that people want to change. Students' questions, observations, and information gathering are focused on: ○ A given situation that people wish to change. ○ Why people want the situation to change. ○ The desired outcome of changing the situation. ● Students' questions are based on observations and information gathered about scientific phenomena that are important to the situation. ● Students use the information they have gathered, including the answers to their questions, observations they have made, and scientific information, to describe the situation people want to change in terms of a simple problem that can be solved with the development of a new or improved object or

Grade: 3	Content Area: Science

	tool. ● With guidance, students describe the desired features of the tool or object that would solve the problem, based on scientific information, materials available, and potential related benefits to people and other living things.

Performance Expectation	
3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	
Science and Engineering Practices	**Disciplinary Core Ideas**
Developing and Using Models- ● Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution.	**ETS1.B: Developing Possible Solutions** ● Testing a solution involves investigating how well it performs under a range of likely conditions. (secondary to 4-ESS3-2) ● Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3) ● Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3) ● Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solution.
Crosscutting Concepts	**Learning Objectives**
Structure and Function	● Students develop a representation of

Grade: 3	Content Area: Science

● The shape and stability of structures of natural and designed objects are related to their function(s).	an object and the problem it is intended to solve. In their representation, students include the following components: ○ The object ○ The relevant shape(s) of the object. ○ The function of the object. ● Students use sketches, drawings, or physical models to convey their representations. ● Students identify relationships between the components in their representation, including: ○ The shape(s) of the object and the object's function. ○ The object and the problem is it designed to solve. ● Students use their representation (simple sketch, drawing, or physical model) to communicate the connections between the shape(s) of an object, and how the object could solve the problem.

Performance Expectation	
3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	
Science and Engineering Practices	**Disciplinary Core Ideas**
Analyzing and Interpreting Data- ● Analyze data from tests of an object or tool to determine if it works as intended.	**ETS1.C: Optimizing the Design Solution-** ● Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)

Grade: 3	Content Area: Science

	● Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3) ● At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2) ● Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
Crosscutting Concepts	**Learning Objectives**
People's needs and wants change over time, as do their demands for new and improved technologies.	● With guidance, students use graphical displays (e.g., tables, pictographs, line plots) to organize given data from tests of two objects, including data about the features and relative performance of each solution. ● Students use their organization of the data to find patterns in the data, including: ○ How each of the objects performed, relative to: ■ The other object. ■ The intended performance ○ How various features of the objects relate to their performance ● Students use the patterns they found in object performance to describe: ○ The way each object will solve the problem ○ The strengths and weaknesses of each design. ○ Which object is better suited to the desired function, if both solve the problem.

Grade: 3	Content Area: Science

Primary Interdisciplinary Connections:
ELA: RI.3.1, RI.3.3, RI.3.8, W.3.7, W.3.8, SL.3.3
Math: MP.2, MP.5, 3.MD.A.2
Draw a picture graph and a scaled bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

Science example: Make a bar graph with single-unit scale showing the number of seeds dispersed by two or three different design solutions for seed dispersal.

Technology Standards:
A. Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.

- **8.1.5.A.1** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems
- B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- E: Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

21st Century Life and Careers
9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Century Career Ready Practices

- CRP4. Communicate clearly and effectively and with reason.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Evidence of Student Learning

Formative Tasks:	Alternative Assessments:
● Cooperative group learning ● Exit slips ● Analysis of student work ● Teacher observations	● 3-D Performance Tasks ● Student created models ● draw/verbal explanations

Grade: 3	**Content Area: Science**

● Self-reflection ● Science evidence notebook ● Lesson quizzes ● Lesson reviews ● *Language SmArts* writing activities	
Summative Assessments: ● End of the unit assessment ● Unit Project ● Performance Assessment ● Claims, Evidence and Reasoning	**Benchmark Assessments:** ● Pre-Unit Assessments ● Beginning of year, mid-year and end of year SGO
Knowledge & Skills	
Enduring Understandings: ● A situation that people want to change or create can be approached as a problem to be solved through engineering. ● Asking questions, making observations, and gathering information are helpful in thinking about problems. ● The shape and stability of structures of natural and designed objects are related to their function(s)	**Essential Questions:** ● How are asking questions, gathering information, and making observation helpful when thinking about problems? ● How does sketching or creating a model to illustrate its shape help solve a given problem? ● How does testing a model determine its strengths and weaknesses in solving a given problem?
Core Instructional & Supplemental Materials	
Suggested Activities/Resources: ● Design an irrigation system for our school garden or classroom ● Houghton Mifflin Harcourt *Science Dimensions:* ○ Lesson explorations ○ Hands-on activities ○ Video-based projects ○ You Solve It activities ○ *Language SmArts* writing	**Varied Levels of Text:** ● Houghton Mifflin Harcourt *Science Dimensions* leveled readers ● “Rosie Revere Engineer” ● “The Most Magnificent Thing” by A. Spires ● “Marvelous Mattie: How Margaret E. Knight Became an Inventor” by E. McCully ● “Coppernickel The Invention” by W. van Reek ● “Hello Ruby: Adventures in Coding” by L. Liukas ● “If I Built a Car” by C. Van Dusen ● “Papa’s Mechanical Fish” by C. Fleming

Grade: 3	Content Area: Science

	● "What Do You Do With an Idea?" by K. Yamada ● *Handbook of Models*

Modifications and Accommodations
English Language Learners: ● Literacy and language support strategies including discourse ● Use a poster, slide, or picture to support student listening in science such as GLAD pictorial input chart ● Preview science texts with students, discussing salient text features such as tables, graphs, and photographs before they read it. ● Provide summaries and include native language texts. ● Provide sentence stems for all students to use, especially to support complex verbal practices like argumentation, explanation, and communication. ● **Writing**: Engage ELs in authentic vocabulary exploration as they try to make their thoughts meaningful to others through writing. Provide dictionaries or Google Translate. Look beyond grammar and spelling to understand student ideas. ● Home culture connections ● pictures and well labeled models ● Speak slowly and gesture when necessary ● Pre-teach vocabulary words ● Extended time on assessments ● Small group for assessment ● Review Vocabulary ● Allow for alternate responses during activities and assessments **Special Education/504 Plans/Students with Disabilities:** ● Follow specific IEP/504 accommodations and modifications ● Strategic grouping ● Pre-teach concepts ● Small group for assessments ● Check in's during experiments to help refocus ● Allow alternate assignments and assessments ● Differentiated instruction **Students at Risk of Failure:** ● Strategic grouping ● Pre-teach concepts ● Small group for assessments ● Check in's during experiments to help refocus ● Incorporate social/emotional discussions ● Encourage and monitor positive peer collaboration

Grade: 3	Content Area: Science

- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectations, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Be flexible with assignments
- Offer several alternatives from which all students can choose.
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input
- Connect concepts to students' sense of "place" as physical, historical, and sociocultural dimensions
- Ask questions that elicit students' funds of knowledge
- Use cultural artifacts that are meaningful
- Use project-based learning as a form of connected science
- Provide resources for science instruction

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions, props, realia, manipulatives, concrete materials, visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students
- Use cultural artifacts that are meaningful relevant
- Integrate community involvement
- Include role models and mentors of similar racial or ethnic backgrounds

Long Beach Island Consolidated School District

Grade: 3	Content Area: Science

Unit 2: Forces	Duration: 20 days

Standards/Learning Targets

New Jersey Student Learning Standards:

- **3-PS2-1-** Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
- **3-PS2-3-** Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
- **3-PS2-4-** Define a simple design problem that can be solved by applying scientific ideas about magnets.

Performance Expectation

3-PS2-1- Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

Science and Engineering Practices	Disciplinary Core Ideas
Asking Questions and Defining Problems- ● Ask questions that can be investigated based on patterns such as cause and effect relationships. ● 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. ● Identify the evidence that supports particular points in an explanation ● Science investigations use a variety of methods, tools, and techniques.	**PS2.B: Types of Interactions-** ● 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. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.) (3-PS2-1) ● Objects in contact exert forces on each other.
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified, tested, and used to explain	● Students ask questions that arise from observations of two objects not in contact with each other interacting through electric

Grade: 3	Content Area: Science

change. ● Energy can be transferred in various ways and between objects.	or magnetic forces, the answers to which would clarify the cause and effect relationships between: ○ The sizes of the forces on the two interacting objects due to the distance between the two objects. ○ The relative orientation of two magnets and whether the force between the magnets is attractive or repulsive. ○ The presence of a magnet and the force the magnet exerts on other objects. ○ Electrically charged objects and an electric force. ● Students' questions can be investigated within the scope of the classroom.

Performance Expectation	
3-PS2-3- Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. [Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paper clips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.] [Assessment Boundary: Assessment is limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Asking Questions and Defining Problems- ● Ask questions that can be investigated based on patterns such as cause and effect relationships.	**PS2.B: 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

Grade: 3	Content Area: Science

	orientation relative to each other.
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified, tested, and used to explain change.	● Students ask questions that arise from observations of two objects not in contact with each other interacting through electric or magnetic forces, the answers to which would clarify the cause and effect relationships between: ○ The sizes of the forces on the two interacting objects due to the distance between the two objects. ○ The relative orientation of two magnets and whether the force between the magnets is attractive or repulsive. ○ The presence of a magnet and the force the magnet exerts on other objects. ○ Electrically charged objects and an electric force. ● Students' questions can be investigated within the scope of the classroom.

Performance Expectation	
3-PS2-4- Define a simple design problem that can be solved by applying scientific ideas about magnets.* [Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Asking Questions and Defining Problems- ● Define a simple problem that can be solved through the development of a new or improved object or tool.	**PS2.B: 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.

Grade: 3	Content Area: Science

Crosscutting Concepts	Learning Objectives
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.	● Students identify and describe a simple design problem that can be solved by applying a scientific understanding of the forces between interacting magnets. ● Students identify and describe the scientific ideas necessary for solving the problem, including: ○ Force between objects do not require that those objects be in contact with each other ○ The size of the force depends on the properties of objects, distance between the objects, and orientation of magnetic objects relative to one another. ● Students identify and describe the criteria (desirable features) for a successful solution to the problem. ● Students identify and describe the constraints.

Primary Interdisciplinary Connections:

- **ELA/Literacy-**
  - RI.3.1 Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
  - RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text using language that pertains to time, sequence, and cause and effect.
  - RI.3.8 Describe the logical connection between particular sentences and paragraphs in a text (eg., comparison, cause/effect, first/second/third in a sequence).
  - W.3.7 Conduct short research topics that build knowledge about a topic
  - W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories
  - SL.3.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
- **Mathematics-**
  - MP.2 Reason abstractly and quantitatively.
  - MP.5 Use appropriate tools strategically.
  - 3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using

Grade: 3	Content Area: Science

drawings (such as a beaker with a measurement scale) to represent the problem.
    - Science example: Estimate, then measure, the masses of two objects being used in an investigation of the effect of forces; observe that the change of motion due to an unbalanced force is larger for the smaller mass (students need not explain or quantify this observation in terms of Newton's laws of motion).

Technology Standards:

- A. Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations
- 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems
- B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- E: Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

21st Century Life and Careers

9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Career Ready Practices:

- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Evidence of Student Learning

Formative Tasks:

- Ask questions that can be investigated based on patterns such as cause-and-effect relationships.
- Ask questions to determine cause-and-effect relationships in electric or magnetic interactions between two objects not in contact with each other.
- Define a simple problem that can be solved through the development of a new or improved object or tool.

Alternative Assessments:

- Self assessment
- Peer assessment
- Verbal response/illustration
- Group Work/Class Discussion
- Rubric Guided Observations
- Question Starters
- Modified Tests/Quizzes/Classwork

Grade: 3	**Content Area: Science**

● Explain cause and effect relationships of how the distance between magnets affect strength of forces and how the orientation of magnets affects direction of forces ● Explain difference between force exerted by one magnet versus two ● Explain the relationship of the force between electromagnet and number of paperclips that are attracted to electromagnet ● Students develop investigations to test effects of slope on motion of cars ● Students use magnets to repel cars ● Lesson quizzes, Lesson reviews ● Short performance tasks	
Summative Assessments: ● End of the unit assessment ● Unit Project ● Performance Assessment ● Investigative assessments ● Graphic Organizers & Guided Note Taking ● Cooperative Group Learning	**Benchmark Assessments:** ● Pre tests ● Beginning of the year, mid year and end of the year SGO
Knowledge & Skills	

Long Beach Island Consolidated School District

Grade: 3	Content Area: Science

Enduring Understandings:	Essential Questions:
● The effect of unbalanced forces on an object results in a change of motion. ● Patterns of motion can be used to predict future motion. Some forces act through contact, some forces act even when objects are not in contact. ● The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. ● The effect of unbalanced forces on an object results in a change of motion. ● Patterns of motion can be used to predict future motion. ● Some forces act through contact, some forces act even when objects are not in contact.	● What are the effects of balanced and unbalanced forces on the motion of an object? ● How can you utilize a pattern to predict future motion? ● What is the relationship between electric or magnetic interactions between two objects not in contact? ● How can I solve a design problem using what I have learned about magnet? ● What are the effects of balanced and unbalanced forces on the motion of an object? ● How can you utilize a pattern to predict future motion? ● What is the relationship between electric or magnetic interactions between two objects not in contact? ● How can I solve a design problem using what I have learned about magnets?
Core Instructional & Supplemental Materials	
Suggested Activities/Resources: ● Houghton Mifflin Harcourt *Science Dimensions*: ○ Lesson explorations ○ Hands-on activities ○ Video-based projects ○ Virtual roller coaster lab ○ Performance tasks ● Students create a marble maze that is propelled by a force other than their hands ● Students investigate slow versus fast walking ● Students investigate factors that affect pendulum swing ● Better Lesson https://betterlesson.com/lesson/632779/force-and-motioninvestigation8 ● Students will rub a balloon against shirt which builds up negative charges on the surface of the balloon. These charges attract to the positive charges on the static ghost, causing the ghost to move.	**Varied Levels of Text:** ● *Forces All Around* ● *Handbook of Forces* ● *What My Sister Taught Me About Magnets* ● Hoverboard ● *Forces Make Things Move* by Kimberly Bradley ● *Gravity is a Mystery by* Franklyn Branley ● *Walking Upside Down by* Phillip Heckman ● *Move It! Motion, Forces, and You by* Adrienne Mason

Grade: 3	Content Area: Science

http://www.hookedonscience.org/files/2015_Experiment_Archive_STATIC_ELECTRICITY_GHOST.pdf • Students will add blocks to a structure which allows the center of gravity to shift from right to left. • http://www.hookedonscience.org/files/2017_Experiment_Archive_Block_Balance.pdf	

Modifications and Accommodations

English Language Learners:
- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended time on assessments
- Small group for assessment
- Review Vocabulary
- Allow for alternate responses during activities and assessments

Special Education/504 Plans/Students with Disabilities:
- Follow specific IEP/504 accommodations and modifications
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Allow alternate assignments and assessments

Students at Risk of Failure:
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:
- Provide clear, achievable expectations, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Be flexible with assignments
- Offer several alternatives from which all students can choose.
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.

Grade: 3	**Content Area: Science**

- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions, props, realia, manipulatives, concrete materials, visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Long Beach Island Consolidated School District

Grade: 3	Content Area: Science

Unit 3: Motion	Duration: 20 days

Standards/Learning Targets

New Jersey Student Learning Standards:

- **3-PS2-2-** Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

Performance Expectation

3-PS2-2- Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. [Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a seesaw.] [Assessment Boundary: Assessment does not include technical terms such as period and frequency.]

Science and Engineering Practices	Disciplinary Core Ideas
Planning and Carrying Out Investigations- ● Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. ● 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. ● Describe, measure, estimate, and/or graph quantities (e.g., area, volume, weight, time) to address scientific and engineering questions and problems. **Science Knowledge is Based on Empirical Evidence-** ● Science findings are based on recognizing patterns.	**PS2.A: Forces and Motion-** ● The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed) ● 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. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.)
Crosscutting Concepts	**Learning Objectives**

Grade: 3	Content Area: Science

Patterns- ● Patterns of change can be used to make predictions. ● Cause and effect relationships are routinely identified, tested, and used to explain change. ● Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process. (3-PS2-4)	● From the given investigation plan, students identify and describe the phenomenon under investigation, which includes observable patterns in the motion of an object. ● Students identify and describe the purpose of the investigation, which includes providing evidence for an explanation of the phenomenon that includes the idea that patterns of motion can be used to predict future motion of an object. ● Based on a given investigation plan, students identify and describe the data to be collected through observations and/or measurements, including data on the motion of the object as it repeats a pattern over time (e.g., a pendulum swinging, a ball moving on a curved track, a magnet repelling another magnet). ● Students describe how the data will serve as evidence of a pattern in the motion of an object and how that pattern can be used to predict future motion. ● From the given investigation plan, students identify and describe how the data will be collected.

Primary Interdisciplinary Connections:

- **ELA/Literacy-**
  - RI.3.1 Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
  - RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text using language that pertains to time, sequence, and cause and effect.
  - RI.3.8 Describe the logical connection between particular sentences and paragraphs in a text (eg., comparison, cause/effect, first/second/third in a sequence).
  - W.3.7 Conduct short research topics that build knowledge about a topic
  - W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories

Grade: 3	Content Area: Science

- SL.3.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

- **Mathematics-**
  - MP.2 Reason abstractly and quantitatively.
  - MP.5 Use appropriate tools strategically.
  - 3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings to represent the problem.
  - As part of this work, teachers should give students opportunities to work with continuous quantities: Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.
  - Science example: Estimate, then measure, the masses of two objects being used in an investigation of the effect of forces; observe that the change of motion due to an unbalanced force is larger for the smaller mass (students need not explain or quantify this observation in terms of Newton's laws of motion).

Technology Standards:

- A. Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
- B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- E: Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

21st Century Life and Careers

9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Century Career Ready Practices

- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Evidence of Student Learning	
Formative Tasks:	**Alternative Assessments:**

Grade: 3	**Content Area: Science**

● Ask questions that can be investigated based on patterns such as cause-and-effect relationships. ● Ask questions to determine cause-and-effect relationships in electric or magnetic interactions between two objects not in contact with each other. ● Define a simple problem that can be solved through the development of a new or improved object or tool. ● Explain cause and effect relationships of how the distance between magnets affect strength of forces and how the orientation of magnets affects direction of forces ● Explain difference between force exerted by one magnet versus two ● Explain force between electromagnet and paperclips ● Students develop investigations to test effects of slope on motion of cars ● Students create a device to keep toy cars away from each other ● Lesson quizzes, Lesson reviews ● Short performance tasks	● Self assessment ● Peer assessment ● Verbal response/illustration ● Modified tests, quizzes ● Group work/peer assessment ● Rubric for observations
Summative Assessments: ● End of the unit assessment ● Unit Project ● Performance Assessment ● Investigative assessments ● Graphic Organizers & Guided Note Taking ● Cooperative Group Learning	**Benchmark Assessments:** ● Pre test ● Beginning of the year, mid-year, end of the year SGO
Knowledge & Skills	

Long Beach Island Consolidated School District

Grade: 3	**Content Area: Science**

Enduring Understandings:	**Essential Questions:**
● The effect of unbalanced forces on an object results in a change of motion. ● Patterns of motion can be used to predict future motion. Some forces act through contact, some forces act even when objects are not in contact. ● The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. ● The effect of unbalanced forces on an object results in a change of motion. ● Patterns of motion can be used to predict future motion. ● Some forces act through contact, some forces act even when objects are not in contact.	● What are the effects of balanced and unbalanced forces on the motion of an object? ● How can you utilize a pattern to predict future motion? ● What is the relationship between electric or magnetic interactions between two objects not in contact? ● How can I solve a design problem using what I have learned about magnet? ● What are the effects of balanced and unbalanced forces on the motion of an object? ● How can you utilize a pattern to predict future motion? ● What is the relationship between electric or magnetic interactions between two objects not in contact? ● How can I solve a design problem using what I have learned about magnets?
Core Instructional & Supplemental Materials	
Suggested Activities/Resources: ● Houghton Mifflin Harcourt *Science Dimensions:* ○ Lesson explorations ○ Hands-on activities ○ Video-based projects ○ Virtual roller coaster lab ○ Performance tasks ● Students create a marble maze that is propelled by a force other than their hands ● Students investigate slow versus fast walking ● Students investigate factors that affect motion of pendulum swing ● Better Lesson https://betterlesson.com/lesson/632779/force-and-motioninvestigation8 ● Students will rub a balloon against shirt which builds up negative charges on the surface of the balloon. These charges attract to the positive charges on the static ghost, causing	**Varied Levels of Text:** ● *Forces All Around* ● *Handbook of Forces* ● *What My Sister Taught Me About Magnets* ● Hoverboard ● *Forces Make Things Move* by Kimberly Bradley ● *Gravity is a Mystery by* Franklyn Branley ● *Walking Upside Down by* Phillip Heckman ● *Move It! Motion, Forces, and You by* Adrienne Mason

Grade: 3	Content Area: Science

the ghost to move. *great activity to teach around Halloween. • http://www.hookedonscience.org/files/2015_Experiment_Archive_STATIC_ELECTRICITY_GHOST.pdf • Students will add blocks to a structure which allows the center of gravity to shift from right to left. • http://www.hookedonscience.org/files/2017_Experiment_Archive_Block_Balance.pdf	

Modifications and Accommodations

English Language Learners:
- Provide pictures and well labeled models
- Speak slowly and gesture when necessary
- Pre-teach vocabulary words
- Extended time on assessments
- Small group for assessment
- Review Vocabulary
- Allow for alternate responses during activities and assessments

Special Education/504 Plans/Students with Disabilities:
- Follow specific IEP/504 accommodations and modifications
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Allow alternate assignments and assessments

Students at Risk of Failure:
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:
- Provide clear, achievable expectations, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Be flexible with assignments

Grade: 3	Content Area: Science

- Offer several alternatives from which all students can choose.
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions, props, realia, manipulatives, concrete materials, visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Long Beach Island Consolidated School District

Grade: 3	Content Area: Science

Unit 4: Life Cycles and Inherited Traits	Duration: 20 days

Standards/Learning Targets

New Jersey Student Learning Standards:

- **3-LS1-1-** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death
- **3-LS3-1-** Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms

Performance Expectation

3-LS1-1- Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. [Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.]

Science and Engineering Practices	Disciplinary Core Ideas
Developing and Using Models- ● Develop models to describe phenomena. **Scientific Knowledge is Based on Empirical Evidence-** ● Science findings are based on recognizing patterns.	**LS1.B: 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.
Crosscutting Concepts	**Learning Objectives**
Patterns- ● Patterns of change can be used to make predictions.	● Students develop models (e.g., conceptual, physical, drawing) to describe the phenomenon. In their models, students identify the relevant components of their models. ● In the models, students describe relationships between components. ● Students use the models to describe that although organisms can display life cycles that look different, they all follow the same pattern. ● Students use the models to make predictions related to the

Grade: 3	Content Area: Science

	phenomenon, based on patterns identified among life cycles (e.g., prediction could include that if there are no births, deaths will continue and eventually there will be no more of that type of organism).

Performance Expectation	
3-LS3-1- Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Analyzing and Interpreting Data- ● Analyze and interpret data to make sense of phenomena using logical reasoning	**LS3.A: Inheritance of Traits-** ● Many characteristics of organisms are inherited from their parents. **LS3.B: Variation of Traits-** ● Different organisms vary in how they look and function because they have different inherited information.
Crosscutting Concepts	**Learning Objectives**
● **Patterns:** similarities and differences in patterns can be used to sort and classify natural phenomena.	● Students organize the data (e.g., from students' previous work, grade-appropriate existing datasets) using graphical displays (e.g., table, chart, graph). ● Students identify and describe patterns in the data. ● Students describe that the pattern of similarities in traits between parents and offspring, and between siblings, provides evidence that traits are inherited. ● Students describe that the pattern of differences in traits between parents and offspring, and between siblings, provides evidence that inherited traits can vary.

Grade: 3	Content Area: Science

	● Students describe that the variation in inherited traits results in a pattern of variation in traits in groups of organisms that are of a similar type.

Primary Interdisciplinary Connections:

- **ELA/Literacy–**
  - RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
  - RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea.
  - RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
  - W.3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
  - SL.3.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
- **Mathematics–**
  - MP.2 Reason abstractly and quantitatively.
  - MP.4 Model with mathematics.
  - 3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
  - As part of this work, teachers should give students opportunities to be quantitative in giving descriptions: 3.NF. Number and Operations—Fractions 3.NBT. Number and Operations in Base Ten
  - Science example: Be quantitative when describing the life cycles of organisms, such as their varying lifespans (e.g., ranging from a fraction of a year up to thousands of years) and their varying reproduction (e.g., ranging from a handful of offspring to thousands).

Technology Standards:

- B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Long Beach Island Consolidated School District

Grade: 3	Content Area: Science

21st Century Life and Careers
9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Century Career Ready Practices:
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.

Evidence of Student Learning

Formative Tasks:
- Lesson quizzes,
- Lesson reviews
- Evidence notebooks
- *Language SmArts* writing assignments

Alternative Assessments:
- Verbal response/illustration
- Develop and explain model
- Group Work/Class Discussion
- Rubric Guided Observations
- Student Self-Assessment
- Question Starters
- Modified Tests/Quizzes/Classwork

Summative Assessments:
- End of the unit assessment/test
- Performance Assessment
- Unit Project
- Students' End of unit explanations
- Investigative assessments
- Graphic Organizers & Guided Note Taking
- Cooperative Group Learning

Benchmark Assessments:
- Pre test
- Beginning of the year, mid-year, end of the year SGO

Knowledge & Skills

Enduring Understandings:
- Reproduction is essential to every kind of organism.
- Organisms have unique and diverse life cycles.
- 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.

Essential Questions:
- What are the components of life cycles that all organisms share, and how do they differ?
- Do all plant and animal offspring inherit the same traits?
- How are traits influenced by the environment?
- How do variations and characteristics provide advantages in nature?

Long Beach Island Consolidated School District

Grade: 3	**Content Area: Science**

Core Instructional & Supplemental Materials	
Suggested Activities/Resources: ● Houghton Mifflin Harcourt *Science Dimensions:* ○ Lesson explorations ○ Hands-on activities ○ Virtual Lab ○ Video Based projects ○ Performance tasks ● Students will compare and contrast the life cycles of butterflies and grasshoppers as well as illustrate each step of the life cycle in their notebooks or on the pages provided. ● https://betterlesson.com/lesson/637832/life-cycleslesson-1-butterflies-and-grasshoppers ● Just as scientists classify organisms based on specific criteria, during this introductory lesson on classifying, students classify seashells by the criteria they have agreed upon collaboratively. Start with a full bucket of various seashells and have students discuss different patterns within seashells. ● https://betterlesson.com/lesson/614384/she-sortsseashells-by-the-seashore	**Varied Levels of Text:** ● Houghton Mifflin Harcourt leveled readers ● *Secrets of Animal Life Cycles*- Andrew Solway ● *Life Cycles*- Julian Sayarer ● *The Tiny Seed*- Eric Carle ● *Tadpole's Promise*- Jeanne Willis

Modifications and Accommodations
English Language Learners: ● Provide pictures and well labeled models ● Speak slowly and gesture when necessary ● Pre-teach vocabulary words ● Extended time on assessments ● Small group for assessment ● Review Vocabulary

Grade: 3	Content Area: Science

- Allow for alternate responses during activities and assessments

Special Education/504 Plans/Students with Disabilities:

- Follow specific IEP/504 accommodations and modifications
- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Allow alternate assignments and assessments

Students at Risk of Failure:

- Strategic grouping
- Pre-teach concepts
- Small group for assessments
- Check in's during experiments to help refocus
- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectations, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Be flexible with assignments
- Offer several alternatives from which all students can choose.
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education

Grade: 3	Content Area: Science

- Communicate high expectations for the success of all students

Unit 5: Organisms and Their Environments	Duration: 20 days

Standards/Learning Targets

New Jersey Student Learning Standards:

- **3-LS2-1-** Construct an argument that some animals form groups that help members survive
- **3-LS3-2-** Use evidence to support the explanation that traits can be influenced by the environment
- **3-LS4-2 -** 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
- **3-LS4-3-** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all
- **3-LS4-4-** Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change

Performance Expectation	
3-LS2-1- Construct an argument that some animals form groups that help members survive.	
Science and Engineering Practices	**Disciplinary Core Ideas**
Engaging in Argument from Evidence- ● Construct an argument with evidence, data, and/or a model.	**LS2.D: Social Interactions and Group Behavior-** ● 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
Crosscutting Concepts	**Learning Objectives**
Cause and Effect-	● Students make a claim to be

Grade: 3	Content Area: Science

● Cause and effect relationships are routinely identified and used to explain change.	supported about a phenomenon. In their claim, students include the idea that some animals form groups and that being a member of that group helps each member survive. ● Students describe the given evidence, data, and/or models necessary to support the claim. ● Students evaluate the evidence to determine its relevance, and whether it supports the claim that being a member of a group has a survival advantage. ● Students describe whether the given evidence is sufficient to support the claim and whether additional evidence is needed. ● Students use reasoning to construct an argument connecting the evidence, data and/or models to the claim.

Performance Expectation	
3-LS3-2- Use evidence to support the explanation that traits can be influenced by the environment. [Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Constructing Explanations and Designing Solutions- ● Use evidence (e.g., observations, patterns) to support an explanation**.**	**LS3.A: Inheritance of Traits-** ● Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. **LS3.B: Variation of Traits-** ● The environment also affects the traits

Grade: 3	Content Area: Science

	that an organism develops.
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified and used to explain change.	● Students identify the given explanation to be supported, including a statement that relates the phenomenon to a scientific idea, including that many inherited traits can be influenced by the environment. ● Students describe the given evidence that supports the explanation, including: ○ Environmental factors that vary for organisms of the same type (e.g., amount or food, amount of water, amount of exercise an animal gets, chemicals in the water) that may influence organisms' traits. ○ Inherited traits that vary between organisms of the same type (e.g., height or weight of a plant or animal, color or quantity of the flowers). ○ Observable inherited traits of organisms in varied environmental conditions ● Students use reasoning to connect the evidence and support an explanation about environmental influences on inherited traits in organisms. In their chain of reasoning, students describe a cause and effect relationship between a specific causal environmental factor and its effect of a given variation in a trait (e.g., not enough water produces plants that are shorter and have fewer flowers than plants that had more water available).

Grade: 3	Content Area: Science

Performance Expectation	
3-LS4-2- 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. [Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
Constructing Explanations and Designing Solutions- ● Use evidence (e.g., observations, patterns) to construct an explanation.	**LS4.B: Natural Selection-** ● Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified and used to explain change.	● Students articulate a statement that relates the given phenomenon to a scientific idea, including that variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. ● Students use evidence and reasoning to construct an explanation for the phenomenon. ● Students describe the given evidence necessary for the explanation. ● Students use reasoning to logically connect the evidence to support the explanation for the phenomenon. Students describe a chain of reasoning.

Performance Expectation
3-LS4-3- Construct an argument with evidence that in a particular habitat some organisms can

Grade: 3	Content Area: Science

survive well, some survive less well, and some cannot survive at all. [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.]

Science and Engineering Practices	Disciplinary Core Ideas
Engaging in Argument from Evidence- ● Construct an argument with evidence.	**LS4.C: Adaptation-** ● For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified and used to explain change	● Students make a claim to be supported about a phenomenon. In their claim, students include the idea that in a particular habitat, some organisms can survive well, some can survive less well, and some cannot survive at all. ● Students describe the given evidence necessary for supporting the claim. ● Students evaluate the evidence to determine: ○ The characteristics of organisms that might affect survival. ○ The similarities and differences in needs among at least three types of organisms. ○ How and what features of the habitat meet the needs of each of the organisms (i.e., the degree to which a habitat meets the needs of an organism). ○ How and what features of the habitat do not meet the needs of each of the organisms (i.e., the degree to which a habitat does not meet the needs of an organism)

Grade: 3	Content Area: Science

Performance Expectation	
3-LS4-4- Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.* [Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
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. (3-LS4-4)	**LS2.C: 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. **LS4.D: Biodiversity and Humans-** ● Populations live in a variety of habitats, and change in those habitats affects the organisms living there.
Crosscutting Concepts	**Learning Objectives**
Systems and System Models- ● A system can be described in terms of its components and their interactions. **Interdependence of Engineering, Technology, and Science on Society and the Natural World-** ● Knowledge of relevant scientific concepts and research findings is important in engineering.	● Students make a claim about the merit of a given solution to a problem that is caused when the environment changes, which results in changes in the types of plants and animals that live there. ● Students describe the given evidence about how the solution meets the given criteria and constraints. This evidence includes: ○ A system of plants, animals, and a given environment within which they live before the given environmental change occurs. ○ A given change in the

Grade: 3	Content Area: Science

	environment. ○ How the change in the given environment causes a problem for the existing plants and animals living within that area. ○ The effect of the solution on the plants and animals within the environment. ○ The resulting changes to plants and animals living within that changed environment, after the solution has been implemented.

Primary Interdisciplinary Connections:

- **ELA/Literacy-**
  - RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS2-1)
  - RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-LS2-1)
  - W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-LS2-1)
- **Mathematics-**
  - MP.4 Model with Mathematics. (3-LS2-1)
  - 3.NBT Number and Operations in Base Ten (3-LS2-1)
  - Science example: Be quantitative when describing the group behaviors of animals (e.g., describe groups ranging in size from a handful up to thousands of animals).
  - Science examples: (1) Make a line plot to show the height of each of a number of plants grown from a single parent. Observe that not all of the offspring are the same size. Compare the sizes of the offspring to the size of the parent. (2) Make a similar plot for plants grown with insufficient water.
  - 3.MD.B.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets
  - Science examples: (1) Given a bar graph showing the number of flower species that were found in several different habitats, determine how many more flower species were found in grassy meadow than were found in dense forest. Would flower species be affected if a forest were to spread into its habitat? (2) Make a scaled bar graph to show the number of surviving individuals with and without an

Grade: 3	Content Area: Science

advantageous trait. How many more of the individuals with the advantageous trait survived?

Technology Standards:

- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- E: Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

21st Century Life and Careers

9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Century Career Ready Practices:

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP7. Employ valid and reliable research strategies.

Evidence of Student Learning

Formative Tasks	Alternative Assessments:
● Lesson quizzes ● Lesson reviews ● *Language SmArts* writing assignments ● Evidence notebooks	● Provide verbal or illustrated responses ● Group Work/Class Discussion ● Rubric Guided Observations ● Question Starters ● Modified Tests/Quizzes/Classwork ● Develop and explain models ● Engage in evidence-based argumentation
Summative Assessments: ● End of the unit assessment/test ● Performance Assessment ● Investigative assessments ● Claims, Evidence, Reasoning ● Graphic Organizers & Guided Note Taking ● Cooperative Group Learning	**Benchmark Assessments:** ● Pre-test ● Beginning of the year, mid year, end of year SGO

Grade: 3	Content Area: Science

Knowledge & Skills	
Enduring Understandings: ● When the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. ● Being part of a group helps animals obtain food, defend themselves, and cope with changes. ● Some living organisms resemble organisms that once lived on Earth. Fossils provide evidence about the types of organisms and environments that existed long ago. ● Differences in characteristics between individuals of the same species provide advantages in surviving and reproducing. ● Particular organisms can only survive in particular environments. ● Populations of organisms live in a variety of habitats. Change in those habitats affects the organisms living there.	**Essential Questions:** ● Why do some animals form groups to help members survive? ● How do fossils provide evidence of the organisms and the environments in which they lived long ago? ● How does the chosen habitat affect the survival rate of its inhabitants? ● Why do plants and animals change when their environment changes? ● What are some solutions to some problems that are caused by environmental changes? ● What is the impact of these changes on plants and animals?
Core Instructional & Supplemental Materials	
Suggested Activities/Resources: ● Houghton Mifflin Harcourt *Science Dimensions:* ○ Lesson explorations ○ Hands-on activities ○ Performance tasks ○ Virtual labs ○ Video-based projects ● Students use BrainPOP Jr. and/or BrainPOP resources to identify the roles that plants and animals play in	**Varied Levels of Text:** ● Houghton Mifflin Harcourt *Science Dimensions* leveled readers ● *Earthworms Underground* ● *Mystery Mouths* ● *Environment News* ● *Cockroach Robots* ● *Biomimicry Handbook* ● *Over and Under the Pond*- Kate Messner ● *Seashore*- Steve Parker

Grade: 3	Content Area: Science

various food chains during interactive game play. Students define vocabulary terms such as decomposer and producer and use those terms in class discussions and activities. https://educators.brainpop.com/lesson-plan/plantsanimals-lesson-plan-food-chain-game/?bptopic=ecosystems ● Students use BrainPOP resources to explore the relationships between organisms within an ecosystem. Students then build a virtual food web to support a selected animal using online game play. https://educators.brainpop.com/lesson-plan/food-fightgame-food-chains/?bp-topic=ecosystems ● What is the growth and development of a plant? Each student has a lima bean and a hand lens. Have them make detailed diagrams and chart their observations of the lima bean. Soak Lima beans, hand lens, paper towels, graphic organizer for modeling diagram 26 the lima beans in water overnight. Have students take apart the lima bean. Again, create a detailed diagram of the parts. Goal: students to be able to identify the parts of the seed and determine the development of the seed into a plant. ● Using quick germinating seeds, have the students plant them. Have them plant and observe and measure the plant's in order to track the data of the plants. Students are able to create a graph of their plant growth. (Dixie cups, potting soil, quick germinating seeds, chart for tracking) ● Plant Dissection: Draw a detailed diagram of the entire plant. Students are to dissect the flower to have a better understanding of the parts.	● *A Walk in the Rainforest*- Rebecca L. Johnson ● *Swamp*- Donald Silver

Grade: 3	Content Area: Science

Have them record and label each part. Using a ruler, measure the exact length of the flower. (ex. daffodils, lilies, iris, tulips work best) Students can glue the pieces of the plant into their science journal. Tulips, lilies, daffodils, iris (or any other large-stemmed flower), plastic knife (for teacher-use only), rulers, charts.	

Modifications and Accommodations
English Language Learners: ● Provide pictures and well labeled models ● Speak slowly and gesture when necessary ● Pre-teach vocabulary words ● Extended time on assessments ● Small group for assessment ● Review Vocabulary ● Allow for alternate responses during activities and assessments **Special Education/504 Plans/Students with Disabilities:** ● Follow specific IEP/504 accommodations and modifications ● Strategic grouping ● Pre-teach concepts ● Small group for assessments ● Check in's during experiments to help refocus ● Allow alternate assignments and assessments **Students at Risk of Failure:** ● Strategic grouping ● Pre-teach concepts ● Small group for assessments ● Check in's during experiments to help refocus ● Incorporate social/emotional discussions ● Encourage and monitor positive peer collaboration ● Provide academic resources for both home and school use ● Provide incentives to increase motivation and collaboration **Economically Disadvantaged:** ● Provide clear, achievable expectations, do not lower academic requirements for them. ● Build a safe and nurturing atmosphere ● Be flexible with assignments ● Offer several alternatives from which all students can choose.

Grade: 3	Content Area: Science

- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Grade: 3	Content Area: Science

Unit 6: Fossils	Duration: 20 days

Standards/Learning Targets

New Jersey Student Learning Standards:

- **3-LS4-1-** Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago

Performance Expectation

3-LS4-1- Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. [Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [*Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.*]

Science and Engineering Practices	Disciplinary Core Ideas
Analyzing and Interpreting Data- ● Analyze and interpret data to make sense of phenomena using logical reasoning. ● Construct and/or support an argument with evidence, data, and/or a model.	**LS4.A: Evidence of Common Ancestry and Diversity-** ● Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (Note: moved from K-2) ● Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.
Crosscutting Concepts	**Learning Objectives**
● Similarities and differences in patterns can be used to sort, classify, communicate, and analyze simple rates of change for natural phenomena and designed products. ● Patterns of change can be used to make predictions. ● Patterns of change can be used to make explanations.	● Students use graphical displays (e.g., table, chart, graph) to organize the given data. ● Students identify and describe relationships in the data, including: ○ That fossils represent plants and animals that lived long ago. ○ The relationships between the fossils of organisms and the

Grade: 3	Content Area: Science

Scale, Proportion, and Quantity- ● Observable phenomena exist from very short to very long time periods. **Scientific Knowledge Assumes an Order and Consistency in Natural Systems-** ● Science assumes consistent patterns in natural systems.	environments in which they lived (e.g., marine organisms, like fish, must have lived in water environments). ○ The relationships between types of fossils (e.g., those of marine animals) and the current environments where similar organisms are found. ○ That some fossils represent organisms that lived long ago and have no modern counterparts. ○ The relationships between fossils of organisms that lived long ago and their modern counterparts. ○ The relationships between existing animals and the environments in which they currently live.

Primary Interdisciplinary Connections:

- **ELA/Literacy-**
  - RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS2-1)
  - RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-LS2-1)
  - W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-LS2-1)
- **Mathematics-**
  - MP.4 Model with Mathematics. (3-LS2-1)
  - 3.NBT Number and Operations in Base Ten (3-LS2-1)
  - 3.MD.B.4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. Science example: Make a line plot to show the length of each fossil that is visible in a piece of shale. Do any of the fossils resemble modern organisms except for their size?

Technology Standards:

- C. Communication and Collaboration: Students use digital media and environments to

Grade: 3	Content Area: Science

communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- E: Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

21st Century Life and Careers
9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Century Career Ready Practices:
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP7. Employ valid and reliable research strategies.

Evidence of Student Learning

Formative Tasks ● Lesson quizzes ● Lesson reviews ● *Language SmArts* writing assignments ● Evidence notebooks	**Alternative Assessments:** ● Provide verbal or illustrated responses ● Group Work/Class Discussion ● Rubric Guided Observations ● Question Starters ● Modified Tests/Quizzes/Classwork ● Develop and explain models ● Engage in evidence-based argumentation
Summative Assessments: ● End of the unit assessment/test ● Performance Assessment ● Investigative assessments ● Claims, Evidence, Reasoning ● Graphic Organizers & Guided Note Taking ● Cooperative Group Learning	**Benchmark Assessments:** ● Pre-test ● Beginning of the year, mid year, end of year SGO

Grade: 3	**Content Area: Science**

Unit 7: Weather and Climate	**Duration: 20 Days**

Standards/Learning Targets

New Jersey Student Learning Standards:

- **3-ESS2-1-** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season
- **3-ESS2-2-** Obtain and combine information to describe climates in different regions of the world
- **3-ESS3.1-** Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard

Performance Expectation

3-ESS2-1- Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.]

Science and Engineering Practices	**Disciplinary Core Ideas**
Analyzing and Interpreting Data- ● Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships	**ESS2.D: 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.
Crosscutting Concepts	Learning Objectives
Patterns- ● Patterns of change can be used to make predictions.	● Students use graphical displays (e.g., table, chart, graph) to organize the given data by season using tables, pictographs, and/or bar charts, including: ○ Weather condition data from the same area across multiple seasons (e.g., average temperature, precipitation, wind direction).

Grade: 3	Content Area: Science

	○ Weather condition data from different areas (e.g., hometown and nonlocal areas, such as a town in another state). ● Students identify and describe patterns of weather conditions across: ○ Different seasons (e.g., cold and dry in the winter, hot and wet in the summer; more or less wind in a particular season). ○ Different areas (e.g., certain areas (defined by location, such as a town in the Pacific Northwest), have high precipitation, while a different area (based on location or type, such as a town in the Southwest) have very little precipitation).

Performance Expectation	
3-ESS2-2- Obtain and combine information to describe climates in different regions of the world.	
Science and Engineering Practices	**Disciplinary Core Ideas**
Obtaining, Evaluating, and Communicating Information- ● Obtain and combine information from books and other reliable media to explain phenomena. ● 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-** ● Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.
Crosscutting Concepts	**Learning Objectives**
Patterns-	● Students use books and other reliable

Grade: 3	Content Area: Science

● Patterns of change can be used to make predictions. ● Cause and effect relationships are routinely identified, tested, and used to explain change. ● Science affects everyday life. ● Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process.	media to gather information about: ○ Climates in different regions of the world (e.g., equatorial, polar, coastal, mid-continental). ○ Variations in climates within different regions of the world (e.g., variations could include an area's average temperatures and precipitation during various months over several years or an area's average rainfall and temperatures during the rainy season over several years). ● Students combine obtained information to provide evidence about the climate pattern in a region that can be used to make predictions about typical weather conditions in that region.

Performance Expectation	
3-ESS3-1- Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.* [Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.]	
Science and Engineering Practices	**Disciplinary Core Ideas**
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.	**ESS3.B: Natural Hazards-** ● A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (Note: This Disciplinary Core Idea is also addressed by 4- ESS3-2.)
Crosscutting Concepts	**Learning Objectives**
Cause and Effect- ● Cause and effect relationships are routinely identified, tested, and used to explain change.	● Students make a claim about the merit of a given design solution that reduces the impact of a weather-related hazard. ● Students describe the given evidence

Grade: 3	Content Area: Science

Connections to Engineering, Technology, and Applications of Science-

- Engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones).

Connections to Nature of Science-

- Science is a Human Endeavor
- Science affects everyday life.

about the design solution, including evidence about:

- The given weather-related hazard (e.g., heavy rain or snow, strong winds, lightning, flooding along river banks).
- Problems caused by the weather related hazard (e.g., heavy rains cause flooding, lightning causes fires).
- How the proposed solution addresses the problem (e.g., dams and levees are designed to control flooding, lightning rods reduce the chance of fires) [note: mechanisms are limited to simple observable relationships that rely on logical reasoning]

Primary Interdisciplinary Connections:

- **ELA/Literacy-**
  - RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-ESS2-2)
  - RI.3.9 Compare and contrast the most important points and key details presented in two texts on the same topic. (3-ESS2-2)
  - W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-ESS3-1)
  - W.3.7 Conduct short research projects that build knowledge about a topic. (3-ESS3-1) W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3- ESS2-2)
- **Mathematics-**
  - MP.2 Reason abstractly and quantitatively. (3-ESS2-1),(3-ESS2-2),(3-ESS3-1)
  - MP.4 Model with mathematics. (3-ESS2-1),(3-ESS2-2), (3-ESS3-1)
  - MP.5 Use appropriate tools strategically. (3-ESS2-1)
  - 3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (3-ESS2-1)

Grade: 3	Content Area: Science

- 3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in bar graphs. (3-ESS2-1)
- 3.MD.A.2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).15 Add, subtract, multiply, or divide to solve one step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.16 Science examples: (1) Estimate the mass of a large hailstone that damaged a car on a used-car lot. (2) Measure the volume of water in liters collected during a rainstorm.
- 3.MD.B.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in bar graphs. Science example: Make a picture graph or bar graph to show the number of days with high temperature below freezing in December, January, February, and March. How many days were below freezing this winter?
- 3.MD.C.6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). Science example: In Hawaii, some houses are raised on stilts to reduce the impact of a tsunami. The force of the tsunami on an object is greater if the object presents greater area to the incoming wave. Based on a diagram of a stilt house, determine how much area the stilts present to an incoming wave. How much area would the house present to an incoming wave if it were not on stilts?

Technology Standards:

- 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- E: Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.

21st Century Life and Careers

9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Century Career Ready Practices:

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.

Evidence of Student Learning

Long Beach Island Consolidated School District

Grade: 3	**Content Area: Science**

Formative Tasks:	**Alternative Assessments:**
● Predict patterns of weather data ● Represent data in graphs to reveal patterns of changes ● Analyze graphs of weather data ● 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. ● Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. Examples of design solutions to weather-related hazards could include: Barriers to prevent flooding, Wind-resistant roofs, Lightning rods ● Define a simple design problem that can be solved through the development of an object, tool, process, or system and include several criteria for success and constraints on materials, time, or cost. ● Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost	● Student Self-Assessment ● Verbal response/illustrations ● Rubric for observations ● Peer assessment ● Group work ● Modified assessments ● Develop and refine models; ● Generate, discuss and analyze data; ● Construct spoken and written scientific explanations; ● Engage in evidence-based argumentation; and ● Reflect on their own understanding.
Summative Assessments: ● End of the unit assessment/test ● Performance Assessment ● Unit Project ● End of unit explanations ● Investigative assessments ● Graphic Organizers & Guided Note Taking ● Cooperative Group Learning	**Benchmark Assessments:** ● Pre tests ● Beginning of the year, mid year and end of the year SGO
Knowledge & Skills	

Long Beach Island Consolidated School District

Grade: 3	**Content Area: Science**

Enduring Understandings:	**Essential Questions:**
• Climate describes patterns of typical weather conditions over different scales and variations. • Data in tables and graphical displays to describe typical weather conditions. • Weather patterns can be analyzed. • Solutions can be designed to reduce impact of a weather-related hazard.	• How do seasonal changes affect weather conditions? • How can I use data in tables and graphical displays to describe typical weather conditions? • How does the global location of a region determine the climate? • How do engineers design a solution to reduce the impact of a weather-related hazard?
Core Instructional & Supplemental Materials	

Suggested Activities/Resources:
• Houghton Mifflin Harcourt *Science Dimensions:*
  ○ Lesson explorations
  ○ Hands-on activities
  ○ Virtual labs
  ○ Video based projects
  ○ Performance assessments
• http://www.crayola.com/lesson-plans/weather-graphs-lesson-plan/ - (Crayola Weather Graphs)
• http://weather.thinkport.org/lesson-overview.html - (Are Our Homes Built for Severe Weather?-Lesson Activity)
• http://climatekids.nasa.gov/next-generation-standards/review// - (Climate Kids-Articles and Videos)
• https://betterlesson.com/next_gen_science/browse/2131/ngss-3-ess2-2-obtain-and-combine-information-to-describe-climates-in-different-regions-of-the-world/browse/2131/ngss-3-ess2-2-obtain-and-combine-information-to-describe-climates-in-different-regions-of-the-world?from=domain_core - (Climate & Weather-Lesson Ideas)
• http://education.nationalgeographic.com/education/activity/extreme-weather-on-earth/?ar_a=1 (Extreme Weather on Earth-Activity)
	Varied Levels of Text:
	• Houghton Mifflin Harcourt leveled readers (*Science Dimensions)*
	• *Sky Notebook*
	• *Seeing the World Through Numbers*
	• *What's Going On with the Weather?*
	• *Dangerous Weather Ahead*
	• *World Weather Handbook*
	• *Snowflake Bentley*- Jacqueline Briggs Martin
	• *Hurricanes*- Gail Gibbons
	• *Come On, Rain*!- Karen Hesse
	• *Albert*- Donna Jo Napoli

Grade: 3	Content Area: Science

• http://www.weatherwizkids.com/ - (Weather Whiz Kids-Info) • http://www.weatherforkids.org/ • Students will record the humidity for your location from www.weather.gov and whether the pinecone is open or closed each day. Represent your data in a table. After two weeks graph your data. What happens to the pinecone when the humidity is high? What happens to the pinecone when the humidity is low? Describe any weather patterns over the two weeks. Using the data describe the typical weather conditions expected during this time of the year. • http://www.hookedonscience.org/files/2015_Experiment_Archive_PINECONE_HYGROMETER.pdf34 • In this activity, students will conduct experiments or participate in demonstrations to answer questions about sky and weather phenomena. Students also will analyze and present data. http://www.earthsciweek.org/classroom-activities/skyand-cloud-windows • As a citizen scientist, students can take their own air temperatures with an outdoor thermometer and compare their readings to the official ones from the National Weather Service. It is important that you follow the correct procedures, however, for placing your thermometer. This activity will help students to do that, as well as find out what the normal yearly average temperature is for each day. http://www.earthsciweek.org/classroom-activities/stepstep-weather-observations • This guide provides an overview of unit concepts, a spark activity, vocabulary list, Internet links, and	

Grade: 3	Content Area: Science

extension activities. It describes unit resources and addresses misconceptions. Students will understand why it is clear one day and cloudy another day or why is it snowing in one location and sunny in another location. https://www.scienceaz.com/main/Download/resource/saz/id/326/unitId/13/format/single ● Measure the change in temperature of objects when placed under lamps or in the sunlight. (Lamps or sunlight, glass of water, thermometer, chart paper, timer)	

Modifications and Accommodations
English Language Learners: ● Provide pictures and well labeled models ● Speak slowly and gesture when necessary ● Pre-teach vocabulary words ● Extended time on assessments ● Small group for assessment ● Review Vocabulary ● Allow for alternate responses during activities and assessments **Special Education/504 Plans/Students with Disabilities:** ● Follow specific IEP/504 accommodations and modifications ● Strategic grouping ● Pre-teach concepts ● Small group for assessments ● Check in's during experiments to help refocus ● Allow alternate assignments and assessments **Students at Risk of Failure:** ● Strategic grouping ● Pre-teach concepts ● Small group for assessments ● Check in's during experiments to help refocus

Grade: 3	Content Area: Science

- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectation, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Be flexible with assignments
- Offer several alternatives from which all students can choose.
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions, props, realia, manipulatives, concrete materials, visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students