

Long Beach Island Consolidated School District Curriculum Guide

Grade: 3	Content Area: Science
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Introduction

In these units of study, students explore concepts involving forces and motion, traits and life cycles, organisms and their environment, and weather. Throughout the units, students will use science and engineering practices such as asking questions and defining problems, analyzing and interpreting data, constructing explanations, and designing solutions. Crosscutting concepts include patterns, cause and effect, interdependence of science, engineering, and technology, and the influence of engineering, technology, and science on society and the natural world. Students use these practices and crosscutting concepts to demonstrate understanding of the science ideas.

Grade 3: Science
Original Adoption: October 23, 2018
Revised on: March 18, 2019
Revised by: C. McBride
Revised on: August 16 2022
Revised by: C. McBride

Recommended Pacing Guide	
Unit 1: Motion and Forces	25 Days
Unit 2: Electricity and Magnetism	25 Days
Unit 3: Weather	25 Days
Unit 4: Climate	20 days
Unit 5: Life Cycles and Traits	20 days

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Grade: 3	Content Area: Science
Unit 1: Motion and Forces	Duration: 25 days
Science Standards 3-PS2-1, 3-PS2-2	
Disciplinary Core Ideas PS2.A Forces and Motion Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. PS2.B Types of Interactions Objects in contact exert forces on each other	
Science and Engineering Practices SEP.3 Planning and Carrying Out Investigations Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.	
Crosscutting Concepts CCC.2 Cause and Effect Cause and Effect relationships are routinely identified	
Connections to Nature of Science Science is a Human Endeavor Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.	
Computer Science and Design Thinking Standards 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. 8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task. (3-PS2-1, 3-PS2-2)	
Interdisciplinary Standards ELA/Literacy W.3.7 Conduct short research projects that build knowledge about a topic W.3.8 Recall information from experiences or gather information from print and digital sources; take notes on sources and sort evidence into provided categories	

Enduring Understandings
Science investigations use a variety of methods, tools, and techniques. Cause and effect relationships are routinely identified. Objects in contact exert forces on each other. Each force that acts on a particular object has both strength and a direction.

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An object at rest typically has multiple forces acting on it, but they add to 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

Essential Questions

What is a force and how do you describe forces?
 What is net force and how does this affect an object's motion?
 How do scientists and engineers use noncontact forces to move objects?

Career Readiness, Life Literacies, and Key Skills Practices

The following skills are encouraged and taught:
 Demonstrate creativity and innovation.
 Utilize critical thinking to make sense of problems and persevere in solving them.
 Use technology to enhance productivity increase collaboration and communicate effectively
 Work productively in teams while using cultural/global competence.

Career Readiness, Life Literacies, and Key Skills Standards

9.4.5.TL.3: Format a document using a word processing application to enhance text, change page formatting, and include appropriate images graphics, or symbols

LGBT and Disabilities Law N.J.S.A 18A:35-4.35 Instruction on the political, economic, and social integration of persons with disabilities and lesbian, gay, bisexual, and transgender people, in an appropriate place in the curriculum

Amistad Law: N.J.S.A 18A:52:16A-88-4.35 Instruction regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of secondary school students.

Holocaust Law N.J.S.A 18A:35-28
 Instruction on the Holocaust and genocides in an appropriate place in the curriculum with an emphasis on the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

Student Learning Goals/Objectives

<p><i>Students will know:</i> How to observe and measure an object's motion How to use patterns to predict future motion of an object Identify forces acting on objects</p>	<p><i>Students will be able to:</i> 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-PS2-2 Make observations and/or</p>
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<p>How scientists and engineers use noncontact forces to move objects.</p>	<p>measurements of an object's motion to provide evidence that a pattern can be used to predict future motion..</p> <p>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</p>
Assessment Evidence	
<p>Performance Tasks</p> <p>Use observations and measurements to explore and explain how things move</p> <p>Plan and conduct investigations to collect evidence for how things move and use patterns in data to predict future motion of objects</p> <p>Design and build a bridge using only three materials, design and build a robotic arm, or design an build a structure to hold up an object</p> <p>Research how scientists and engineers use gravity, magnetism, or electricity to move objects.</p>	<p>Other Assessments</p> <p>Formative:</p> <ul style="list-style-type: none"> ● Lesson quizzes, and reviews ● Student investigations and models ● Language Arts writing activities ● Graphic Organizers & Guided Notes ● Directed Reading ● Cooperative Group Learning ● Homework ● Journal Entries ● Exit Tickets ● Polls/ Surveys/ Evaluation ● Jigsaw ● Think, Pair, Share ● Quizzes <p>Alternative:</p> <ul style="list-style-type: none"> ● Modified tests and quizzes ● Group work ● Peer assessments ● Labs ● Projects ● Portfolio Assessments <p>Summative</p> <ul style="list-style-type: none"> ● Unit Test/Topic Test ● Unit Project ● Performance Assessment/Tasks ● Engineering projects <p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Unit pre-test ● Beginning of the year, mid year, and end of the year SGO

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Core Instructional & Supplemental Materials

Suggested Activities/Resources:

- Savvas Realize “Elevate Science”
 - Lesson explorations
 - Hands-on activities
 - Virtual Labs
 - Video based projects
 - Performance tasks
 - Engineering projects
 - Student investigations

http://www-tc.pbskids.org/designsquad/pdf/pa-rentseducators/DSN_NASA_MissionSolarSystem_RoboArm.pdf

Varied Levels of Text:

- leveled readers
- Newsela
- Storyworks
- Career Connections
- Tompert, A. (1996). *Just a little bit.*
- Walsh, E. (2010). *Balancing act*
- Waring, G. (2009). *Oscar and the cricket: A book about moving and rolling.*
- Mason, A. (2005). *Move it! Motion, forces, and you*

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
- 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.
- 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

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

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- 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
- 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
- Provide 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

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- Include role models and mentors of similar racial or ethnic backgrounds

Gifted and Talented

- Peer mediated strategies
- Cooperative learning groups
- Differentiated instruction

Presentation accommodations allow a student to:

- Vary the method of presentation: lecture, small groups, large group, demonstration, individual experimentation
- Explore real world connections
- Use technology tools to enhance content

Response accommodations allow a student to:

- Turn and Talk
- Reward risk taking while encouraging students to think “outside of the box”

Setting accommodations allow a student to:

- Use flexible seating
- Have choice in seating/grouping

Timing accommodations allow a student to:

- Have flexible pacing in terms of content, assignments, and assessments
- Explore extended activities

Scheduling accommodations allow a student to:

- Establish a timeline for completing a project
- Have rigorous Pacing

Organization skills accommodations allow a student to:

- Model executive functioning
- Utilize independent skills practices

Assignment modifications allow a student to:

- Complete enrichment tasks
- Write longer passages on essays and open ended responses including academic vocabulary
- Answer higher order thinking questions
- Cite text evidence
- Create alternate projects or assignments, student developed rubrics, student choice when completing a project or alternate labs

Curriculum modifications provide:

- Topics of interest to the student and/or relevant to how the world works
- Students access to supplemental reading materials matched to individual student lexiles
- Opportunities for open-ended, self-directed activities
- Opportunities to get graded or assessed using a different standard than the one for others

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Unit 2: Electricity and Magnetism	Duration: 25 days
Science Standards 3-PS2-3, 3-PS2-4	
Disciplinary Core Ideas PS2.A Forces and Motion Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion.	
Science and Engineering Practices SEP.3 Planning and Carrying Out Investigations Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.	
Crosscutting Concepts CCC.2 Cause and Effect Cause and Effect relationships are routinely identified	
Connections to Nature of Science Science is a Human Endeavor Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.	
Computer Science and Design Thinking Standards 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. 8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.	
Interdisciplinary Standards ELA/Literacy W.3.8 Recall information from experiences or gather information from print and digital sources; take notes on sources and sort evidence into provided categories	

Enduring Understandings
Cause and effect relationships are routinely identified, tested, and used to explain change. 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.

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Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process. People's needs and wants change over time, as do their demands for new and improved technologies.

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.

For forces between two magnets, the size of the force depends on their orientation relative to each other.

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.

Essential Questions

How do magnetic forces affect objects?
What factors affect the strength of magnetic forces?
What are electromagnets and how are they used?

Career Readiness, Life Literacies, and Key Skills Practices

The following skills are encouraged and taught:
Demonstrate creativity and innovation.
Utilize critical thinking to make sense of problems and persevere in solving them.
Use technology to enhance productivity increase collaboration and communicate effectively
Work productively in teams while using cultural/global competence.

Career Readiness, Life Literacies, and Key Skills Standards

9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions

LGBT and Disabilities Law N.J.S.A 18A:35-4.35 Instruction on the political, economic, and social integration of persons with disabilities and lesbian, gay, bisexual, and transgender people, in an appropriate place in the curriculum

Amistad Law: N.J.S.A 18A:52:16A-88-4.35 Instruction regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of secondary school students.

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Holocaust Law N.J.S.A 18A:35-28
 Instruction on the Holocaust and genocides in an appropriate place in the curriculum with an emphasis on the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

Student Learning Goals/Objectives

<p><i>Students will know:</i> How to move objects without touching them Causes and effects of electric forces between objects How to identify and test cause-and-effect relationships in order to explain change. How to ask questions that can be investigated based on patterns such as cause and effect relationships. How to ask questions to determine cause and effect relationships in electric or magnetic interactions between two objects not in contact with each other How electromagnets are used in technology</p>	<p><i>Students will be able to:</i> 4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction. 4-LS1-2 Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. 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.</p>
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Assessment Evidence

<p>Performance Tasks Investigate the force between two permanent magnets; The force between an electromagnet and steel paper clips; The force exerted by one magnet versus the force exerted by two magnets. Explain cause and effect relationships such as: How the distance between objects affects the strength of the force or how the orientation of magnets affects the direction of the magnetic force Define a simple problem that can be solved through the development of a new or improved object or tool. Define a simple design problem that can be solved by applying scientific ideas about magnets to sorting objects by weight 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</p>	<p>Other Assessments Formative:</p> <ul style="list-style-type: none"> ● Lesson quizzes, and reviews ● Student investigations and models ● Language Arts writing activities ● Graphic Organizers & Guided Notes ● Directed Reading ● Cooperative Group Learning ● Homework ● Journal Entries ● Exit Tickets ● Polls/ Surveys/ Evaluation ● Jigsaw ● Think, Pair, Share ● Quizzes <p>Alternative:</p> <ul style="list-style-type: none"> ● Modified tests and quizzes ● Group work ● Peer assessments
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<p>material, time, or cost. Develop and evaluate procedures to test forces Research the use of electromagnets in technology</p>	<ul style="list-style-type: none"> ● Labs ● Projects ● Portfolio Assessments <p>Summative</p> <ul style="list-style-type: none"> ● Unit Test/Topic Test ● Unit Project ● Performance Assessment/Tasks ● Engineering projects <p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Unit pre-test ● Beginning of the year, mid year, and end of the year SGO
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Core Instructional & Supplemental Materials
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<p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> ● Savvas Realize “Elevate Science” <ul style="list-style-type: none"> ○ Lesson explorations ○ Hands-on activities ○ Virtual Labs ○ Video based projects ○ Performance tasks ○ Engineering projects ○ Student investigations 	<p>Varied Levels of Text:</p> <ul style="list-style-type: none"> ● leveled readers ● Newsela ● Storyworks ● Career Connection p.377 ● <i>Hughes, M. (2015). Magnet Max.</i> ● <i>Rosinsky, N. (2002). Magnets: Pulling together, pushing apart.</i> ● <i>Watley, B (1993). That magnetic dog.</i> ● <i>Schanzer, R. (2002). How Ben Franklin stole the lightning</i> ● <i>Branley, F. (2016). What makes a magnet?</i> ● <i>Stewart, J. (2000). Magnets</i> ● <i>Alpert, B. (2011). A look at magnets</i> ● <i>Weakland, M. (2011). Magnets push, magnets pull</i>
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Modifications and Accommodations

<p>English Language Learners:</p> <ul style="list-style-type: none"> ● Provide pictures and well labeled models ● Speak slowly and gesture when necessary
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- Pre-teach vocabulary words
- Extended time on assessments
- Small group for assessment
- Review Vocabulary
- Allow for alternate responses during activities and assessments
- 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.
- 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

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
- 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

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- 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
- Provide 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

Gifted and Talented

- Peer mediated strategies
- Cooperative learning groups
- Differentiated instruction

Presentation accommodations allow a student to:

- Vary the method of presentation: lecture, small groups, large group, demonstration, individual experimentation
- Explore real world connections
- Use technology tools to enhance content

Response accommodations allow a student to:

- Turn and Talk
- Reward risk taking while encouraging students to think "outside of the box"

Setting accommodations allow a student to:

- Use flexible seating
- Have choice in seating/grouping

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Timing accommodations allow a student to:

- Have flexible pacing in terms of content, assignments, and assessments
- Explore extended activities

Scheduling accommodations allow a student to:

- Establish a timeline for completing a project
- Have rigorous Pacing

Organization skills accommodations allow a student to:

- Model executive functioning
- Utilize independent skills practices

Assignment modifications allow a student to:

- Complete enrichment tasks
- Write longer passages on essays and open ended responses including academic vocabulary
- Answer higher order thinking questions
- Cite text evidence
- Create alternate projects or assignments, student developed rubrics, student choice when completing a project or alternate labs

Curriculum modifications provide:

- Topics of interest to the student and/or relevant to how the world works
- Students access to supplemental reading materials matched to individual student lexiles
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Unit 3: Weather	Duration: 25 days
Science Standards 3-ESS2-1, 3-ESS3-1, 3-5 ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3	
Disciplinary Core Ideas ESS2.D: Weather and Climate Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.	
Science and Engineering Practices SEP.4 Analyzing and Interpreting Data Represent data in tables and various graphical displays (bar graphs) and pictographs) to reveal patterns that indicate relationships	
Crosscutting Concepts CCC.2 Cause and Effect Cause and Effect relationships are routinely identified	
Connections to Nature of Science Science is a Human Endeavor Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.	
Computer Science and Design Thinking Standards 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. (3-5 ETS1-1, 3-5 ETS1-2, 3-5 ETS1-3) 8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.	
Interdisciplinary Standards ELA/Literacy RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea MP.2 Reason abstractly and quantitatively MP.4 Model with mathematics	

Enduring Understandings
How water affects weather Patterns of change can be used to make predictions. People record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next Climate describes the range of an area's typical weather conditions and the extent to which those conditions vary over years.

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Essential Questions
<p>How does water affect weather? How do natural hazards affect people? How can we design solutions to reduce the impacts of natural hazards?</p>
Career Readiness, Life Literacies, and Key Skills Practices
<p><i>The following skills are encouraged and taught:</i> Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Use technology to enhance productivity increase collaboration and communicate effectively Work productively in teams while using cultural/global competence.</p>
Career Readiness, Life Literacies, and Key Skills Standards
<p>9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions (3-ESS2-1, 3-ESS3-1)</p> <p>LGBT and Disabilities Law N.J.S.A 18A:35-4.35 Instruction on the political, economic, and social integration of persons with disabilities and lesbian, gay, bisexual, and transgender people, in an appropriate place in the curriculum</p> <p>Amistad Law: N.J.S.A 18A:52:16A-88-4.35 Instruction regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of secondary school students.</p> <p>Holocaust Law N.J.S.A 18A:35-28 Instruction on the Holocaust and genocides in an appropriate place in the curriculum with an emphasis on the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.</p>

Student Learning Goals/Objectives	
<p><i>Students will know:</i> How water affects weather How to describe typical weather during certain seasons How to create bar graphs to represent weather data How to analyze and interpret weather data Weather hazards and how they affect people</p>	<p><i>Students will be able to:</i> 3-ESS2-1 Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season 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.</p>

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<p>A variety of natural hazards result from natural processes (e.g., flooding, fast wind, or lightning). Humans cannot eliminate natural hazards but can take steps to reduce their impacts. Engineers improve technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands.</p> <p>How to design a possible solution to a problem that is 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 criteria for success or how well each takes the constraints into account</p>	
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Assessment Evidence

<p>Performance Tasks Make predictions using patterns of change. Represent data in tables, bar graphs, and pictographs to reveal patterns that indicate relationships. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season Make predictions using patterns of change. Obtain and combine information from books and other reliable media to explain phenomena. Identify and test cause-and-effect relationships to explain change.</p> <p>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</p>	<p>Other Assessments Formative:</p> <ul style="list-style-type: none"> ● Lesson quizzes, and reviews ● Student investigations and models ● Language Arts writing activities ● Graphic Organizers & Guided Notes ● Directed Reading ● Cooperative Group Learning ● Homework ● Journal Entries ● Exit Tickets ● Polls/ Surveys/ Evaluation ● Jigsaw ● Think, Pair, Share ● Quizzes <p>Alternative:</p> <ul style="list-style-type: none"> ● Modified tests and quizzes ● Group work ● Peer assessments ● Labs ● Projects ● Portfolio Assessments
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<p>prevent flooding, Wind-resistant roofs or 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. Research one or two facts about a severe weather event and create a document to convey the facts.</p>	<p>Summative</p> <ul style="list-style-type: none"> ● Unit Test/Topic Test ● Unit Project ● Performance Assessment/Tasks ● Engineering projects <p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Unit pre-test ● Beginning of the year, mid year, and end of the year SGO
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Core Instructional & Supplemental Materials	
<p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> ● Savvas Realize “Elevate Science” <ul style="list-style-type: none"> ○ Lesson explorations ○ Hands-on activities ○ Virtual Labs ○ Video based projects ○ Performance tasks ○ Engineering projects ○ Student investigations 	<p>Varied Levels of Text:</p> <ul style="list-style-type: none"> ● leveled readers ● Newsela ● Storyworks ● Career Connection p.377 ● Rabe, T. (2004). Oh say can you say what’s the weather today?: All about weather ● Gibbons, G. (1993). Weather forecasting ● Dean. J. (2013). Freddy the frogcaster ● DeWitt, L. (2015). What will the weather be? ● Singer, M. (2001). On the same day in March: A tour of the world’s weather.

Modifications and Accommodations
<p>English Language Learners:</p> <ul style="list-style-type: none"> ● 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 ● Literacy and language support strategies including discourse

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- 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.
- 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

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:

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- Pre-teach concepts
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- 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
- 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

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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
- Provide 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
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Response accommodations allow a student to:

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- Reward risk taking while encouraging students to think “outside of the box”

Setting accommodations allow a student to:

- Use flexible seating
- Have choice in seating/grouping

Timing accommodations allow a student to:

- Have flexible pacing in terms of content, assignments, and assessments
- Explore extended activities

Scheduling accommodations allow a student to:

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- Have rigorous Pacing

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Organization skills accommodations allow a student to:

- Model executive functioning
- Utilize independent skills practices

Assignment modifications allow a student to:

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Unit 4: Climate	Duration: 20 days
Science Standards 3-ESS2-2	
Disciplinary Core Ideas ESS2.D Weather and Climate Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years	
Science and Engineering Practices SEP.2 Developing and Using Models Develop a model using an example to describe a scientific principle SEP.8 Obtaining, Evaluating, and Communicating Information Obtain and combine information from books and reliable media to explain phenomena	
Crosscutting Concepts CCC.1 Patterns Patterns can be used to make predictions	
Connections to Nature of Science Science is a Human Endeavor Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.	
Computer Science and Design Thinking Standards 8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim	
Interdisciplinary Standards ELA/Literacy RI.3.9 Compare and contrast the most important points and key details presented in two texts on the same topic MP.4 Model with mathematics	

Enduring Understandings
Patterns of change can be used to make predictions. Climate describes the range of an area's typical weather conditions and the extent to which those conditions vary over years Climate can change over time
Essential Questions
How can we describe the climate of different regions around the world?

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How can climate change over time?
 How can we model the greenhouse effect?
 How do changing glaciers show climate change?

Career Readiness, Life Literacies, and Key Skills Practices

The following skills are encouraged and taught:
 Demonstrate creativity and innovation.
 Utilize critical thinking to make sense of problems and persevere in solving them.
 Use technology to enhance productivity increase collaboration and communicate effectively
 Work productively in teams while using cultural/global competence.

Career Readiness, Life Literacies, and Key Skills Standards

9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions (3-ESS2-2)
 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content (3-ESS2-2)

LGBT and Disabilities Law N.J.S.A 18A:35-4.35 Instruction on the political, economic, and social integration of persons with disabilities and lesbian, gay, bisexual, and transgender people, in an appropriate place in the curriculum

Amistad Law: N.J.S.A 18A:52:16A-88-4.35 Instruction regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of secondary school students.

Holocaust Law N.J.S.A 18A:35-28
 Instruction on the Holocaust and genocides in an appropriate place in the curriculum with an emphasis on the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

Student Learning Goals/Objectives

Students will know:
 How to analyze patterns in temperature changes on a mountain
 Factors that affect climate
 How to describe climate in different parts of Earth
 How climate can change
 Analyze data to determine how scientists study climate change
 How to explain climate maps

Students will be able to:
 3-ESS2-2 Obtain and combine information to describe climates in different regions of the world

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Assessment Evidence	
<p>Performance Tasks Make predictions using patterns of change. Obtain and combine information from books and other reliable media to explain phenomena. Find examples of climate maps online</p>	<p>Other Assessments</p> <p>Formative:</p> <ul style="list-style-type: none"> ● Lesson quizzes, and reviews ● Student investigations and models ● Language Arts writing activities ● Graphic Organizers & Guided Notes ● Directed Reading ● Cooperative Group Learning ● Homework ● Journal Entries ● Exit Tickets ● Polls/ Surveys/ Evaluation ● Jigsaw ● Think, Pair, Share ● Quizzes <p>Alternative:</p> <ul style="list-style-type: none"> ● Modified tests and quizzes ● Group work ● Peer assessments ● Labs ● Projects ● Portfolio Assessments <p>Summative</p> <ul style="list-style-type: none"> ● Unit Test/Topic Test ● Unit Project ● Performance Assessment/Tasks ● Engineering projects <p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Unit pre-test ● Beginning of the year, mid year, and end of the year SGO

Core Instructional & Supplemental Materials	
<p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> ● Savvas Realize “Elevate Science” <ul style="list-style-type: none"> ○ Lesson explorations ○ Hands-on activities ○ Virtual Labs 	<p>Varied Levels of Text:</p> <ul style="list-style-type: none"> ● leveled readers ● Newsela ● Storyworks ● Career Connection

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<ul style="list-style-type: none">○ Video based projects○ Performance tasks○ Engineering projects○ Student investigations	<ul style="list-style-type: none">● Morris, M. (1995). Houses and homes● Aillaud, C. (2005). Recess at 20 below● Alberti, T. (2006). Climates
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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
- 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.
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Students at Risk of Failure:

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Economically Disadvantaged:

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Gifted and Talented

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- Cooperative learning groups
- Differentiated instruction

Presentation accommodations allow a student to:

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- Explore real world connections

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- Use technology tools to enhance content

Response accommodations allow a student to:

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- Reward risk taking while encouraging students to think “outside of the box”

Setting accommodations allow a student to:

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Timing accommodations allow a student to:

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Scheduling accommodations allow a student to:

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Organization skills accommodations allow a student to:

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Curriculum modifications provide:

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- Opportunities to get graded or assessed using a different standard than the one for others

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Grade: 3	Content Area: Science
Unit 5: Life Cycles and Traits	Duration: 20 days
Science Standards 3-LS1-1, 3-LS3-1, 3-LS3-2	
Disciplinary Core Ideas 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. LS3.B Variation of Traits Different organisms vary in how they look and function because they have different inherited information.	
Science and Engineering Practices SEP.2 Developing and Using Models Develop models to explain phenomena SEP.4 Analyzing and Interpreting Data Analyze and interpret data to make sense of phenomena using logical reasoning SEP.7 Engaging in Argument from Evidence Construct and/or support an argument with evidence, data or a model	
Crosscutting Concepts CCC.1 Patterns Patterns can be used to make predictions CCC.2 Cause and Effect Cause and effect relationships are routinely identified and used to explain change	
Connections to Nature of Science Science is a Human Endeavor Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.	
Computer Science and Design Thinking Standards 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. 8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.	
Interdisciplinary Standards ELA/Literacy RI.3.7 Use information gained from illustrations and the words in a text to demonstrate understanding of the text. MP.2 Reason abstractly and quantitatively	
Enduring Understandings	
Life cycles follow the same pattern	

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<p>Living things inherit characteristics from their parents Traits vary in a group of similar organisms The environment can influence the characteristics of living things</p>	
Essential Questions	
<p>How are life cycles similar? How can we use evidence to show that traits vary in groups of similar organisms? How can the environment influence the characteristics of living things?</p>	
Career Readiness, Life Literacies, and Key Skills Practices	
<p><i>The following skills are encouraged and taught:</i> Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Use technology to enhance productivity increase collaboration and communicate effectively Work productively in teams while using cultural/global competence.</p>	
Career Readiness, Life Literacies, and Key Skills Standards	
<p>8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data 8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim (3-LS3-2)</p>	
<p>LGBT and Disabilities Law N.J.S.A 18A:35-4.35 Instruction on the political, economic, and social integration of persons with disabilities and lesbian, gay, bisexual, and transgender people, in an appropriate place in the curriculum</p> <p>Amistad Law: N.J.S.A 18A:52:16A-88-4.35 Instruction regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of secondary school students.</p> <p>Holocaust Law N.J.S.A 18A:35-28 Instruction on the Holocaust and genocides in an appropriate place in the curriculum with an emphasis on the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.</p>	
Student Learning Goals/Objectives	
<p><i>Students will know:</i> How life cycles are similar How offspring compare to their parents</p>	<p><i>Students will be able to:</i> 3-LS1-1 Develop models to describe that organisms have unique and diverse life</p>

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Grade: 3	Content Area: Science
<p>How the environment influences characteristics of organisms Ecologist careers</p>	<p>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 3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment</p>
Assessment Evidence	
<p>Performance Tasks Compare life cycles to determine patterns Explain how offspring compare to their parents and how they inherit traits Conduct research to explain the effect of climate change on different environments Design a mystery creature with unique traits Research ecologist careers</p>	<p>Other Assessments Formative:</p> <ul style="list-style-type: none"> ● Lesson quizzes, and reviews ● Student investigations and models ● Language Arts writing activities ● Graphic Organizers & Guided Notes ● Directed Reading ● Cooperative Group Learning ● Homework ● Journal Entries ● Exit Tickets ● Polls/ Surveys/ Evaluation ● Jigsaw ● Think, Pair, Share ● Quizzes <p>Alternative:</p> <ul style="list-style-type: none"> ● Modified tests and quizzes ● Group work ● Peer assessments ● Labs ● Projects ● Portfolio Assessments <p>Summative</p> <ul style="list-style-type: none"> ● Unit Test/Topic Test ● Unit Project ● Performance Assessment/Tasks ● Engineering projects <p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Unit pre-test

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	<ul style="list-style-type: none">● Beginning of the year, mid year, and end of the year SGO
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Core Instructional & Supplemental Materials

Suggested Activities/Resources: <ul style="list-style-type: none">● Savvas Realize “Elevate Science”<ul style="list-style-type: none">○ Lesson explorations○ Hands-on activities○ Virtual Labs○ Video based projects○ Performance tasks○ Engineering projects○ Student investigations	Varied Levels of Text: <ul style="list-style-type: none">● leveled readers● Newsela● Storyworks● Career Connection● Kimura, K. (2011). 999 tadpoles.● Guiberson, B. (1991). Cactus hotel● Aston, D. (2011). A butterfly is patient.● Patent, D. (1989) Grandfather’s nose: Why we all look alike or different.● Leedy, L. (1993) Tracks in the sand● Eastman, P. (1998). Are you my mother?● Jenkins, S. (2008) What do you do with a tail like this?● Bardoe, C. (2015). Gregor Mendel: The friar who grew peas.● Miller, D. (2007) Arctic lights, arctic nights.● Peters, L. (2003). Our family tree: An evolution story.
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Modifications and Accommodations

English Language Learners: <ul style="list-style-type: none">● 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● Literacy and language support strategies including discourse● Use a poster, slide, or picture to support student listening in science such as GLAD

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pictorial input chart

- Preview science texts with students, discussing salient text features such as tables, graphs, and photographs before they read it.
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